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Matanuska-Susitna Borough



**Community
GROWTH**
SOLUTIONS STUDY

RECOMMENDATIONS

OCTOBER 2025

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Executive Summary

The Matanuska-Susitna Borough (MSB) is developing the Community Growth Solutions Study (Study) to support a safe, resilient, and progressive transportation system that can act as a catalyst for economic growth and improved quality of life across the region. In support of the Study, the MSB contracted HDR Engineering, Inc. to identify actionable solutions for addressing current and future transportation needs within the region, particularly in three key sub-areas: Fishhook Triangle, University-Medical or “UMED,” and Knik Goose Bay-Big Lake (KGB-Big Lake).

The Study is based on the MSB’s 2023–2028 Strategic Plan and draws from the 2022 Official Streets and Highways Plan (OSHP), Fishhook Comprehensive Plan, and MSB Core Area Plan. These sub-areas face common transportation issues such as connectivity gaps, access management, and infrastructure limitations, while also maintaining unique characteristics and community dynamics.

Through a comprehensive evaluation of the existing conditions, the project team identified the following MSB-wide transportation challenges:

- Lack of a Traffic Demand Model and household survey
- Inadequate access to crash and injury data for prioritizing safety improvements
- Poor roadway connectivity among subdivisions
- Access management deficiencies along key corridors
- Rising housing demand due to affordability challenges in Anchorage
- Evolving employment trends and increased remote/hybrid work
- Impacts from the school district’s open enrollment policy
- Limited land use policies that hinder development planning
- Deficiencies in active transportation facilities and transit services
- Absence of clear processes for managing roadway weight restrictions
- Lack of road powers, limiting long-term transportation planning

To help address these challenges, the Study offers strategic recommendations, including:

- Administrative actions
- Policy and code updates
- New or updated planning studies
- Increased coordination
- Potential new development nodes

The Study emphasizes recommendations to address local needs. These recommendations are based on analysis of existing plans, stakeholder interviews, a community growth

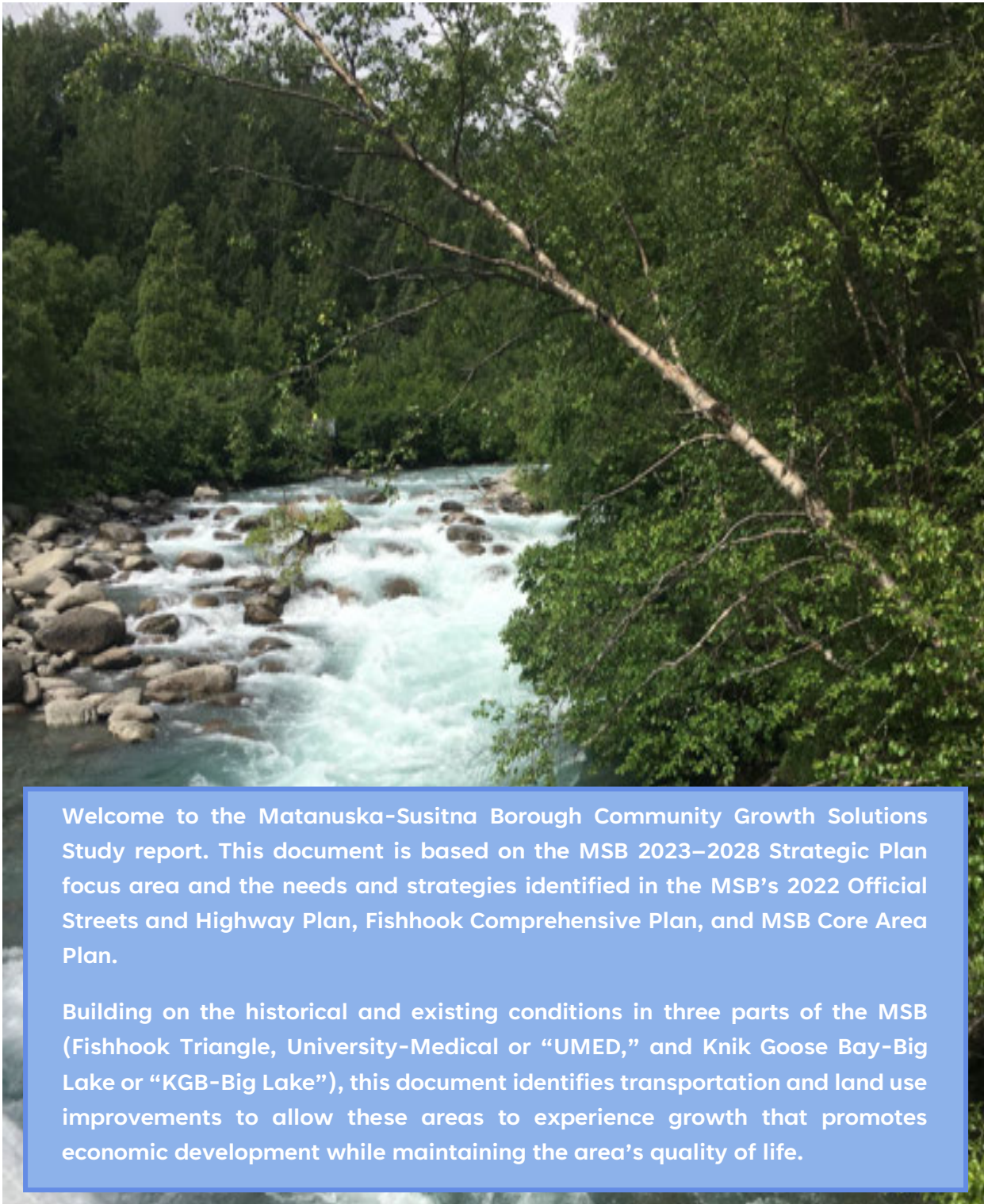
charrette, guidance from a Steering Committee, and input from multiple MSB departments. Table ES-1 summarizes these recommendations.

Table ES-1. Recommendations

Recommendation	Timeframe	Responsible Parties
Administrative Actions		
Strengthen Transportation Planning Process	Near Term	MSB
Policy/Code Updates		
Reestablish the Mandatory Land Use Permit	Near Term	MSB
Update Title 43 Platting Regulations	Near Term	MSB
Update Subdivision Construction Manual	Near Term	MSB
Follow the OSHP	Near Term	MSB
Implement Land Use Controls/Zoning	Near Term	MSB
Develop and Adopt Design Criteria Manual	Near Term	MSB
Increase Use of Incentives and Development Agreements	Near Term	MSB
Consider Impact Fees	Long Term	MSB
Adopt a Complete Streets Policy	Near Term	MSB
Develop a School Siting Policy	Near Term	MSB, MSB School District
Preserve Future Corridors	Near Term	MSB
Vision Zero Policy – Establish and Support an MSB Vision Zero or Safe Streets Working Group	Near Term	MSB, City of Houston, City of Palmer, City of Wasilla, MVP, DOT&PF, Alaska State Troopers, MSB School District, Mat-Su Health Foundation
Vision Zero Policy – Launch and Promote Targeted Safety and Education Campaigns	Near Term	MSB, DOT&PF, Alaska State Troopers, Palmer Police Department, Wasilla Policy Department, Alaska Highway Safety Office, MVP, Mat-Su Health Foundation, Connect Mat-Su, other public health and/or substance misuse prevention organizations
Vision Zero Policy – Align Street Design Guidelines with Complete Streets and Safe System Principles	Near Term	MSB, Municipality of Anchorage, City of Houston, City of Palmer, City of Wasilla, Knik Tribe
Safe Routes to School Policy	Near Term	MSB, DOT&PF
Create/Update Studies		
Update the OSHP and Long Range Transportation Plan on a Periodic Basis	Ongoing	MSB, DOT&PF
Update Comprehensive Plans	Ongoing	MSB, DOT&PF, City of Wasilla, City of Palmer, MVP
Create and Adopt Corridor Access Management Plans	Near Term	MSB, MVP

Recommendation	Timeframe	Responsible Parties
Coordinate Comprehensive Plans and Transportation Plans	Near Term	MSB, MVP, DOT&PF
Coordinate with Utility Providers	Ongoing	MSB, Utility Providers
Coordinate with the DOT&PF and Metropolitan Planning Organizations	Ongoing	MSB, DOT&PF, MVP
Coordinate with Gravel Pit Operators	Ongoing	MSB, Gravel Pit Operator
<i>Foster Development Nodes</i>		
Foster Development Nodes	Near Term	MSB, DOT&PF, City of Houston, City of Palmer, City of Wasilla, Local Businesses

Notes: DOT&PF = Alaska Department of Transportation and Public Facilities; MVP = Matanuska Valley Planning



Welcome to the Matanuska-Susitna Borough Community Growth Solutions Study report. This document is based on the MSB 2023–2028 Strategic Plan focus area and the needs and strategies identified in the MSB’s 2022 Official Streets and Highway Plan, Fishhook Comprehensive Plan, and MSB Core Area Plan.

Building on the historical and existing conditions in three parts of the MSB (Fishhook Triangle, University-Medical or “UMED,” and Knik Goose Bay-Big Lake or “KGB-Big Lake”), this document identifies transportation and land use improvements to allow these areas to experience growth that promotes economic development while maintaining the area’s quality of life.

1 Introduction

The Matanuska-Susitna Borough (MSB) is known for its natural beauty, lakes, mountains, rivers and streams, fish and wildlife resources, recreation opportunities, lower property values compared to the neighboring Municipality of Anchorage, limited land use regulations, proximity to Anchorage, and rapid population growth. The natural features that make the MSB a great place to live also hinder the development of a safe and efficient transportation system. Improving the MSB's existing transportation network is essential to preserving the MSB quality of life.

The MSB is developing the Community Growth Solutions Study (Study), with the goal of supporting a safe, robust transportation system that can be a catalyst for economic growth and prosperity in the MSB. The purpose of Study is to identify infrastructure and non-infrastructure solutions to transportation needs in three sub-areas (see Figure 1)—Fishhook Triangle,

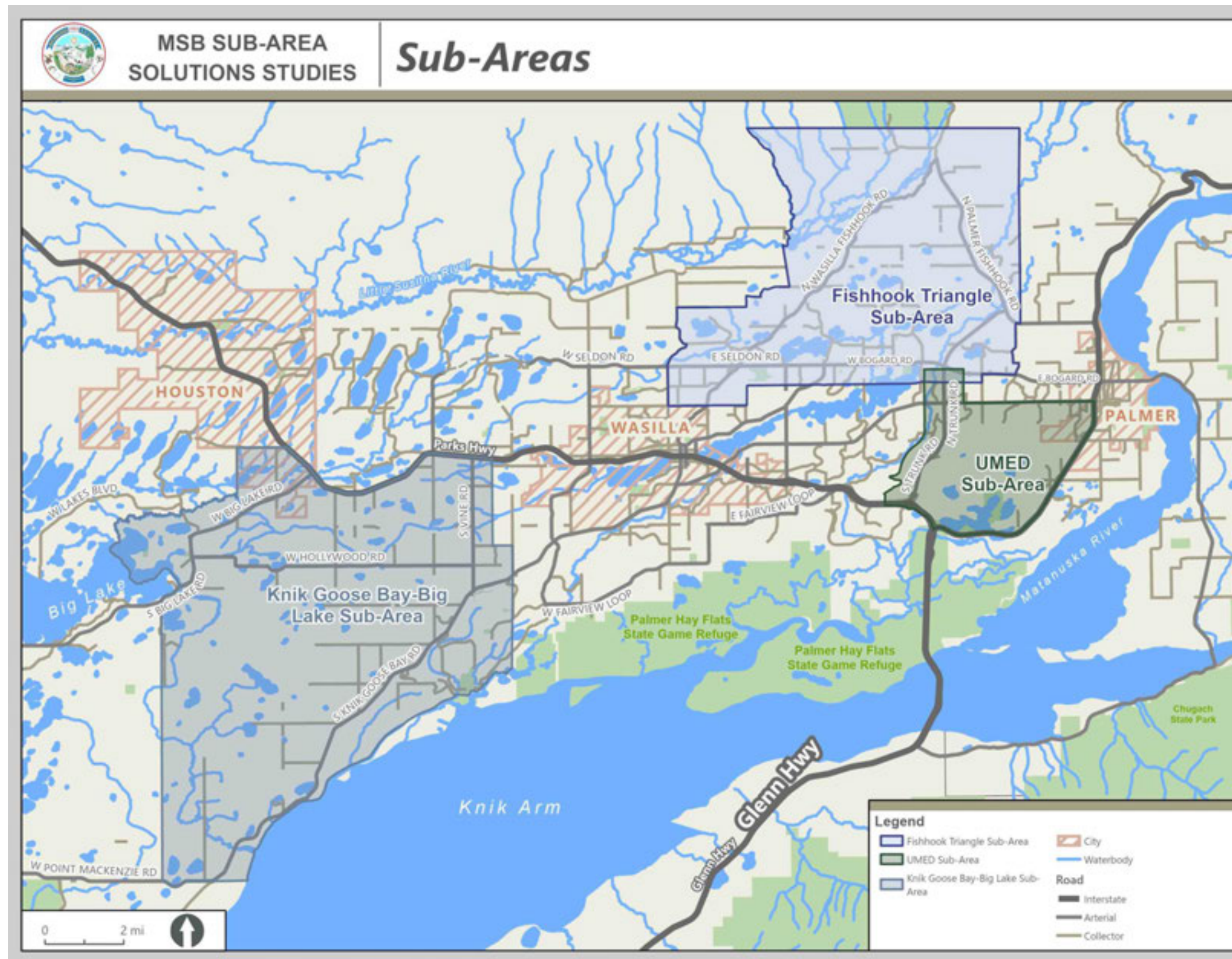
University-Medical District or “UMED”, and Knik Goose Bay-Big Lake (KGB-Big Lake)—in a manner that addresses the MSB's Strategic Plan focus areas.



These developing sub-areas face similar issues but have unique characteristics and sense of place. However, as the project team was analyzing the existing conditions and identifying potential solutions, it became clear that some of the issues needed to be addressed on an MSB-wide basis. Concerns that affect the MSB's transportation system include:

- Need for a Traffic Demand Model (TDM) and household survey, occurring prior to the updates to the Official Streets and Highway Plan (OSHP) and Long Range Transportation Plan (LRTP)
- Need for serious injury and fatal accident data to help prioritize and build infrastructure improvements
- Need for additional roadway connections among subdivisions to improve safety and mobility
- Lack of access management along several corridors to preserve their functionality
- High housing costs in Anchorage leading to increased demand for housing in the MSB, where people can afford larger homes and still be within a reasonable commuting distance

Figure 1. Sub-Areas



- Changing employment patterns, including more potential for work from home/hybrid jobs (including satellite offices), and growing retail and warehousing opportunities
- MSB School District's open enrollment policy potentially increasing congestion around schools
- Limited land use policies and codes, making it difficult to plan for managing development at key intersections
- Limited facilities for walking and other modes of active transportation
- Need for transit facilities
- Subdivision access and interconnectivity
- Need to plan for future growth associated with future utility improvements
- Need to ensure connectivity within MSB's road network
- Need to create a process for public notification and enforcement of weight restrictions and implications for private roads
- Lack of road powers limiting MSB's ability to preserve future road corridors

This study recommends methods to address these concerns through policy changes, revisions to MSB code, updates to planning studies, and improvements to the local road network. The MSB, and these sub-areas in particular, have the potential to grow in a manner that fosters a more well-rounded community with diverse housing suitable for all income levels as well as diverse jobs and services, and a broadened tax base.

The following chapters identify specific motorized and non-motorized transportation-related infrastructure actions and a variety of non-infrastructure policy actions. If implemented, they could guide development that supports the MSB's growth toward an even greater place to live, work, and play. Chapter 2 focuses on MSB-wide recommendations while Chapters 3, 4, and 5 focus on recommendations for the Fishhook Triangle, UMED, and KGB-Big Lake Sub-Areas, respectively.

2 MSB-Wide Recommendations

The HDR project team, with input from the MSB and Alaska Department of Transportation and Public Facilities (DOT&PF), developed recommendations to address deficiencies identified in the Existing Condition Reports for each sub-area (see Appendix A). These recommendations are based on a review of existing plans and regulations, stakeholder interviews, a growth charrette, Steering Committee input, and feedback from multiple MSB departments. This chapter describes the actions recommended to be taken by the MSB. It provides a guide for future activities so the MSB can continue developing in a manner that supports a high quality of life for its residents. Table 1 lists the recommendations along with when it should happen and which organization is responsible for implementing it. The following sections describe each recommendation in more detail.

Table 1. Recommendations Matrix

Recommendation	Timeframe	Responsible Parties
Administrative Actions		
Strengthen Transportation Planning Process	Near Term	MSB
Policy/Code Updates		
Reestablish the Mandatory Land Use Permit	Near Term	MSB
Update Title 43 Platting Regulations	Near Term	MSB
Update Subdivision Construction Manual	Near Term	MSB
Follow the OSHP	Near Term	MSB
Implement Land Use Controls/Zoning	Near Term	MSB
Develop and Adopt Design Criteria Manual	Near Term	MSB
Increase Use of Incentives and Development Agreements	Near Term	MSB
Consider Impact Fees	Long Term	MSB
Adopt a Complete Streets Policy	Near Term	MSB
Develop a School Siting Policy	Near Term	MSB, MSB School District
Preserve Future Corridors	Near Term	MSB
Vision Zero Policy – Establish and Support an MSB Vision Zero or Safe Streets Working Group	Near Term	MSB, City of Houston, City of Palmer, City of Wasilla, MVP, DOT&PF, Alaska State Troopers, MSB School District, Mat-Su Health Foundation

Recommendation	Timeframe	Responsible Parties
Vision Zero Policy – Launch and Promote Targeted Safety and Education Campaigns	Near Term	MSB, DOT&PF, Alaska State Troopers, Palmer Police Department, Wasilla Police Department, Alaska Highway Safety Office, MVP, Mat-Su Health Foundation, Connect Mat-Su, other public health and/or substance misuse prevention organizations
Vision Zero Policy – Align Street Design Guidelines with Complete Streets and Safe System Principles	Near Term	MSB, Municipality of Anchorage, City of Houston, City of Palmer, City of Wasilla, Knik Tribe
Safe Routes to School Policy	Near Term	MSB, DOT&PF
Create/Update Studies		
Update OSHP and LRTP on a Periodic Basis	Ongoing	MSB, DOT&PF
Update Comprehensive Plans	Ongoing	MSB, DOT&PF, City of Wasilla, City of Palmer, MVP
Create and Adopt Corridor Access Management Plans	Near Term	MSB, MVP
Coordinate Comprehensive Plans and Transportation Plans	Near Term	MSB, MVP, DOT&PF
Coordinate with Utility Providers	Ongoing	MSB, Utility Providers
Coordinate with the DOT&PF and Metropolitan Planning Organizations	Ongoing	MSB, DOT&PF, MVP
Coordinate with Gravel Pit Operators	Ongoing	MSB, Gravel Pit Operator
Foster Development Nodes		
Foster Development Nodes	Near Term	MSB, DOT&PF, City of Houston, City of Palmer, City of Wasilla, Local Businesses

Notes: MVP = Matanuska Valley Planning

2.1 Administrative Actions

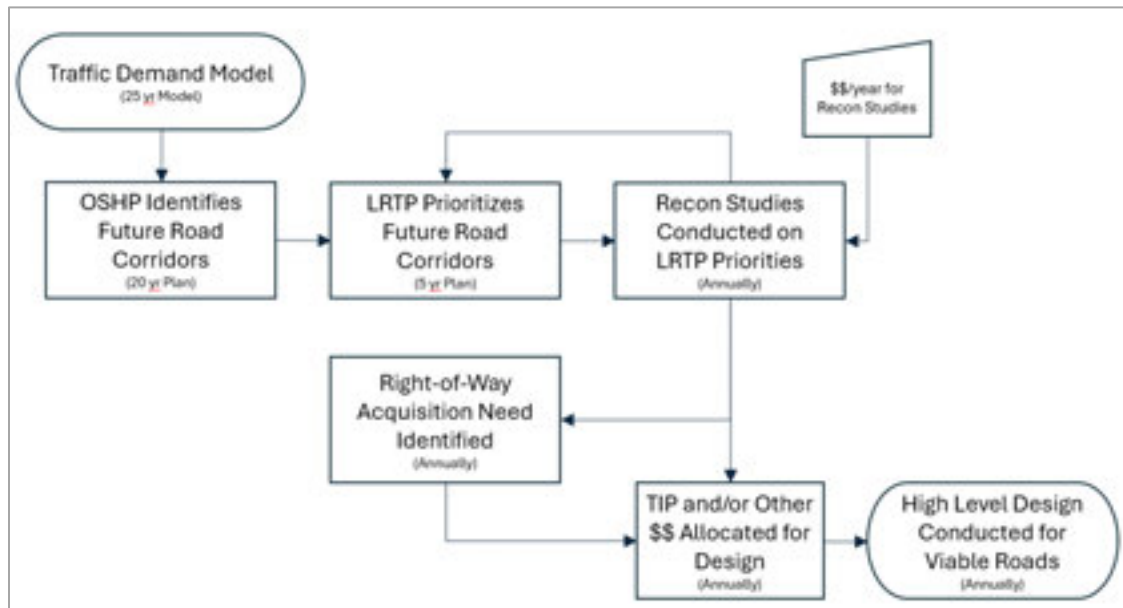
2.1.1 Strengthen Transportation Planning Process

Transportation infrastructure planning and design are best done using output from a Travel Demand Model (TDM). The MSB does not currently have a model that can be used throughout the borough¹. Ideally, the TDM would inform the OSHP. The LRTP would then prioritize future road corridors and lead to annual reconnaissance studies and right-of-way (ROW) acquisition requiring consistent annual funding. Reconnaissance studies determine whether new ROW is required or if funding for design can be secured without acquiring additional ROW. Once funding is secured for annual road improvements, high-level design can begin. It is recommended that the MSB adopt the transportation planning

¹ As of June 2025, a TDM for part of the MSB is under development but has not been completed.

model shown in Figure 2, with short-, mid-, and long-term actions that are adequately funded to keep the MSB in step with road improvement needs.

Figure 2. MSB Project Development Process



Notes: Recon = Reconnaissance; TIP = Transportation Improvement Plan; yr = year

2.2 Policy/Code Updates

2.2.1 Reestablish the Mandatory Land Use Permit

Property development provides one of the main economic engines within the MSB. Property developers have historically been in the forefront of fueling the housing, commercial, institutional, and industrial markets in the MSB. Outside of the incorporated cities of Palmer, Wasilla, and Houston, there is a misconception that few rules guide development. A functioning land use permit program would inform developers and property owners of applicable regulations, and help fill the information void hampering MSB planning and public works efforts.

Most developers are familiar with MSB code requirements. Most violations occur after the property is sold by a developer or the original owner. New homeowners are often not aware of code and setback requirements when they improve their properties with additions to the main structure or construction of auxiliary structures.

In 1999, the MSB established a voluntary land use permit. The permit process provided a low-cost means for the MSB to communicate applicable MSB code to a developer or property owner with regards to their proposed development. In 2008, the permit became mandatory. In 2011, the permit was modified to apply only to construction within 75 feet of a waterbody. In 2022, the permit regulations were changed again to become voluntary for all construction activities outside the 75-foot waterbody setback.

The concept of the permit is to inform the public and proactively decrease the number of potential code violations. These code violations often require expensive corrections such as removing the portion of a structure located within a setback, ROW, or easement, or by applying for a variance or ROW vacation to correct the encroachment. These violations impact the cost to both the taxpayer and property owner. The MSB staff time may include the following activities to address the violations:

- Property owner meetings
- One or more onsite inspections
- Case notes (e.g., photographs, videos, notes, measurements)
- As-built surveys obtained from the:
 - Property owner, if this involves a setback that adjoins another private parcel or waterbody;
 - MSB surveyor, if it pertains to MSB's ROW or lands; or
 - MSB-contracted surveyor, if it pertains to MSB's ROW or lands.
- Violation documentation, notifications, and enforcement actions (warning notices, letters, or citations)
- Research (with other MSB departments, such as Property Appraisal)
- Enforcement Order creation if the violation pertains to MSB's ROW or lands
- Appeals investigation and response (multiple MSB department leaders)
- Court case participation to resolve issues
- Platting actions to remedy violations

The property owner is impacted in their ability to secure bank financing and sell their property until the violations are remedied.

Making the land use permit mandatory again for all construction activities would provide a straightforward process to inform the property owner of all applicable codes and setback requirements. Reestablishing the Mandatory Land Use Permit would save both the MSB and developers or property owners money while ensuring that the MSB's land use and transportation systems are complying with MSB code.

As part of the permit application process, a pre-application meeting would be required. This meeting would give the MSB an opportunity to learn about what the proposed land use would be and communicate with developers about potential code requirements, incentives, and other issues of interest.

2.2.2 Update Title 43 Platting Regulations

Most communities use comprehensive planning and zoning to guide development and provide parameters for platting actions. The MSB has taken a different approach. The MSB has a limited zoning code to implement its comprehensive plan. The MSB does not have a zoning code with borough-wide mapped zones to define allowable land uses. Currently, platting decisions do not consider land use. However, platting decisions should take a broad view of what the



The MSB has a different approach to planning and zoning than many other communities. The MSB has a limited zoning code to implement its comprehensive plan. The MSB does not have a zoning code with borough-wide mapped zones to define allowable land uses.

proposed platting action has on the community because these decisions affect traffic patterns, community character, infrastructure development, quality of life, and much more. Before an action is approved, the MSB platting board should consider the proposed action's impact on the transportation network, demand for public and emergency services, and adjacent properties.

Current MSB zoning regulations do not require developers to specify or commit to the specific land use. Not knowing the planned land use may result in the MSB underestimating the infrastructure and service needs within the area. For example, underestimating traffic volumes may result in roads being congested or under built.

Since subdividing large parcels of land is the primary process through which the MSB has control over land use and transportation infrastructure, **it is important that this process involves a borough-wide view of the impacts of individual subdivisions, in addition to the anticipated traffic demand from within the new subdivision.** Additionally, parcels within areas where the MSB would like to see a specific type of development other than single-family residential, such as the development nodes discussed in this report, should have **considerations for potential uses incorporated into the subdividing process. Such considerations may include:**

- Requirement that the property owner **discloses intended uses** when subdividing the parcel or placing restrictions on the allowable uses
- Requirement that **connections** be made to roads in adjoining subdivisions within a certain radius outside the new subdivision
- Requirement to dedicate some **ROW** for future road or frontage road expansion
- Construction of **frontage or backage roads when appropriate**

This would be particularly effective if paired with some form of zoning or land-use visioning for the nodes, as discussed below.

Specific code changes that should be made to strengthen MSB Platting Regulations² are shown in Appendix B.

2.2.3 Update Subdivision Construction Manual

The MSB Subdivision Construction Manual (SCM) provides guidance for developers to ensure that the subdivision roads meet appropriate safety and development standards. Where subdivision roads intersect the major collector and arterial road network, they must be located, designed, and constructed in a manner that maintains the function and integrity of the arterial or major collector road it accesses.

Access Management

The SCM should include access management requirements and intersection spacing. This would further the public and development community's understanding of the importance of land use and access considerations to preserve the function and safety of the MSB road network. Implementing access management provides the added benefit of protecting the MSB's large capital investment expended to construct and improve these key road facilities.

Platting decisions and roadway designs must be made in alignment with adopted plans that preserve and enhance the road network's function, improve safety, and protect public investments. Currently, MSB Platting does not consider land use, unless there is an adopted Special Use District (SpUD³) or the property is within cities that have zoning powers. Since many parts of the unincorporated MSB do not have a SpUD, or Euclidean Zoning, land use planning comes after the platting process. **Access management is where land use meets transportation.** Solid land use decisions lead to a better transportation network. To this end, the following recommended additions or changes to the SCM would strengthen the transportation-land use relationship. For additional information on access management, please see Section 2.4.3.

² These changes are recommended regardless of the Mandatory Land Use Permit being reinstated.

³ A Special Use District governs land use within a specific area. For additional information, see MSB 15.24.015 Create Districts.



Bogard Road between Trunk Road and the Bogard-Seldon roundabout is an example of how a lack of access control can create congestion and safety issues. Historically, this section allowed unlimited direct driveway access, off-set intersections, and incomplete collector road connections. These all contribute to this segment's current poor function and high number of accidents. Retrofitting this segment to regain some of its function and to improve safety is going to be extremely expensive.

SCM Policy Changes

The 2022 OSHP (MSB 2022a) identified, and this study confirms, a disparity between the Average Daily Traffic (ADT) requirements contained in the SCM and the generally accepted ADT standards established by the Federal Highway Administration (FHWA) (FHWA 2023). There is also a conflict between the Functional Classification system used by the SCM and the OSHP, with the SCM having more local road classifications than the OSHP.

The OSHP (MSB 2022a) pointed out the issue that the ADT limits identified within the SCM are more in line with ADT limits for urban designated roads (see Table 2). This results in local roads carrying higher traffic volumes than they are designed to carry. Under-designed roads affect performance, connectivity, and safety. Typically, the MSB must reconstruct a road at considerable expense to bring it up to acceptable standards.

The SCM should be updated to follow national standards relative to ADT and differentiate between urban and rural roadways. Table 2 compares the existing SCM ADT requirements to FHWA's standards. Table 3 summarizes the characteristics of rural and urban roads.

Additionally, Residential Collector roads should use the FHWA-recommended ADT ranges shown in Table 2 to determine functional classification, have a minimum ROW width of 80 feet, and meet higher design criteria.

Table 2. Functional Classification by ADT – Comparison of Subdivision Construction Manual and FHWA Parameters

Functional Classification	SCM ADT Range	FHWA Recommended ADT Range	
		Rural	Urban
Local Road	0–1,000	0–400	0–700
Minor Collector	1,000–3,000	150–1,100	1,100–6,300
Major Collector	> 3,000	300–2,600	1,100–6,300

Source: FHWA 2023

Table 3. Characteristics of Rural and Urban Roads

Functional Classification	Rural	Urban
Local Road	• Serve primarily to provide access to adjacent land • Provide service to travel over short distances as compared to higher classification categories • Constitute the mileage not classified as part of the Arterial and Collector systems	• Provide direct access to adjacent land • Provide access to higher systems • Carry no through traffic movement • Constitute the mileage not classified as part of the Arterial and Collector systems
Minor Collector	• Be spaced at intervals, consistent with population density, to collect traffic from Local Roads and bring all developed areas within reasonable distance of a Collector • Provide service to smaller communities not served by a higher class facility • Link locally important traffic generators with their rural hinterlands	• Serve both land access and traffic circulation in lower density residential and commercial/ industrial areas • Penetrate residential neighborhoods, often only for a short distance • Distribute and channel trips between Local Roads and Arterials, usually over a distance of less than 0.75 mile • Operating characteristics include lower speeds and fewer signalized intersections

Functional Classification	Rural	Urban
Major Collector	• Serve both land access and traffic circulation in higher density residential, and commercial/ industrial areas • Penetrate residential neighborhoods, often for significant distances • Distribute and channel trips between Local Roads and Arterials, usually over a distance of greater than 0.75 mile • Operating characteristics include higher speeds and more signalized intersections	• Provide service to any county seat not on an Arterial route, to the larger towns not directly served by the higher systems, and to other traffic generators of equivalent intra-county importance such as consolidated schools, shipping points, county parks, and important mining and agricultural areas • Link these places with nearby larger towns and cities or with Arterial routes • Serve the most important intra-county travel corridors

Source: FHWA 2023

As the MSB has grown, underbuilt roads have become more of a problem. This usually occurs because a road is built based on the needs of the first development. However, subsequent developments use that road for their access despite it not being designed for that level of traffic. This results in undesirable traffic conditions. These roads are often difficult to upgrade later on. There is usually insufficient ROW to expand the road without impacting adjacent development. Local residents are often opposed to roadway expansions because they are concerned about the negative impacts to their homes that may result from the increased traffic. These road improvements are also difficult to fund.

SCM Text Changes

Recommended changes to the SCM include (see Appendix B for detailed recommended changes):

1. Correct administrative errors such as section labeling and term/definition omissions
2. Replace ADT with “forecasted Average Daily Traffic (ADT)” and associated specifications according to a new table and formula
3. Street Design:
 - a. Road Classifications
 - b. Access Through Existing Streets
 - c. Traffic Mitigation for Access through Existing Streets
4. Add a new item to A15 after A15(c) that aligns the standard to account for existing uses of lots other than single-family residential in the ADT calculation
5. Under Street Classifications, include OSHP and Pioneer Roads

6. Require Stub Street construction; specify that >200-foot-long roads, or those that intersect minor collectors or higher, must meet A07.1 or A07.2 requirements
7. Include sight distance evaluation as requirement at common access or limited access points (A09.1)
8. Revise A09.2 Intersection Spacing to address requirements on major roads
9. Replace A09.2(a)(4) to read, "Section B"
10. Rename Section A15, "Trip Generation Rates." Describe the new Traffic Impact Analysis requirement for >50 and >100 vehicle trips during the peak hour
11. Once the Design Criteria Manual (DCM) is adopted, remove Section B from the SCM and require developers to adhere to the DCM when subdivision roads intersect with major roads; in the meantime, revise Tables A-1 and B-1 to align with DCM ROW widths
12. Rename B.04.1 to "Intersection and Access Standards"; align requirements to adhere to the Corridor Access Management Plan (CAMP) or the intersection spacing table when no CAMP is in place
13. Update C02.5 Embankment Construction:
 - a. Construct roads centered in the ROW unless otherwise approved by the Department of Public Works
14. Update Section D01 General
15. Add a requirement for roadways and drainage facilities to be built as part of the subdivision construction, resulting in a fully functioning roadway network and drainage system
16. Modify Soil Infiltration Facilities to reduce stormwater flow and volume

2.2.4 Follow the Official Streets and Highways Plan

The OSHP has its own separate policy plan document that plans future roadway construction or improvement projects intended to address the needs of the traveling public. It records and forecasts the classification of MSB roads and location of primary intersections. Potential road corridors and primary intersections where the MSB may have ROW and ROW improvements identified in the OSHP are prioritized based on the OSHP. Intersection analysis acts as a large-scale, borough-wide CAMP. Subsequently, the prioritized ROW improvements are incorporated into the LRTP. The OSHP provides the justification and foundation for a variety of funding opportunities needed to implement the planned road network improvements, such as the State Transportation Improvement Plan or MSB Transportation Improvement Plan (TIP).

Currently, the OSHP is implemented through the following MSB land use management policies and processes:

- MSB Title 43 *Subdivisions* includes the adoption of the SCM, which states that “Subdivisions shall be designed in a manner that does not conflict with the LRTP or the OSHP” (Section C: Major Roads, B05 *Future Corridors; 2022 Subdivision Construction Manual*, MSB 2022b:20). In the review of subdivision development proposals, the Platting Division considers the impact to future road corridors as shown in the OSHP.
- New subdivision access point locations are based on the Primary Intersections Study in the OSHP.
- MSB Title 11 *Roads, Streets, Sidewalks and Trails* governs the permitting processes for ROW construction, encroachments, and driveways. The OSHP is one of the factors for determining whether the permit would be issued as proposed by the applicant, or if an alternative solution would be required to align with the OSHP.

These uses of the OSHP are essential for ensuring that there is harmony between land use development decisions in the near term, and the protection of future road networks and corridors that would serve residents and visitors in the MSB over time. The *Development Node Analysis and Recommendations* (see Appendix C) are aligned with the OSHP primary intersections.

Recommendations

- Develop a TDM for the MSB and use of household surveys
- Strengthen the language within the SCM as it relates to the LRTP and OSHP by including references to primary intersections
- Preserve ROW required for primary intersections during the subdivision process
- Identify, purchase, and preserve land for road and primary intersection ROW, including advanced ROW acquisition
- Continue reconnaissance studies using the TDM, topographic/wetlands mapping, utility mapping, and aerial imagery
- Coordinate with the DOT&PF to ensure alignment of functional classification of all roads to FHWA standards

2.2.5 Implement Land Use Controls/Zoning

Increasing the predictability and consistency of land use regulations is an important component of achieving economic development goals. Land use regulations support the MSB’s strategic plan focus areas:

- Foster economic growth and diversification within the MSB,

- Support the delivery of high-quality MSB services, and
- Help manage growth throughout the MSB.

Land use regulations and a reinstated Mandatory Land Use Permit would allow residents and property owners to understand how the land around them might develop, and serve to implement adopted plans.

Land use regulations can reduce the permitting process for developers while ensuring standards are maintained in zones or “districts.”

Managing land use and growth as well as related public infrastructure play important roles in supporting economic development. Economic development would diversify tax revenues that are essential to the

delivery of high-quality services (e.g., road maintenance, fire services, recreational facilities, schools) in the presence of increased demands on infrastructure as a result of growth.

Zoning is a land use planning tool in which a government divides land into areas called zones. Each zone has a set of regulations for land use and development that differs from the other zones. Most jurisdictions in the United States use a form of zoning to regulate land use. Houston, Texas, is the best-known example of a major United States city that does not use zoning. Instead, the community uses a mixture of ordinances, policies, deed restrictions, and other regulatory methods to govern how land can be subdivided and used. The MSB currently zones through SpUDs, a type of zoning overlay where communities have requested particular regulations on their area that are aligned with their community comprehensive plan. Similarly, the MSB could use overlay zones, which is a zoning district applied on top of another zoning district; these are generally used to address specific local concerns such as access management. For example, on roads that

Land use controls can be implemented on a borough/area-wide or on a sub-area basis. Alternatives to a borough/area-wide approach include:

- Implement zoning in designated urbanized area to manage growth, foster a safe and efficient transportation system, protect public and private investments, maintain quality of life, and limit land use conflicts
- Establish overlay zones along key routes
- Establish overlay zones for commercial nodes and industrial areas
- Create design standards for nodes that include elements such as:
 - Wider sidewalks near commercial areas
 - Parking strategies
 - Charging infrastructure to support electric vehicles
 - Rideshare/taxi loading/bus stops
 - Buffers
 - Street design



are arterials or above, an overlay zone could be developed that focuses on access management issues such as driveway requirements and sight distances.

The project team recommends the MSB consider updating zoning regulations to manage development, foster a safe and efficient transportation system, protect public and private investments, maintain quality of life, and limit land use conflicts. While a borough-wide system of traditional Euclidean zoning would likely not be a good fit for the MSB, the MSB could also consider additional zoning districts within the Metropolitan Planning Organization (MPO) boundary, the identified development nodes, or other geographically defined areas along specific corridors.

The MSB should implement land use regulations that balance community goals and individual property rights. The MSB could consider adopting zoning overlays that have requirements for higher density, residential use mixed with commercial use. For example, a mixed-use development overlay within the area around the East Palmer-Wasilla Highway and North Trunk Road intersection could include features such as walkability, street design standards, and public space standards. The MSB should also prioritize Complete Streets design within these overlay areas. For additional information on Complete Streets, please see Section 2.2.9.

The MSB is currently updating its borough-wide Comprehensive Plan. Developing land use regulations that support the community's vision would implement the Comprehensive Plan.

2.2.6 Develop and Adopt Design Criteria Manual

The Department of Public Works is developing a DCM to serve as a guide to roadway construction within public ROW outside subdivisions. When a road project is approved through a TIP funding package or state grant, the DCM would provide written standards for road construction.



Delta County, Colorado, is similar to the MSB in that many of its residents believed that land use regulation infringed upon their private property rights. In 2021, Delta County adopted zoning “to better address new development in a manner that is consistent with different land use characteristics and functions within our County” (Delta County n.d.). Zoning allows the County to protect people’s land from health and safety violations, and resolve conflicts between adjacent land owners.

The DCM should accomplish the following goals:

1. Establish standards for the design and construction of transportation networks throughout the MSB
2. Provide information and guidelines for the design, construction, and upgrade of roads, drainage facilities, structures, and utilities within ROWs
3. Develop and maintain a safer and more efficient transportation system
4. Minimize operation and maintenance efforts



The DCM and SCM differ. The DCM addresses project requirements such as roadways funded through areawide road bonds, the MSB Road Improvement Program, OHSP requirements, or privately funded construction. The SCM, however, primarily addresses individual subdivision road requirements and how they tie into the MSB road network.

Implementing a DCM would contribute to a system-wide approach to the planning, design, and construction of the arterial and collector system.

2.2.7 Increase Use of Incentives and Development Agreements

The MSB has the most opportunity to shape development on publicly owned parcels. By providing infrastructure improvements, particularly access roads, the site can be best prepared for the expected use. The MSB could then establish a vision for the site and solicit a developer to achieve that vision. **Through a development agreement, the MSB can leverage its site control to achieve development that accomplishes several public objectives and is consistent with the community's vision for the area.** In a land sale to a private developer, the MSB could condition the sale by requiring the development to fulfill desired community objectives such as:

- Specific land uses
- Design standards
- Phasing
- Shared responsibilities for infrastructure funding and construction

The MSB currently has few mechanisms for requiring or incentivizing land use. The development of new tools should be considered to encourage future developments be consistent with the MSB's vision for growth and development rules.

Chapter 26 of the MSB code contains a variety of economic development incentives that can be offered to support projects in the MSB, though these have not been used frequently in the recent past. These incentives are found in **26.05.040 of the MSB code** and include:

- **Site development assistance:** The MSB can pay for infrastructure or utility expenses for a new project.
- **Industrial revenue bond financing or Tax Increment Financing:** These are mechanisms to raise funds for site acquisition, construction, machinery, equipment, and financing costs.
- **Fast-track permitting**
- Sale or lease of MSB land at **less than fair market value**
- **Property tax deferral:** This includes 5-year deferral of property taxes to be repaid in the subsequent 5 years.
- **Property tax exemption:** This includes a 50 percent exemption in the first year, 25 percent in the second year, and 10 percent in the third year for projects that create at least 15 full-time positions.

The MSB should consider using these existing incentives to facilitate the type of job creation the MSB Assembly wishes to attract to the area, and in exchange for the types of public objectives described above, to ensure the MSB is receiving something in exchange for these incentives.

On privately owned parcels, the MSB could also work with property owners to encourage commercial development. Many potential development nodes contain large parcels with a single owner, making this process considerably easier. In some instances, these parcels are adjacent to public land. Through a development agreement, the MSB can leverage its role as a regulatory agency and owner of public infrastructure to achieve development that accomplishes several public objectives and is consistent with the community's vision for the area.

2.2.8 Consider Impact Fees

One common way for jurisdictions in the United States, particularly fast-growing areas, to help pay for the costs of development is to **impose impact fees on new development**.

These are charged to offset the increased impacts of the new development on a variety of municipal services, including transportation, schools, utilities, and parks. These fees are typically set based on the cost of projects identified in a capital improvement plan and prorated by the number of units built or estimated employment in the development. The MSB currently does not collect impact fees of this type for new development. Developers are responsible for the interior transportation systems, but transportation and other improvements exterior to the development are funded directly by the MSB through state

or federal grants or through local transportation bonding. This effectively means that **all taxpayers are sharing the infrastructure costs of new development.**

The MSB could consider establishing a system to collect impact fees for new development, with the following considerations:

- Such a system would **increase the costs of development** to some degree, but the trade-off would be a **reduction in overall tax burden on MSB residents** and reduction of the MSB's responsibility to fund road and infrastructure expansions itself.
- Ensuring that the fees are **objectively tied to the actual amount of impact resulting from the development** is important when establishing such a system. This would need to be quantified through a capital improvement plan that estimates the costs of capital improvement projects proposed within the area and the expected impacts based on the size and type of development.
- An impact fee system would also have **spatial implications for development** as it would provide a financial incentive for efficient location and planning of new developments. For example, new development near existing road infrastructure with capacity would incur fewer impact fees than a development along a smaller road which would need to be significantly upgraded to meet the needs of the increased traffic.

Overall, any form of impact fee system provides an opportunity for the MSB to be **more proactive rather than reactive in funding new infrastructure, particularly roads.** By asking developers to share in the cost of road improvements, the MSB would be less likely to have to play "catch-up" after traffic and other impacts of development have already taken place. This represents one way for the MSB to help achieve its mission to deliver services to the public in an efficient manner.

2.2.9 Adopt a Complete Streets Policy

A “Complete Street” is a street that is designed for people of all ages and abilities regardless of their preferred mode of transportation.

Complete Streets should be designed to fit the community context, such as a community center, subdivision road, or rural street. Complete Streets use a variety of strategies to create a safe, connected, and equitable street network.

Elements that may be included on a Complete Street include sidewalks, bike lanes, dedicated bus lanes,

enhanced transit stops⁴, improved pedestrian crossings, narrower travel lanes, street lighting, roundabouts, shoulder rumble strips, and more. **The composition of a Complete Street depends on its context and user needs.** All streets are different and may include different elements. A Complete Street prioritizes different modes on different corridors. For example, some may have extensive non-motorized facilities, while others may just have a sidewalk.

The 2017 LRTP (MSB 2017), 2023 Bicycle and Pedestrian Plan (MSB 2023), and the 2025 Comprehensive Safety Action Plan (CSAP; MSB 2025) recommend developing a Complete Streets policy as a key strategy to achieve the second goal of providing transportation choices. The project team recommends that the MSB develop and adopt a strategic Complete Streets policy that directs the Department of Public Works to design, construct, and reconstruct roads in a way that improves transportation for all users. This would allow MSB residents to have more transportation options and travel by the mode that best meets their needs. Once adopted, the SCM and DCM should be updated to incorporate this policy.



Benefits of Complete Streets include:

- Improved safety
 - Advanced equity
 - Strengthened economy
 - Improved community health
 - Improved quality of life
- Complete Streets can help reduce congestion by improving transportation choices. For example, some people who are currently driving may choose to walk, bike instead because of the improved non-motorized facilities, or ride public transit if it is easier to get to and from a bus stop.

⁴ An enhanced transit stop refers to transit stops that have passenger amenities such as seating, covered shelter, lighting, and real-time arrival display information.

As multiple roads would benefit from becoming a Complete Street but funding is limited, the MSB should conduct a prioritization exercise to determine which Complete Streets should be developed first. The goal of the prioritization exercise would be to focus limited financial resources on streets where demand for non-vehicle transportation exists but is limited by the existing conditions. Factors that should be considered include functional classification, number of travel lanes, presence and width of sidewalks/trails, number of non-motorized crashes, presence of underserved populations, and proximity to destinations (e.g., schools, recreation facilities, hospitals, parks) that are likely to attract multimodal users.

2.2.10 Develop a School Siting Policy

The MSB Planning and Land Use Department is responsible for facilitating the school site selection process. This process focuses on finding property that meets the space and access needs of elementary, middle, high, or charter schools. New schools are typically needed within areas where population growth is occurring and the existing schools have capacity issues. Charter schools, however, may not follow the population growth. The State of Alaska reimbursement programs historically funded as much as 70 percent of onsite school costs, including land acquisition, design, and construction of the buildings, play areas, sport fields, parking and circulation, and site development. The State of Alaska does not reimburse offsite pedestrian, traffic, or roadway improvements accessing the school. As a result, these offsite improvements often lag behind school openings.

The following is recommended to identify and plan for the costs of offsite improvements for new school construction:

- Identify and evaluate road access to school sites and estimate costs of ensuring that there is collector road access to the school
- Develop a walking routes map for all proposed schools (using national standards for safe walking routes to schools) to identify costs of necessary offsite pedestrian and traffic improvements to foster safe walking and biking to schools for students who live too close to the school for bus service
- Adopt changes to MSB Code 19.08 School Building Design and Construction that require offsite considerations and costs in the school site selection process, to include pedestrian and active transportation facilities
- Establish a proactive, long-view process to establish future schools with sufficient lead times such that offsite funding for the design and construction of offsite pedestrian and traffic improvement occur concurrently with school construction

2.2.11 Preserve Future Corridors

Corridor preservation is an important tool for reserving transportation corridors where no easements or ROWs exist.

The MSB contains many unbuilt road ROWs; undeveloped section line, public use utility, drainage, and trail easements; and other reservations. Easements and ROWs are public assets with value to the community and should not be disposed unless an equal or better easement or ROW is dedicated.

Unbuilt subdivision road ROWs should not be vacated if the ROW provides connection to an adjacent subdivision. Past practices have led to an unconnected road system. Connectivity is critical to public safety; congestion management; emergency response; and providing alternative access out of an area in case of fire, flood, or other emergency situations.

Without access to adjacent subdivisions, opportunity is lost to foster a feeling of neighborhood. It also has traffic and economic impacts. The lack of connectivity results in an increased need for trips to be made by vehicle; residents must leave their subdivision, drive on an arterial, then enter the adjacent subdivision instead of driving on a local road. Other traffic, such as school buses as well as postal and delivery vehicles, must do the same. Collectively, this results in increased trip lengths, reduced efficiency of the transportation network, and increased congestion on the main roads.

Figure 3 is an example of a disconnected subdivision from the Fishhook Triangle Sub-Area. As the crow flies, the houses represented by the green and blue dots are less than 250 feet apart. However, they are approximately 1.3 miles apart using the existing transportation network.



Subdivision access and inter-connectivity are concerns. Many subdivisions have only one access point, which hinders evacuations or public safety responses during an emergency. Adjacent subdivisions often are not connected by local or collector roads, requiring people exiting their subdivision to use an arterial road to travel a short distance or many miles to visit an adjacent subdivision. Developing a more complete collector road network would improve connectivity and enhance the overall road system.

Figure 3. Example of a Disconnected Subdivision



Limited Road Powers

Alaska Statute 19.30.251 Local Government Powers grants road construction and maintenance authority to local governments that do not otherwise have that authority. The MSB is a second-class borough and does not have areawide road powers. Currently, the MSB can acquire ROW needed for funded projects, such as the Bogard Road East Extension project. The MSB would have to adopt limited road powers through an areawide vote of the people to advance purchase corridor ROWs not associated with a funded project. These limited areawide powers would only apply to ROW acquisition and corridor preservation. The benefit would be the proactive preservation of transportation corridors reserved for future roadway development as the MSB's population expands throughout the borough. This power would be most appropriately used based on LRTP and OSHP recommendations.

A program could be set up and funded through state grants or a percentage of local road bond revenues to reserve future arterial and road corridors or advance purchase ROWs.

This would increase the MSB's flexibility and potentially reduce costs by acquiring property for future corridors in the near term instead of at the time of construction.

2.2.12 Vision Zero Policy

The Vision Zero initiative aims to eliminate all traffic-related deaths and serious injuries while promoting safe, healthy, and equitable mobility for everyone. In April 2025, the MSB adopted the CSAP, which was developed using the Safe System Approach and is part of the Vision Zero initiative (MSB 2025). While the MSB has already taken several important steps to support Vision Zero objectives, as discussed in Chapter 6 of the CSAP (MSB 2025), ongoing action and improvement are necessary to fully realize the goal of zero traffic fatalities. By implementing the following CSAP-aligned recommendations, the MSB can move toward achieving Vision Zero goals while fostering a safer and more equitable transportation system for all users.

Establish and Support an MSB Vision Zero or Safe Streets Working Group

The MSB should consider establishing a dedicated Vision Zero Working Group within the borough to lead the development of policies, campaigns, and a dedicated Vision Zero webpage. The Working Group would be tasked with regular evaluation of safety issues that align with the local safety plan. This action would provide leadership and accountability, and ensure that actions reflect local priorities. In addition to MSB staff, the Working Group should include representatives from key partners such as the DOT&PF, Matanuska Valley Planning (MVP), City of Palmer, City of Wasilla, Mat-Su Health Foundation, and MSB School District, as well as prioritize community engagement and collaboration.

Additionally, to ensure effective coordination and support, the MSB should create a Vision Zero or Safe Streets coordinator position. This role would staff both the Vision Zero and Maintenance Working Groups, monitor progress, and help implement CSAP recommendations efficiently.

Launch and Promote Targeted Safety and Education Campaigns

The MSB should collaborate with the DOT&PF and MVP to design and implement regional traffic safety education efforts. Implementing community-wide traffic safety education campaigns that target critical safety issues such as seasonal road conditions, safety in school zones, and driver education would build public support and encourage safe driving behavior among road users of all age groups and transportation modes. These campaigns should focus on high-risk behaviors, including distracted driving, impaired driving, and unsafe speeds. A designated Vision Zero or Safe Streets coordinator or campaign champion would enhance campaign outreach, collaboration, and effectiveness.

Align Street Design Guidelines with Complete Streets and Safe System Principles

The MSB should continue working with member governments to update design guidelines and codes that reflect Vision Zero and Safe System principles. Adopting consistent standards across jurisdictions to support safer infrastructure enhances safety and equity in street design, complements a Complete Streets policy, and supports regional consistency in transportation planning. The CSAP included a cursory review of the MSB code that highlighted several code-related opportunities for safety improvements. These code-related opportunities and updates are detailed in Chapter 6 of the CSAP (MSB 2025) and should be incorporated to support street safety and development planning.

2.3 Safe Routes to School Policy

The MSB code should be revised to include bicycle and pedestrian facilities in all new subdivisions within 0.5 mile of a school. The code should provide flexibility in terms of the facility to be provided so it fits the context of the development. Having these facilities would increase the transportation choices for students living in close proximity to a school and would potentially reduce congestion near schools.

2.4 Create/Update Studies

2.4.1 Update OSHP and LRTP on a Periodic Basis

The OSHP and LRTP are meant to be updated on a periodic basis as projects are completed and new opportunities and issues emerge. These plans are meant to identify the transportation improvements needed to support growth and development without causing unacceptable congestion or safety issues. These plans provide long-term guidance for decision makers regardless of turnover in leadership, the MSB Assembly, or staff. By updating these plans to include new issues or problems that should be addressed, the MSB can be proactive (instead of reactive) to addressing these issues.

The MSB should establish a review cycle for these documents and allocate funding to refresh them as needed. Typically, a minor update to confirm the plan recommendations are still valid should be performed every 5 to 7 years. If the plan assumptions have dramatically changed, or it has been 10 years since a significant update was done, a major update should be performed.

During the next OSHP update, it should be revised to reflect how the MSB has evolved to address these issues. Specific issues that should be addressed include increasing coordination with the Department of Public Works, and determining the relationship between the LRTP and the upcoming MVP Metropolitan Transportation Plan (MTP).

2.4.2 Update Comprehensive Plans

A comprehensive plan helps guide the decision-making process about future growth and development within an area. Updating the comprehensive plan is an opportunity to revise anticipated population and employment expectations, and review goals, policies, and action items. Comprehensive plans need to be reviewed to ensure they still reflect the

community's current priorities. A plan review also allows the community to proactively address new/emerging issues and problems. Comprehensive plans should typically be updated every 10 years or when conditions have changed enough to justify an update.



Having a current comprehensive plan is important, but so is having a useable plan. The MSB should continue its approach of creating graphical, easily understood plans as it increases their functionality.

2.4.3 Create and Adopt Corridor Access Management Plans

Many of the area's roads were built when direct access onto arterials and highways were allowed since traffic volumes were low and congestion was minimal. However, as development increased, so did traffic entering the arterial road system, creating congestion and safety concerns (see Section 2.2.3 for discussion regarding updating the SCM to address access management). Contributing to congestion and safety issues is the lack of a well-planned and connected local road system feeding traffic to arterial roads and highways. To address these problems, access management is needed. Access management:

...is the coordinated planning, regulation, and design of access between roadways and land management. It promotes the efficient and safe movement of people and goods by reducing conflicts on the roadway system and its interface with other modes of travel. (FDOT 2023)

Managing access increases mobility and safety for all users. The 2017 LRTP (MSB 2017) includes developing and implementing access management plans for all major collectors and arterial roadways within the MSB (Goal Five: Make Transportation Safer).

The MSB should develop access management plans to guide where new access is allowed and identify ways to improve existing access. The MSB should consider developing access management plans for all corridors that are functionally classified as major collectors/arterials or higher.

2.5 Increase Coordination

2.5.1 Coordinate Comprehensive Plans and Transportation Plans

The MSB has two levels of comprehensive planning: borough-wide and by community (also known as “community comprehensive plans”). The borough-wide Comprehensive Plan is the umbrella document for all planning efforts. When adopted, community comprehensive plans, lake management plans, transportation plans, and specialty plans become elements of the MSB borough-wide Comprehensive Plan. The basis of any transportation recommendations within these plans should conform to

the recommendations and guidance provided in the most recent LRTP and OSHP. The MVP MTP (once developed) and relevant DOT&PF transportation plans can also be considered for guidance. Comprehensive plans may recommend changes or additional transportation projects to be considered within future updates of the LRTP, OSHP, or other areawide transportation plans. The key is that the comprehensive planning efforts need to consider and adhere to the parameters and recommendations contained in the various transportation plans.



The MSB should coordinate with the Anchorage Metropolitan Area Transportation Solutions (AMATS) regional travel model. The AMATS regional model currently includes a substantial part of the MSB as population and employment in the MSB impacts Anchorage area traffic. Coordination between models to ensure consistency between the MSB and AMATS models would result in improved traffic forecasts as both entities would agree on the planning assumptions to be used.

2.5.2 Coordinate with Utility Providers

Utility providers are an important stakeholder in understanding growth patterns. They understand where new requests for connections are occurring, as well as where they need to plan to meet long-term demand for utility service. By coordinating with the utility providers, the MSB can have a better understanding of development trends and do a better job predicting where development may occur next. It is recommended that the MSB obtain current and future utility development plans to enhance land use and transportation infrastructure planning. Obtaining these plans would reduce conflicts and save costs that are associated with relocating utilities.

2.5.3 Coordinate with the DOT&PF and MPOs

The DOT&PF owns and maintains many of the roads within the MSB. Continued collaboration between the MSB and DOT&PF needs to continue to communicate priorities,

share information, collaborate on project alternatives, inform each other of upcoming projects, and coordinate planning efforts.

Coordination on cross-jurisdictional issues that affect the DOT&PF, as well as both the Anchorage and MVP MPOs, is important so the MSB can remain proactive at addressing transportation issues that may negatively impact growth and development in the borough.

2.5.4 Coordinate with Gravel Pit Operators

The MSB is home to multiple gravel pits. Several gravel pits are within the three sub-areas that are reaching the end of their useful life. Once the gravel is depleted or the pit is no longer economical to operate, it is sometimes abandoned and becomes undesirable land use. These parcels represent an opportunity for reuse and redevelopment of the land. The MSB should regularly coordinate with gravel pit operators regarding their plans for site reclamation and reuse.

Given the amount of growth occurring within the area, it is reasonable to assume that the demand for gravel would remain high as new roads and subdivisions are built and as gravel continues to be exported to the Anchorage area. Chapter 17, Section 30 of the MSB code governs earth materials extraction. Currently, a permit is required for extraction of 2,000 cubic yards per year of gravel or more. There are other, more stringent provisions for operations that extract material below the high water table. The MSB requires that gravel pits be restored with topsoil and seeded with vegetation after use. Sites with planned development are exempt from this requirement. There is also a statewide requirement that gravel pit owners are charged \$750 per acre to pay into a state bond to restore the site in the event that they abandon it.

Redevelopment of Gravel Pits

Given the current conversations around gravel pits and potential for this use to continue throughout the borough, the MSB should **add requirements to plan for the eventual type of development on gravel pits in node areas or along arterial roads when applying for a permit**. Within these areas, more stringent “exit planning” would inform the degree of allowed slope and depth of the mining operation to allow post-closure uses that align with the uses envisioned for the node area. A plan for sourcing fill materials that would be of high enough quality and stability to support future commercial development could also be incorporated into the permitting requirements. The MSB could also require that the pit owner disclose whether they plan to redevelop the site themselves after mining is complete. In node areas with existing gravel pits, the community planning process recommended for many of the nodes discussed in this report could specifically include envisioning potential future uses or even a master plan for the current pits in the node.

This would provide some degree of long-term land use certainty around the many key sites in the MSB currently used or planned to be used for gravel mining.

The MSB should consider working with the gravel pit operators whose pits are reaching the end of their useful life to discuss reuse options, including economic development priorities that would bring benefit to the communities. Please see Sections 3.8, 4.9, and 5.7 for sub-area-specific recommendations.

2.6 Foster Development Nodes

An analysis of recent and forthcoming development in the MSB as well as interviews with community stakeholders, developers, and real estate professionals indicate that

development in the MSB clusters around **eight major nodes** (see *Development Node Analysis and Recommendations* in Appendix C for more information). Although some see continuous housing development as economic progress, holistic economic development also considers the needs of the growing population for diverse employment opportunities to create a more well-rounded community with housing, jobs, and effective services



A proactive economic development strategy in eight major nodes would help implement the mission of the MSB's Fiscal Year 2023-2028 Strategic Plan **"to efficiently and effectively deliver responsive services to the public and to cultivate opportunities for commercial enterprise to prosper"** (MSB 2022c).

delivered to the population through a diverse tax base. Directing new development and business activity toward these nodes would help streamline planning for public services, including utilities, school locations, roads, and intersections. Concentrating commercial activity creates certainty for developers that their investments would be protected from undesired adjacent uses as well as demonstrates the MSB's commitment to ensuring ease of access for both customers and employees. As the MSB's population and economy grows, concentrated commercial activity centers would help the MSB efficiently meet its future employment and service needs while providing a variety of housing opportunities within these areas.

The eight nodes fall into three categories (regional, tourism, and neighborhood) based on their locations, potential development types, and the populations they would eventually serve when developed:

- **Regional Nodes:** These are intended to serve the total population of the MSB as well as visitors to the area. These areas would contain **specialized services such as medical facilities, large-format or destination retail stores, office space to**

provide employment hubs, and denser types of housing than typically found elsewhere in the MSB, such as townhomes or apartments. Regional nodes are envisioned to contain a mix of uses, mostly in adjacent buildings, and should also incorporate pedestrian and bicycle accessibility to facilitate a **park-once environment**⁵. Access management tools such as frontage roads and shared parking would promote safe and efficient access. These nodes are located along **major transportation corridors**, and are either currently connected or planned to connect to **piped municipal water and sewer systems** to facilitate denser development.

- **Tourism Nodes:** These are primarily geared toward visitors drawn to the MSB's natural beauty and outdoor recreational activities. These nodes would contain a **mix of lodging, dining, and recreation-oriented uses for visitors, connected with skiing, boating, hiking, hunting, fishing, and other outdoor activities.** Although less dense than Regional Nodes, these areas would contain some degree of density through hotel, cabin, or lodge developments, and could also incorporate small amounts of residential housing. Similar to Regional Nodes, traffic, parking, and access management would be managed to emphasize the pedestrian experience after arrival and allow for a park-once model.
- **Neighborhood Nodes:** These are geared toward MSB residents and are locally focused, with **services for nearby residents such as grocery stores, retail, dining or coffee shops, and potentially a small amount of office space.** While less dense than other node types, they still require access management, particularly along the Bogard-Seldon Road corridor. These nodes would likely not be served by piped sewer or water but could feature small-scale community water or sewer systems. Some neighborhood nodes could also incorporate "pocket parks," using small areas within or between development to create public open spaces with park features such as small playgrounds, pavilions, or paths.

These categories are intended to focus planning and visioning, and to facilitate future MSB decision making regarding implementation and investments. These efforts should be coordinated with future updates to the MSB and community comprehensive plans.

The MSB does not have many publicly owned properties available in the recommended development nodes, which may limit its ability to spur development within these areas. The MSB should work with the communities, and partner with other public and private stakeholders to advance these development nodes. This may start with the identification of catalytic development sites (i.e., parcels with existing conditions and/or locations that

⁵ A park-once environment refers to an area where people can park in one place and then walk to multiple destinations rather than driving.

may spark future investment or redevelopment opportunities). The success of these sites would then encourage the development or redevelopment of the surrounding area.

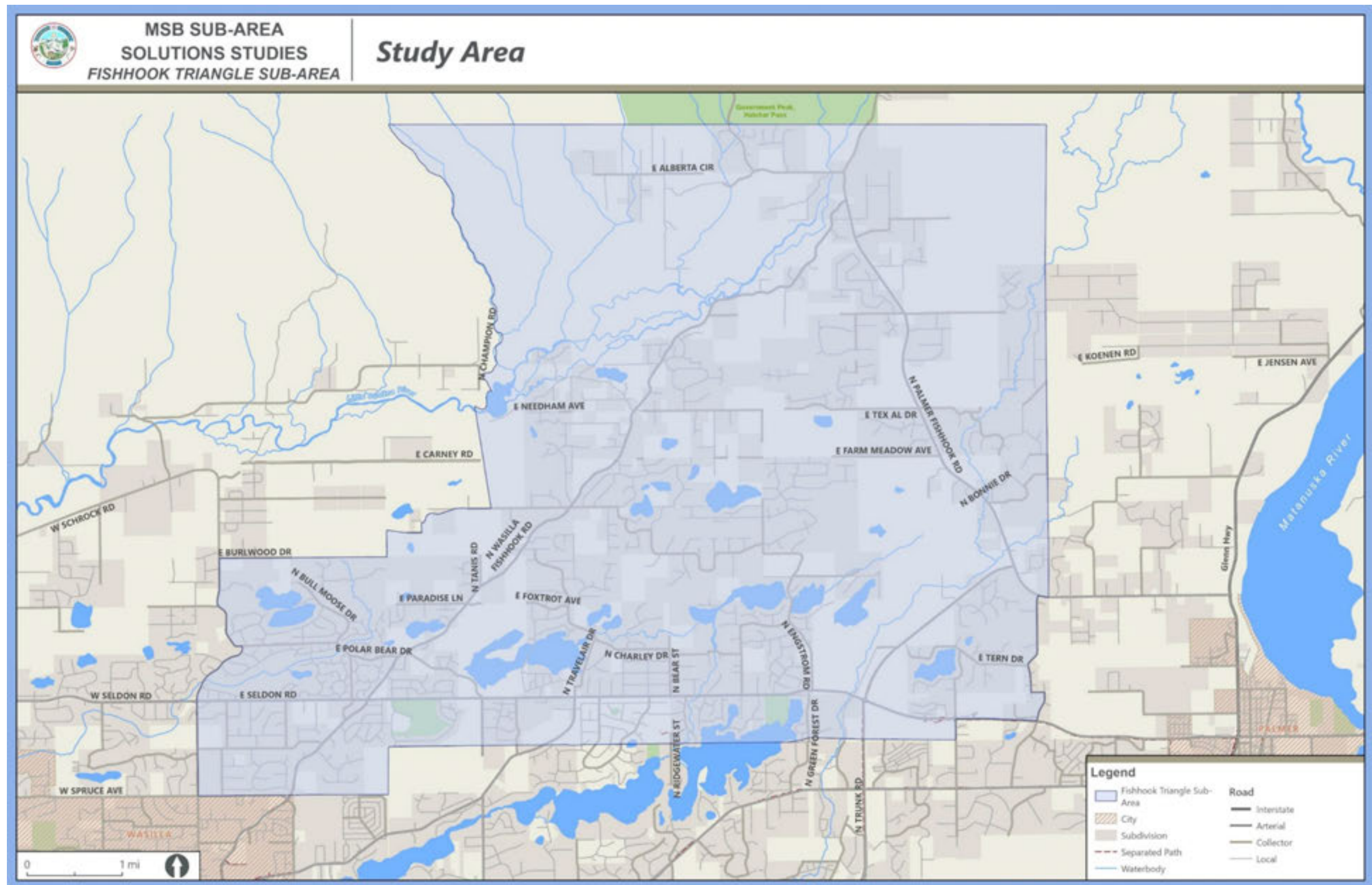
For additional information about the proposed nodes, please see Appendix C.

3 Fishhook Triangle Sub-Area

The Fishhook Triangle Sub-Area (Figure 4) is experiencing rapid residential development, but it has few supporting commercial services, requiring residents to frequently travel to Palmer, Wasilla, or Anchorage. The 2011 opening of the New Trunk Road provided the Fishhook Triangle more direct access to the East Parks Highway, making the trip to Palmer, Wasilla, or Anchorage less time consuming and safer. Better access has also contributed to the recent rapid residential growth within this sub-area. Residents enjoy the quality of life that the Fishhook Triangle Sub-Area provides, with access to the nearby Government Peak Recreation Area, Hatcher Pass, Skeetawk Downhill Ski Area, and the state-managed Matanuska Valley State Moose Range, all of which are experiencing increased winter and summer recreation use.

The current road network within the sub-area lacks connectivity. Few collector roads connect subdivisions to each other or to Bogard-Seldon, North Palmer-Fishhook, North Wasilla-Fishhook, or North Trunk Roads. For example, several subdivisions funnel their traffic to North Engstrom Road to access East Bogard Road at the base of the “Triangle.” The East Bogard/North Engstrom Road intersection is heavily congested, in part because North Engstrom Road does not have alternative connections to North Trunk, North Wasilla-Fishhook, or North Palmer-Fishhook Roads.

Figure 4. Fishhook Triangle Sub-Area



3.1 Level of Service Analysis

Segment capacity for roadways classified as collectors and higher within the Fishhook Triangle, UMED, and KGB-Big Lake Sub-Areas were estimated using the current Draft TDM and the Florida Department of Transportation Quality (FDOT) Level of Service Handbook to determine a planning-level quality of service of motorized vehicles and roadway operations. By estimating the roadway segment capacity and level of service (LOS), the MSB can prioritize which roadway segments would need improvements to provide sufficient capacity in the future.

A total of 61 roadway segments studied are within the Fishhook Triangle Sub-Area. However, Annual Average Daily Traffic (AADT) was not available for nine of the roadway segments. Most of the roadway segments analyzed are estimated to operate at LOS B in 2045. Table 4 provides the roadway segments that are estimated to operate at LOS D or worse in 2045.

Table 4. Fishhook Triangle Sub-Area Roadways at/over Capacity in 2045

Roadway	Segment Extents	Peak Hour Directional Threshold Capacity	Adjusted Peak Hour Directional Threshold Capacity	2045 AADT	Adjusted Peak Hour Directional Volume	LOS
N Palmer-Fishhook Rd	E Edgerton Parks Rd & N Snowgoose Rd	730	511	7,374	758	E
N Trunk Rd	N Palmer-Fishhook Rd & E Bogard Rd	730	511	9,000	926	E
E Bogard Rd	E Grumman Cir & N Arabian Ln	730	511	20,171	2,075	F
N Engstrom Rd	E Bogard Rd & E Aspen Ridge Rd	730	511	4,502	463	D
N Engstrom Rd	E Tex-Al Dr	730	511	4,502	463	D
E Seldon Rd	N Lucille St & E Grumman Cir	730	511	16,329	1,680	F
N Seward Meridian Pkwy	E Seldon Rd	730	511	11,626	1,196	E
E Lakeview Rd	E Seldon Rd & Wasilla-Fishhook Rd	730	511	4,483	461	D
E Schrock Rd	E Seldon Rd & E Burlwood Dr	730	511	6,363	654	D

Roadway	Segment Extents	Peak Hour Directional Threshold Capacity	Adjusted Peak Hour Directional Threshold Capacity	2045 AADT	Adjusted Peak Hour Directional Volume	LOS
Wasilla-Fishhook Rd	E Spruce Ave & N Palmer-Fishhook Rd	730	511	12,020	1,236	E

Notes: Ave = Avenue; Cir = Circle; Dr = Drive; E = East; Ln = Lane; N = North; Pkwy = Parkway; Rd = Road; St = Street

Based on this analysis, it is recommended to develop feasibility studies for the roadway segments that operate at LOS E and F in 2045, prioritizing roadway segments operating at LOS F. This analysis only considered roadway segment capacity and did not include intersection analyses. The feasibility studies would determine the extents of roadway widening required, intersection control improvements, and other roadside enhancements. The feasibility studies would include traffic data collection, intersection capacity analysis, and intersection alternatives analysis as well as determine non-motorized needs while also considering environmental impacts.

Please see the Study Segment Capacity Memo in Appendix D for additional information.

3.2 Environmental and ROW Considerations

Many of the projects identified in Table 5 are likely to involve roadway widening. This section is a planning-level summary (within 75 feet of road centerline) of selected environmental and ROW considerations that may be impacted should the road be widened. Understanding the existing environmental conditions is important for several reasons: they help determine which improvements may be challenging or more expensive to construct, which level of environmental documentation is needed, where additional agency coordination may be needed, and where there are opportunities for avoidance and mitigation.

Table 5. Fishhook Triangle Sub-Area Environmental and ROW Considerations

Roadway	Wetlands (acres)	Floodplains (acres)	Cultural Resources (number)	ROW (potential acquisition)
N Palmer-Fishhook Rd	8.9	0.2	1	\$229,000
N Trunk Rd	0.0	0.0	0	\$0
E Bogard Rd	0.0	0.3	1	\$4,182,000
N Engstrom Rd (E Bogard Rd & E Aspen Ridge Rd)	0.6	0.0	1	\$2,691,000
N Engstrom Rd (E Tex-Al Dr)	0.0	0.0	0	\$137,000
E Seldon Rd	0.18	0.0	0	\$8,036,000
N Seward Meridian Pkwy	3.0	0.4	0	\$3,617,000

Roadway	Wetlands (acres)	Floodplains (acres)	Cultural Resources (number)	ROW (potential acquisition)
E Lakeview Rd	0.0	0.0	0	\$0
E Schrock Rd	0.0	0.0	0	\$3,240,000
Wasilla-Fishhook Rd	0.4	0.8	0	\$5,334,000

Notes: Dr = Drive; E = East; N = North; Pkwy = Parkway; Rd = Road

As part of the feasibility studies recommended in Section 3.1, environmental and ROW considerations should be fully explored as they would change depending upon the improvements recommended by the study.

3.3 Unconstructed OSHP Road Prioritization

The OSHP identifies future road corridors and upgrades needed to safely and efficiently accommodate MSB's growing population and transportation needs within the Fishhook Triangle Sub-Area. Some of the roads highlighted on the OSHP may be built within the next 5 to 10 years, and others may not be built for another 20 years. When and where roads are built would depend on population growth, need, MSB Assembly approval, and funding.

The OSHP identified future road connections in the MSB with a focus on improving network access and connectivity. The OSHP, however, did not prioritize these new roads but identified all potential connections. Since resources are limited, a prioritization of the roads identified in the OSHP provides a strategic plan for the MSB to use as it strives to implement the OSHP over time and as resources become available.

The project team prioritized the OSHP-recommended roads in each sub-area based on the following concepts:

- Acres of wetland impacts
- Road connectivity
- Functional classification
- Anticipated changes in future population density
- Provision of alternative access
- Provision of congestion relief
- Inclusion in an adopted comprehensive plan
- Location within 0.5 mile of a school, college, EMS/fire station, or hospital
- Improvement of access to a significant recreation facility or area
- Improvement of access to a proposed development node

Most of these concepts were selected because they are indicators of future need. Areas that are anticipated to grow more or have existing traffic issues are more likely to need

improvements sooner than areas that are slower growing and do not have existing issues. For additional information on how the evaluation methodology and results, please see the Project Evaluation Memo in Appendix E. Figure 5 and Table 6 shows the results for the Fishhook Triangle Sub-Area.

The lack of north-south and east-west connections between North Palmer-Fishhook and North Wasilla-Fishhook Roads was identified by the OSHP as a critical flaw to the Fishhook Triangle Sub-Area's road network. Two north-south and two east-west corridors are within the Fishhook Triangle between North Palmer- and North Wasilla-Fishhook Roads, and are therefore recommended as priority projects for this sub-area. The corridors would improve connectivity within the "Triangle," providing alternative access to many of the existing subdivisions.

The following corridors are recommended:

- Recommended north-south corridors:
 - North Engstrom Road/North Covington Road corridor
 - North Raleigh Hills Street corridor (includes North Raleigh Hills extension to North Engstrom Road extension)
- Recommended east-west corridors:
 - East Tex-Al Drive connection
 - East New Hope Street extension

The two east-west corridors connect the North Palmer- and North Wasilla-Fishhook Roads, while the North Engstrom/North Covington Roads and North Raleigh Hills Street corridors provide two options for a north-south corridor. In combination, the east-west corridors provide important connections. Either north-south corridor would benefit the local road network, and connect to the East Tex-Al Drive and East New Hope Street corridors. If funding is an issue, it would be appropriate to choose one of the north-south corridors to provide north-south network connection in the near term. The unselected north-south corridor could be funded as a mid- or long-term project. Both east-west connections should be pursued for funding in the near term to create a more complete network. Table 6 and Figure 5 show the Fishhook Triangle Sub-Area prioritization results.

Table 6. Fishhook Triangle Sub-Area Prioritization Results

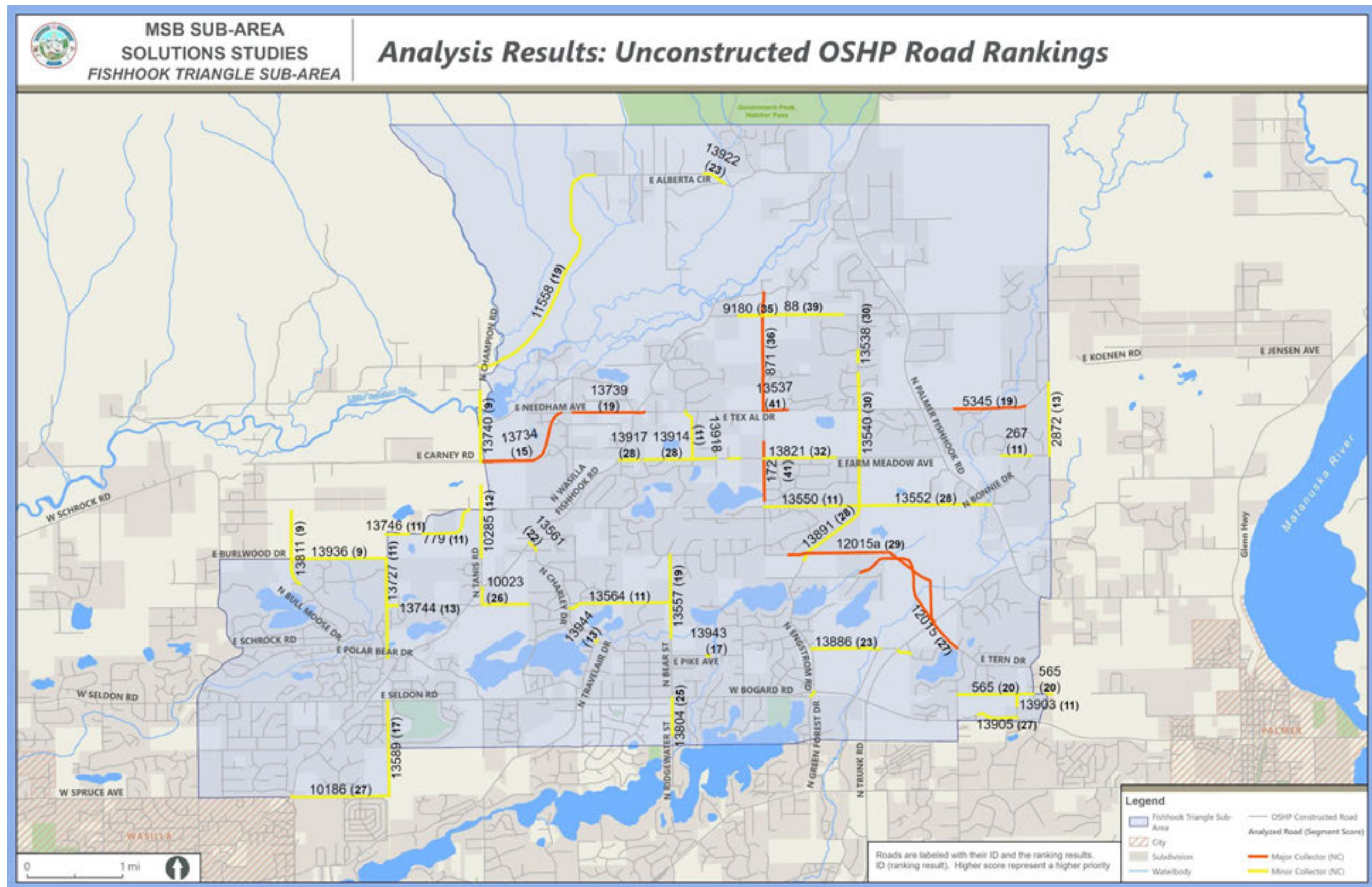
ID	Road Name or Description	Classification	Result
172	N Engstrom Rd	Major Collector	41
13537	Tex-Al Dr Connection	Major Collector	41
88	E New Hope St	Minor Collector	39
871	N Covington St	Major Collector	36
8478	E Lamar Rd	Minor Collector	35
9180	E Independence Ave	Minor Collector	35
13919	N Green Forest Dr Realignment	Minor Collector	33
13821	E Farm Meadow Ext to N Engstrom Rd North Ext	Minor Collector	32
13538	N Raleigh Hills St Connection	Minor Collector	30
13540	N Raleigh Hills St Ext South to ID #13550	Minor Collector	30
13565	N Tanis Rd Connection South to E Paradise Ln	Minor Collector	30
13891	Raleigh Hills St Ext from ID #13540 to Engstrom Rd	Minor Collector	28
13552	New Road: Wolf Lake Dr East to Palmer-Fishhook Segment B	Minor Collector	28
13914	Farm Meadow Ext from N Steen Rd to Wasilla-Fishhook Segment B	Minor Collector	28
13917	Farm Meadow Ext. from N Steen Rd to Wasilla-Fishhook Segment A	Minor Collector	28
12015	E Settlement Ave	Major Collector	27
10186	E Spruce Ave	Minor Collector	27
13905	Bogard Rd East Ext Frontage Rd Ext/N Colony Way to Hassen Bey Dr	Minor Collector	27
10023	E Paradise Ln	Minor Collector	26
13804	S Bear St Ext	Minor Collector	25
13922	E Edgerton Parks Rd Connection to E Alberta Cir	Minor Collector	23
13886	Engstrom Rd to N Old Homestead Rd Connection	Minor Collector	23
13561	N Charley Dr Ext to E Curtis Dr/Wasilla-Fishhook	Minor Collector	22
565	E Scott Road	Minor Collector	20
13888	Trunk Rd to E Tern Dr Connection	Minor Collector	20
5345	E Jensen Rd	Major Collector	19
13739	Tex-Al Dr West Ext to E Needham Ave	Major Collector	19
11558	E Edgerton Parks Rd	Minor Collector	19
13557	N Bear St Ext	Minor Collector	19
13943	E Pike Ave Ext	Minor Collector	17
13589	North/South Connection: E Spruce Rd Ext to E Seldon Rd	Minor Collector	17
13734	E Carney Rd to E Needham Ave Connection	Major Collector	15
2872	N Tazlina Dr	Minor Collector	13
13944	N Travelair Dr to N Charley Dr Connection	Minor Collector	13
13744	E Paradise Ln Ext West	Minor Collector	13
10285	N Soto Rd	Minor Collector	12
267	E Yentna Dr	Minor Collector	11
799	E Carlson Rd Ext East	Minor Collector	11
13903	Hassen Bae Dr Ext to E Scott Rd Ext	Minor Collector	11
13550	New Road: Wolf Lake Dr East to Palmer-Fishhook Segment A	Minor Collector	11

ID	Road Name or Description	Classification	Result
13564	E Foxtrot Ave Ext to N Bear St Ext	Minor Collector	11
13918	New Road: Tex Al Dr/Grouse Loop Intersection to ID# 13914	Minor Collector	11
13727	New Road: E Polar Bear Dr North to E Burlwood Dr Ext	Minor Collector	11
13746	E Carlson Dr Ext West	Minor Collector	11
13811	N Bull Moose Dr Ext North	Minor Collector	9
13936	E Burlwood Dr Ext	Minor Collector	9
13740	N Champion Rd Ext to Carney Rd	Minor Collector	9

Notes: Ave = Avenue; Cir = Circle; Dr = Drive; E = East; Ext = Extension; ID = Identifier; Ln = Lane; N = North; Rd = Road; S = South; St = Street. The higher the results, the higher the priority.

Additional information about the evaluation criteria and scoring results for the OSHP recommendations in this sub-area can be found in Appendix E.

Figure 5. Fishhook Triangle Sub-Area – Analysis Results: Unconstructed OSHP Road Rankings



3.4 Corridor Access Management Plans

The following roads in the Fishhook Triangle Sub-Area are identified in the current OSHP as major collectors and minor arterials:

- Bogard-Seldon corridor (major arterial)
- North Trunk Road (major arterial)
- North Palmer- and North Wasilla-Fishhook Roads (minor arterial)
- North Engstrom/North Covington Roads corridor (major collector)
- Tex-Al Drive/Jensen Road corridor (major collector)
- North Engstrom/North Trunk Roads connector (major collector)

A CAMP for the Bogard-Seldon Road corridor was developed in 2025. Priority should be given to North Trunk Road and the North Palmer- and North Wasilla-Fishhook Roads because they are anticipated to have LOS F in 2045.

3.5 Wildlife Collision Reduction

Vehicle collisions with wildlife, particularly moose, are a major roadway safety concern in the MSB. The first step in reducing wildlife collisions is to identify areas where wildlife are most likely to attempt to cross the roadway. This is most easily done by locating hotspots with high numbers of collision incidents. The DOT&PF collects Alaska State Trooper reports of collisions, and these reports are available by request. Public outreach with nearby residents could help identify areas with high numbers of near misses that are not captured in Alaska State Trooper collision reports.

Once wildlife crossing hotspots are identified, MSB can identify measures to reduce the number of collisions. Solutions such as wildlife underpasses, overpasses, or fencing are widely used on highways throughout the country but are likely not a cost-effective solution for MSB due to the upfront capital investment and relatively low traffic density. Wildlife exclusion fencing is effective in directing moose and other large animals to cross at safer areas with good driver sightlines. However, fencing requires long, uninterrupted segments to be most effective, and it can be expensive to install and maintain over time. The number of intersections and driveways on the main roads in the Fishhook Triangle Sub-Area would greatly reduce the effectiveness of wildlife fencing.

Cost-effective means of reducing collisions with wildlife would be through changing driver behavior as well as increasing their awareness and ability to see wildlife. Slower speeds on main roads could reduce the number and severity of collisions with wildlife but require driver compliance. Flashing or reflective wildlife signage would provide a visible warning to drivers that they are approaching known wildlife crossing areas. The maintenance of a

clear zone along main roadways would allow drivers to see wildlife and react earlier to avoid collisions.

3.6 Development Nodes

This section describes the two development nodes (Hatcher Pass Gateway and Trunk Road Corridor) identified in the Fishhook Triangle Sub-Area.

3.6.1 Hatcher Pass Gateway

The proposed Hatcher Pass Gateway tourism node is located at the northern point of the Fishhook Triangle, at the intersection of North Wasilla-Fishhook Road and North Palmer-Fishhook Road (see Figure 6). This node emerged as a result of recent development and increased popularity of the ski area in Hatcher Pass, nearby recreational opportunities (e.g., snowmachining, hiking, camping, berry picking, wildlife viewing, hunting, fishing), and nearby housing development. This node is a gateway to year-round outdoor recreation activities at Hatcher Pass, the Government Peak Recreation Area, and the Matanuska Valley State Moose Range, including skiing, hiking, berry picking, gold panning, and snowmachining, with a variety of attractive commercial development such as small shops, lodging, and dining options for MSB residents and tourists.



The Hatcher Pass Gateway tourism node demonstrates a disconnect between the MSB's platting regulations and development patterns. Although the subdivisions within this area were platted as single-family lots, they were later developed as detached multifamily fourplexes, since developers are not required by the MSB code to disclose their intended land use. While these units have managed to meet the requirements for separation of well and septic systems, there are concerns over traffic impacts and the potential for future water contamination given the density of development within the area. Advance planning for the node would ensure safe septic system development for the appropriate density as well as realistic forecasts of transportation impacts of development.

Figure 6. Proposed Hatcher Pass Gateway Tourism Node



Currently, a commercial development at Turners Corner serves tourists and local residents. Its location accommodates those who must travel north to the Fishhook Triangle apex to move between subdivisions that lack connectivity farther south. However, as connectivity within the Fishhook Triangle improves over time, and with increased potential for tourism-driven development, this node would likely become more tourist-focused in the future. To this end, charette participants envisioned a “ski village” area around this node, with the potential for restaurants, retail, lodging, and ski shops, as well as an improved bike and pedestrian trail along Palmer-Fishhook Road to connect these businesses.

Create a Hatcher Pass Gateway Node Implementation Plan

To turn the Hatcher Pass Gateway node from a vision to reality, an implementation plan identifying key tasks and items is important for its success. The implementation plan should:

- Continue to carry out the goals and objectives of the **Fishhook Community Comprehensive Plan**, which contains goals of promoting recreational activities and uses as well as a goal to concentrate commercial development within the area where the two Fishhook Roads meet, roughly corresponding to the node area envisioned herein. This plan also expressed community desires for more amenities within the area, including restaurants, shopping centers, and art galleries.
- Consider adding **gateway features** to welcome visitors.
- Proactively invest in **pedestrian and bike infrastructure** as well as facilities in the node. This would improve connectivity between future uses, including

Potential Uses:

- Outdoor recreation-focused stores and gear rental shops
- Dining, food, and drink establishments
- Hotels, cabins, and other lodging
- Gas stations
- Art galleries
- Farmers' market



implementation of projects identified in the MSB Bicycle and Pedestrian Plan. For example, the separated pathway to Government Peak (Project #5) and a separated pathway along Palmer Fishhook Road (Project #6). A pathway to the Moose Range could also be considered.

- Develop a **plan for shared utilities** such as community water or sewer systems to facilitate development of denser uses such as hotels in the node.
- Consider establishing a **zoning district for the node to ensure desired land uses develop as envisioned and to meet the MSB Assembly's stated goal of managing growth**. A more detailed discussion of zoning can be found in Section 2.
- Engage in **key partnerships**:
 - o Partner with **Hatcher Pass Resort, Government Peak Recreation Area**, and other recreational providers to integrate lodging and other tourism services in the node with their recreational activities
 - o Partner with the **Mat-Su Visitor Foundation, Mat-Su Convention & Visitors Bureau, Mat-Su Trails and Parks Foundation**, and other private and government agencies to brand and market the node and surrounding recreational areas as a tourist destination
 - o Partner with other large landowners such as Chickaloon Native Village to further develop a vision for this node and collaborate on development

3.6.2 Trunk Road Corridor

The North Trunk Road corridor from just north of East Bogard Road extending southward several parcels beyond the East Palmer-Wasilla Highway is a proposed regional node with a large potential for redevelopment and concentrated commercial activity (see Figure 7). The Trunk Road Corridor overlaps with the UMED development node discussed in Section 4.7.1.

A great deal of development is already occurring within this area, including:

- A total of 80 subsidized affordable apartments on the southwestern corner of East Bogard and North Trunk Roads. This development is planned in two phases of 10 fourplexes, each with communal areas, and would be targeted at residents earning 30 to 60 percent of the area median income. Market-rate and affordable senior units would also be included in the development, as well as a gas station.
- New Three Bears warehouse store/supermarket at the southwestern corner of North Trunk Road and the East Palmer-Wasilla Highway. There is potential for future development on the site.
- Potential redevelopment of the large gravel pit on the southeastern corner of North Trunk and East Bogard Roads. This site is nearly fully expended and could be redeveloped within the coming decade. A smaller, expended gravel pit on the northeastern corner of North Trunk Road and the East Palmer-Wasilla Highway could be redeveloped in the future.
- Construction of Mat-Su Central School. The addition of a second school would increase traffic at drop-off and pick-up times, creating a need for effective access management and potential pedestrian connections between the school and the new housing development at the North Trunk and East Bogard Road intersection as well as any future housing developments south of the East Palmer-Wasilla Highway. This could be accomplished through implementation of the Safe Routes to School priorities for the area.

Potential Uses:

- Regional-serving commercial and retail
- Multifamily housing
- Services (e.g., banking, insurance, salons, automotive repair)
- Medical (dentist and doctor's offices)
- Small offices
- Food (e.g., restaurants, coffee shops, brewpubs, grocery)



Figure 7. Proposed Trunk Road Corridor Regional Node



Create a Trunk Road Corridor Implementation Plan

To realize the Trunk Road Corridor node, an implementation plan identifying key tasks and items is needed. The implementation plan should:

- Prepare a **community plan** for development in the node area, including the following elements:
 - Define the **boundary** of the node area.
 - Articulate a **community vision** for the uses and types of development in the node area.
 - Plan for **access management**, particularly along the two major arterials (North Trunk Road and East Palmer-Wasilla Highway), and internal connections for vehicles.
 - Consider the need for **pedestrian connections** behind the main arterials, particularly from Pioneer Peak Elementary to the forthcoming housing development to its north, to potential future housing development on either side of North Trunk Road, and to existing adjacent residential neighborhoods. A path from Pioneer Peak Elementary to East Bogard Road along North Old Trunk/North Stringfield Road has been identified as a medium-term project in the MSB Bicycle and Pedestrian Plan (Project #32; MSB 2023).
 - Work with the City of Palmer to create a **plan for extending piped sewer and water to this area, assuming that future development would sufficiently increase demand for services**. The City of Palmer has also expressed interest in cost sharing contributions to this project from future developers.
- Consider establishing a **zoning district or other land use controls for the node to ensure desired land use develops as envisioned and meet the MSB Assembly's stated goal of managing growth**.
- Coordinate with property owners of several **large, undeveloped parcels and gravel pits with single ownership**, including Cook Inlet Region, Inc. (CIRI), around future plans for their parcels and a timeline for gravel pit exhaustion. This would help catalyze desired development within the area.
- Plan for a **future transit stop and shelter** in the node area. The MSB (2017) 2035 L RTP calls for increased density around future transit routes and identifies Trunk Road as a potential future bus route. If the MSB considers expanding bus service as its population grows, providing a comfortable and safe transit shelter in node areas would be important.

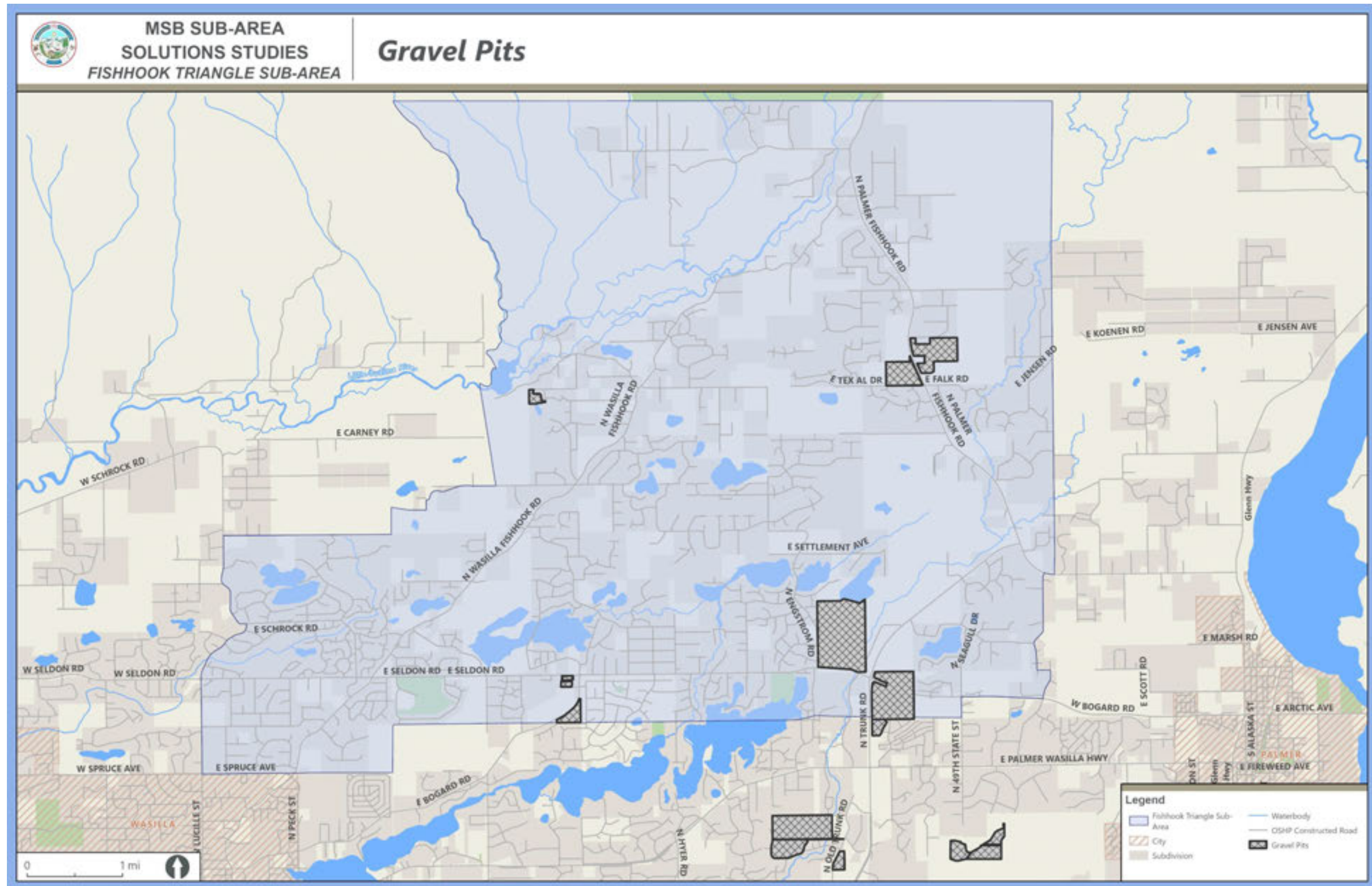
3.7 Fishhook Community Comprehensive Plan Update

The *Fishhook Comprehensive Plan* was last adopted in 2017, so the MSB should start a plan update in 2025. The MSB is in the process of updating the borough-wide Comprehensive Plan. The plan should consider encouraging the concentration of commercial and industrial nodes at central locations as well as along identified major transportation corridors.

3.8 Gravel Pit Operator Coordination

Figure 8 shows gravel pits in the Fishhook Triangle Sub-Area. Three gravel pits are near the East Bogard/North Trunk Road intersection that, when redeveloped, could be used to support the Trunk Road Corridor node. The MSB should coordinate with the operators of those gravel pits so they can develop a plan for their eventual closure and decide how reuse of these sites could support future development.

Figure 8. Gravel Pits in the Fishhook Triangle Sub-Area



3.9 Non-Motorized Improvements

Having a robust, non-motorized transportation network is important because it provides people with transportation choices and reduces congestion, along with other benefits. As shown in Figure 9, the 2023 MSB Bicycle and Pedestrian Plan (MSB 2023) recommends multiple bicycle and pedestrian improvements in the Fishhook Triangle Sub-Area, including:

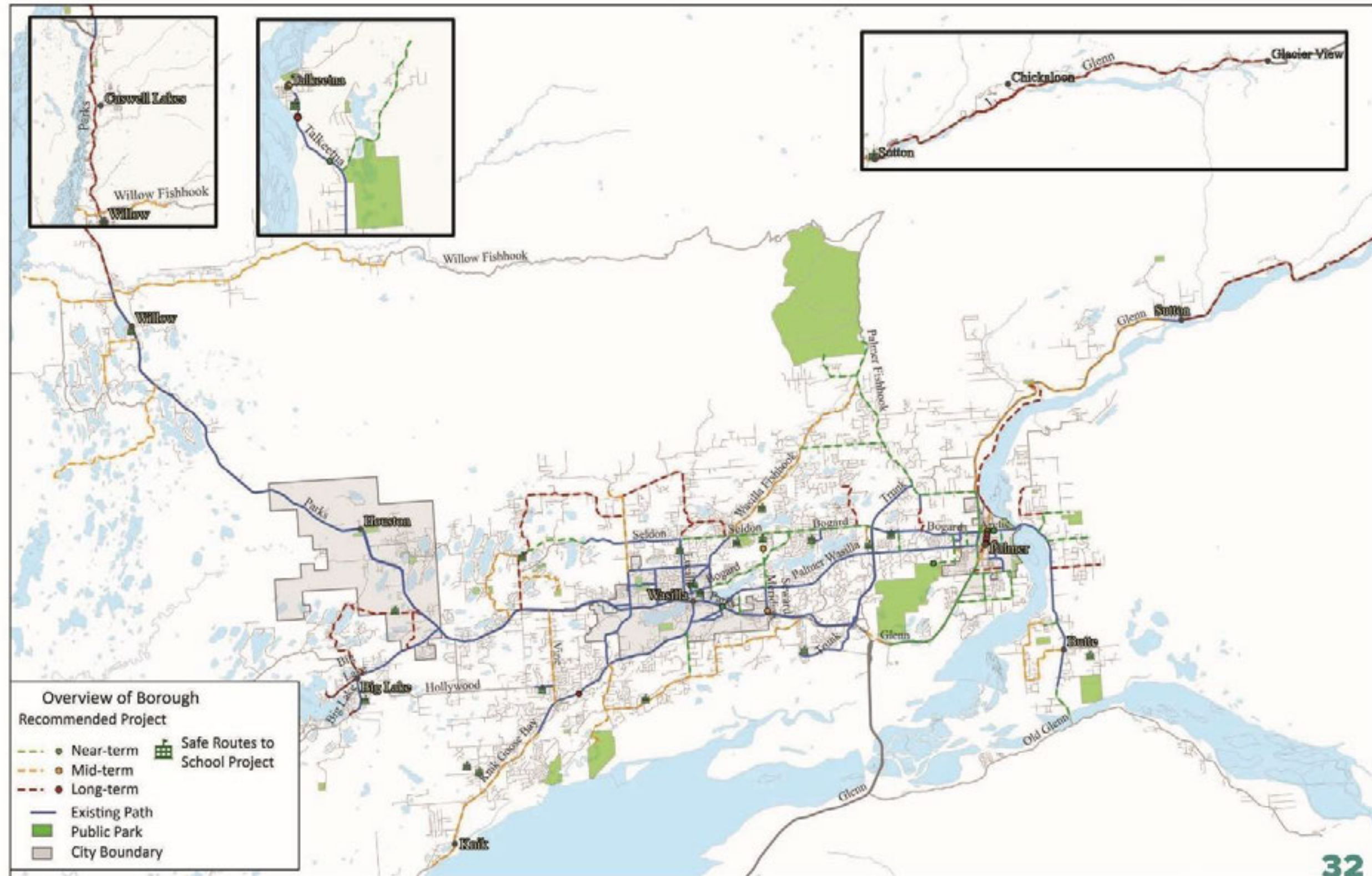
- 31. North Palmer-Fishhook Road separated path
- 34. North Snowgoose pathway extension south
- 37. Colony Middle School route improvements
- 38. Pioneer Peak Elementary school route improvements
- 39. North Stringfield Road pathway
- 41. North Engstrom Road pathway
- 42. Finger Lake Elementary school route improvements
- 43. East Tex-Al Drive path
- 44. East Edgerton Parks Road and North Mountain Trails Drive path
- 48. Teeland Middle School route improvements
- 49. East Bogard Road separated path
- 50. Shaw Elementary school route improvements
- 51. North Wasilla-Fishhook Road separated path
- 54. Larson Elementary school route improvements

For additional information about the projects listed above, please see the [2023 MSB Bicycle and Pedestrian Plan](#).

Several of these projects, such as separated paths for North Palmer-Fishhook Road, North Wasilla-Fishhook Road, and East Tex-Al Drive, would support the development of the Hatcher Pass Gateway node. The Pioneer Peak Elementary school route improvements and North Stringfield Road pathway would support the Trunk Road Corridor node by providing more transportation options for the public, potentially reducing congestion at Pioneer Peak Elementary, and increasing safety for students or families using non-motorized transportation to both Pioneer Peak and Mat-Su Central schools.

In addition to the projects listed above, non-motorized facilities should be incorporated on all unconstructed OSHP roads (identified in Section 3.3) based on the MSB's Complete Streets Policy (when adopted).

Figure 9. Recommendations from the MSB Bicycle and Pedestrian Plan



Source: MSB 2023

4 UMED Sub-Area

The University-Medical District (UMED) Sub-Area is distinctive in that it contains several educational and medical facilities, including the Mat-Su Regional Medical Center and adjacent Providence Medical Buildings, University of Alaska Fairbanks (UAF) Matanuska Experiment Farm and Extension Center (Figure 10), University of Alaska Anchorage's (UAA) Mat-Su College (Figure 11), and numerous other medical offices and senior living facilities. UMED includes a large, contiguous open space composed of UAF, UAA, MSB, and Alaska Department of Natural Resources (ADNR) property, locally known as the Matanuska Greenbelt or Central Park.

The UMED Sub-Area is generally bounded by the Parks Highway to the south, the Glenn Highway to the east and southeast, Trunk Road Corridor to the west, and a portion of East Bogard Road and the East Palmer-Wasilla Highway to the north (see Figure 12). Most of the sub-area is within the Gateway Community Council district or the City of Palmer.

Figure 10. UAF Experiment Farm, School, and Natural Resources and Extension Service Campus

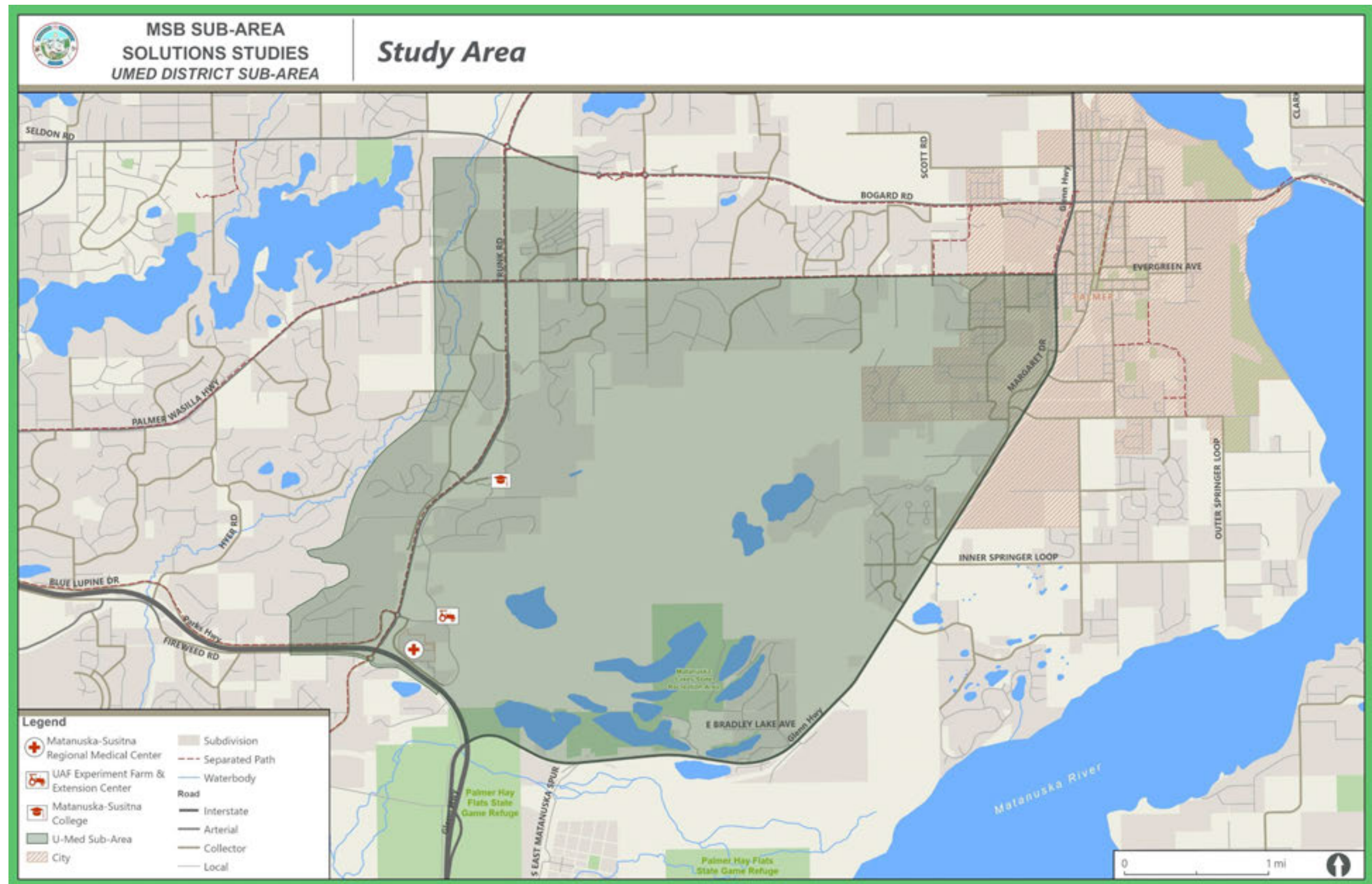


Figure 11. UAA Mat-Su College, Glenn Massey Theater Complex



Photo HDR

Figure 12. UMED Study Area



4.1 Level of Service Analysis

Segment capacity for roadways classified as collectors and higher within the Fishhook Triangle, UMED, and KGB-Big Lake Sub-Areas were estimated using the current Draft TDM and FDOT Level of Service Handbook to determine a planning-level quality of service of motorized vehicles and roadway operations. By estimating the roadway segment capacity and LOS, MSB would be able to prioritize which roadway segments would need future improvements to provide sufficient capacity in the future.

A total of 36 roadway segments were identified within the UMED District Sub-Area. However, AADT was not available for five of the roadway segments. Most of the roadway segments analyzed are estimated to operate at LOS B in 2045. Table 7 provides the roadway segments that are estimated to operate at LOS D or worse in 2045.

Table 7. UMED District Sub-Area Roadways at/over Capacity in 2045

Roadway	Segment Extents	Peak Hour Directional Threshold Capacity	Adjusted Peak Hour Directional Threshold Capacity	2045 AADT	Adjusted Peak Hour Directional Volume	LOS
E Parks Hwy	E Gershmel Lp & Glenn Hwy	1,800	1,800	47,536	3,423	E
S Woodworth Lp	N Trunk Rd to sub-area boundary	730	511	10,599	1,090	E
E Palmer-Wasilla Hwy	N Stringfield Rd & S Glenn Hwy	730	511	20,658	1,750	F
N Hemmer Rd	E Palmer-Wasilla Hwy & S Maple Springs Way	730	511	4,942	508	D
S Ellen St	E Palmer-Wasilla Hwy & W Fern Ave	730	511	6,825	702	D

Notes: Ave = Avenue; E = East; Hwy = Highway; Lp = Loop; N = North; Rd = Road; S = South; St = Street

Based on this analysis, it is recommended to conduct feasibility studies for the roadway segments that operate at LOS E and F in 2045, prioritizing roadway segments operating at LOS F. This analysis only considered roadway segment capacity and did not include intersection analysis. The feasibility studies would determine the extents of roadway widening required, intersection control improvements, and other roadside enhancements. The feasibility studies would include traffic data collection, intersection capacity analysis, and intersection alternatives analysis as well as determine non-motorized needs while also considering environmental impacts. Please see the Study Segment Capacity Memo in Appendix D for additional information.

4.2 Environmental and ROW Considerations

Many of the projects identified in Table 8 are likely to involve roadway widening. Table 8 provides a planning-level summary (within 75 feet of road centerline) of selected environmental and ROW considerations that may be impacted should the road be widened. Understanding the existing environmental conditions is important for several reasons: they help determine which improvements may be challenging or more expensive to construct, which level of environmental documentation is needed, where additional agency coordination may be needed, and where there are opportunities for avoidance and mitigation.

Table 8. UMED Sub-Area Environmental and ROW Considerations

Roadway	Wetlands (acres)	Floodplains (acres)	Cultural Resources (number) ^a	ROW
E Parks Hwy	0.0	0.0	0	\$43,000
S Woodworth Lp	0.0	0.0	0	\$0
E Palmer-Wasilla Hwy	0.0	0.0	0	\$2,545,000
N Hemmer Rd	0.0	0.0	0	\$0
S Ellen St	0.0	0.0	0	\$0

Notes: E = East; Hwy = Highway; Lp = Loop; N = North; N/A = not applicable; Rd = Road; S = South; St = Street

^a While no cultural resources have been identified adjacent to these road segments listed above, known cultural resources are within the area.

4.3 Unconstructed OSHP Road Prioritization

The OSHP identifies future road corridors and upgrades needed to safely and efficiently accommodate MSB's growing population and transportation needs within the UMED Sub-Area. Some of the roads highlighted on the OSHP may be built within the next 5 to 10 years, and others may not be built for another 20 years. When and where roads are built would depend on population growth, need, MSB Assembly approval, and funding.

The OSHP identified future road connections in the MSB with a focus on improving network access and connectivity. The OSHP did not prioritize these new roads but identified all potential connections. Prioritizing the roads would help the MSB implement the OSHP and budget for road projects.

The project team prioritized the OSHP-recommended roads in the UMED Sub-Area (see Figure 13) based on:

- Acres of wetland impacts
- Road connectivity
- Functional classification

- Anticipated changes in future population density
- Provision of alternative access
- Provision of congestion relief
- Inclusion in an adopted comprehensive plan
- Location within 0.5 mile of a school, college, EMS/fire station, or hospital
- Improvement of access to a significant recreation facility
- Improvement of access to a proposed development node

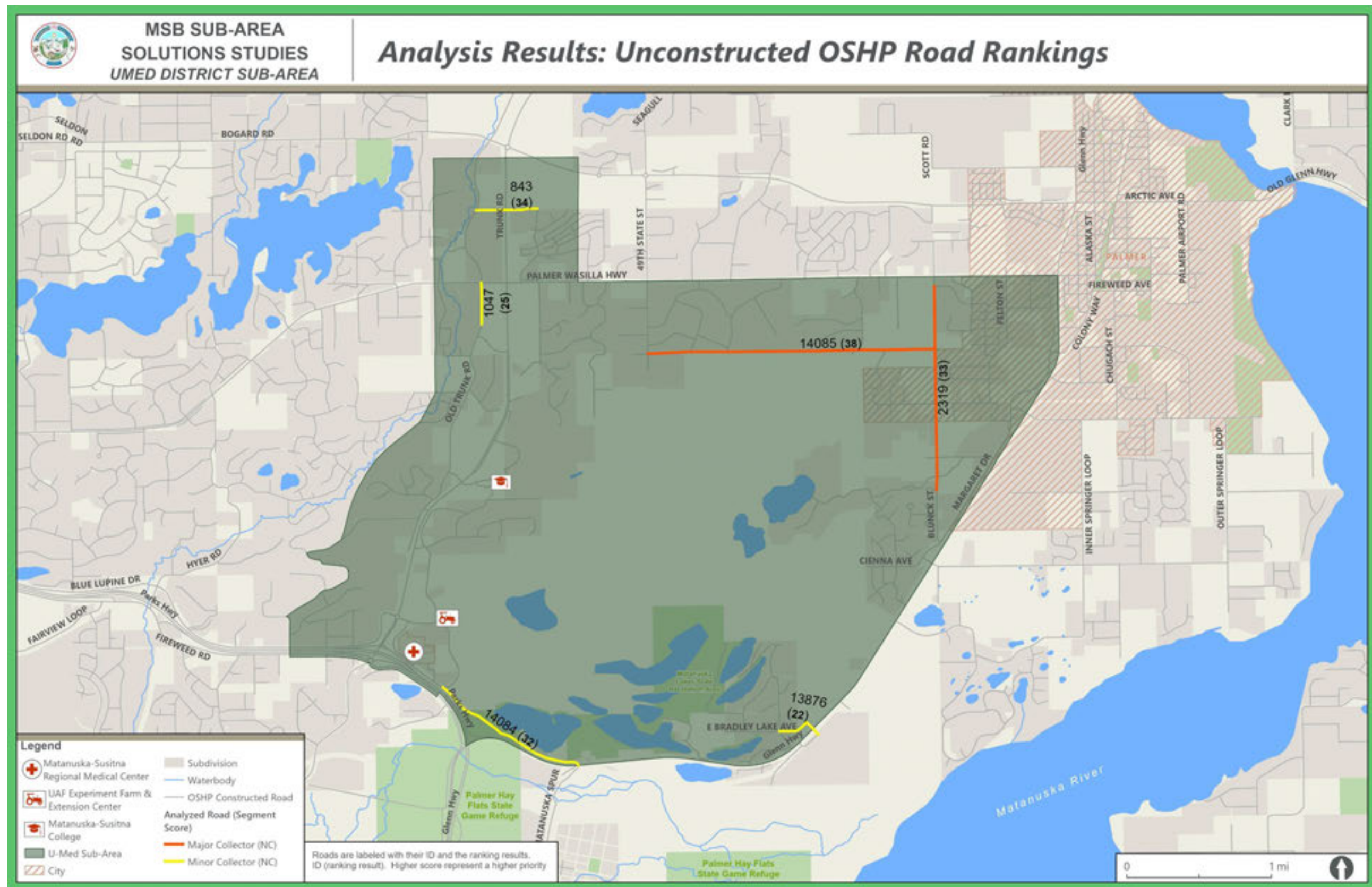
Figure 13 and **Error! Reference source not found.** show the project improvement prioritization results for the UMED Sub-Area.

Table 9. UMED Sub-Area Prioritization Results

ID	Road Name or Description	Classification	Result
14085	S Hemmer Rd Ext/N France Rd to N 49th State St	Major Collector	38
843	E Katherine Dr	Minor Collector	34
2319	S Blunck St/S Hemmer Rd Ext	Major Collector	33
14084	Hospital Alternative Access: S Glenn Hwy to S Georgeson Dr	Minor Collector	32
1047	N Old Trunk Rd	Minor Collector	25
13876	E Bradley Lake Rd Ext	Minor Collector	22

Notes: Dr = Drive; E = East; Ext = Extension; ID = Identifier; N = North; Rd = Road; St = Street. The higher the results, the higher the priority.

Figure 13. UMED Sub-Area – Analysis Results: Unconstructed OSHP Road Rankings



4.3.1 Analysis

The UMED Sub-Area is served by a functional arterial road system composed of Trunk Road, the South Glenn Highway, the East Palmer-Wasilla Highway, and East Bogard Road (see Figure 13). The heart of the UMED Sub-Area is the “Matanuska Green Belt,” which is a large, undeveloped area consisting of UAF, UAA, MSB, and state/ADNR lands. Development has occurred around the fringes of the Green Belt.

The OSHP identified a few collector and major collector road projects to augment the arterial system within this sub-area. Several of the OSHP project identified are anticipated to be constructed soon, including East Katherine Drive between North Trunk Road and North Stringfield Road; South Hemmer Road between the East Palmer-Wasilla Highway and North France Road; and East Bradley Lake Road Extension, which would be constructed as part of the South Glenn Highway Project between the East Parks Highway Interchange and South Inner Springer Road. North Old Trunk Road Extension to the East Palmer-Wasilla Highway/North Stringfield Road intersection would be constructed by a developer who owns the property between North Old Trunk Road Extension and the New Trunk Road south of the East Palmer-Wasilla Highway as part of their development.

With respect to identified OSHP projects, this leaves South Hemmer Road Extension between North France Road and North 49th State Street, the east extension of East Katherine Drive to North Manhattan Way in the Mid-Town Estates Subdivision, the South Blunck Street/South Hemmer Road extension, and the South Glenn Highway New Hospital Access Road to be constructed. Additionally, a new landfill access road from the southwestern boundary of the MSB Central Landfill to North Trunk Road at East College Drive and a second hospital access along existing roads from the South Trunk Road/East Duchess Drive intersection to South Woodruff Loop are being considered.

New Hospital Access

The two hospital access roads have been discussed in Section 4.3.1 and together provide alternative access options to the MSB’s only hospital. These projects should be given added consideration.

Katherine Drive Extension East

The Katherine Drive East extension is a small-scale project that provides an important alternative access and improves connectivity to the sub-area’s arterial system from the very large Mid-Town Estates subdivision.

South Blunck Street/South Hemmer Extension

The South Blunck Street/South Hemmer Road Extension would provide access from a very developed area west of the South Glenn Highway to the East Palmer-Wasilla Highway

and ultimately to East Bogard Road. This project should be considered a longer-term need. The upgrade of the South Glenn Highway with its west frontage road addressed the historical difficulty that residents within this area had accessing Palmer, which required difficult left-turning movements on the South Glenn Highway. Left-turning movements from the South Glenn Highway to the many intersecting roads west of the highway were also difficult. The upgraded highway now funnels traffic to the South Glenn Highway via the frontage road, and three signalized intersections improve left-turning movements in all directions.

Access to the South Glenn Highway from the subdivisions located south of the East Palmer-Wasilla Highway and north of East Helen Drive is available via East Moore Road and its signalized intersection at the South Glenn Highway. These subdivisions also have improved access to the East Palmer-Wasilla Highway via the new signalized intersection at South Felton Street and would improve access when the South Hemmer Extension to North France Road project is completed. All these improvements combined make the extension of South Blunck Street/South Hemmer Road less pressing.

South Hemmer Road Extension from France Road to 49th State Street

The South Hemmer Road Extension from North France Road to North 49th State Street, which scored high, should also be considered a longer-term need. The most immediate transportation and safety needs are being met because the initial South Hemmer extension between the East Palmer-Wasilla Highway and North France Road would provide access from the Valley Pathways School to a signalized intersection at South Hemmer Road and the East Palmer-Wasilla Highway.

4.4 Piped Water and Sewer Utilities

The City of Palmer has extended piped sewer and water to serve the Mat-Su Regional Medical Center and surrounding medical facilities, which is unique to this sub-area.

4.4.1 Water

Piped water has been extended along the eastern side of New Trunk Road to a point opposite its intersection with North Old Trunk Road. The City of Palmer's water system was extended to Colony High School as part of the MSB's Bogard Road East Extension project. The City of Palmer has identified a \$19.4 million "Complete the Loop" waterline extension project connecting the existing termini to each other as part of its 2023 Legislative Priorities. When connected, this would potentially allow for higher density development within the UMED Sub-Area.

The City of Palmer identified costs for two additional water system projects as part of its 2023 Legislative Priorities:

1. Pressure Booster Station Along Bogard Road East Extension, \$950,000.00: This project would construct a booster station along the Bogard Road water line to make it functional. This would allow this section of the water system to be charged, allowing service to adjoining properties.
2. Palmer-Wasilla Water System Connection, \$10.0 million: This would provide initial funding to connect the two municipal water systems to provide resiliency to the two systems. Wasilla has both water quantity and quality issues, while Palmer's access to the Matanuska River System Aquifer provides a stable quality source of water. This potential connection would serve the MSB's Core Area and provide the opportunity for higher density development and potentially more affordable housing opportunities.

Figure 14 shows the City of Palmer water reservoir at East College Drive and North Trunk Road.

Figure 14. City of Palmer Water Reservoir Located at East College Drive and North Trunk Road



Photo: HDR

4.4.2 Wastewater Utilities

Currently, the City of Palmer provides wastewater service to Mat-Su Regional Medical Center and surrounding medical facilities with a sewer line extension from its wastewater plant located off South Inner Springer Loop via the South Glenn Highway. The City currently has no plans to extend its sewer lines north along Trunk Road or farther eastward along the East Parks Highway. Any future sewer line extensions would have to be demand driven.

For discussion purposes only, two opinions of probable capital costs were developed to extend sewer service to the North Trunk Road and East Palmer-Wasilla Highway intersection (see Table 10). These two opinions provide costs whether the line is constructed outside or within the North Trunk Road paved roadway. This concept assumes that the Palmer Wastewater facility has current capacity to manage this increased load, and no ROW acquisition is needed.

Table 10. Opinion of Potential Costs

Item	Inside Roadway	Outside Roadway
Basic Construction Cost	\$18,190,000	\$12,693,000
Contingency (30%)	\$5,457,000	\$3,807,900
Construction Subtotal	\$23,647,000	\$16,500,900
Engineering and Design (15%)	\$3,547,050	\$2,475,135
Construction Administration (10%)	\$2,364,700	\$1,650,090
Geotechnical/Permitting (8%)	\$1,891,760	\$1,320,072
Total Project Cost	\$31,450,510	\$21,946,197

This exercise demonstrates the cost to just extend the necessary piping to accommodate development at this critical intersection where large undeveloped properties are located. The sewer line extension combined with piped water service would allow denser, mixed-used development that would provide commercial and housing opportunities at this hub intersection.

This project assumes 13,500 linear feet of gravity pipe, 3,500 linear feet of pressure pipe, and two lift/pump stations. Costs represent 2023 value, and a 3.5 percent inflation factor should be applied to determine construction year costs. For example, a 2028 construction year cost would be increased by 18.5 percent.

4.5 Alternative Hospital Access

The Mat-Su Regional Medical Center (Figure 15) is the primary hospital serving the MSB. The nearest hospitals are 40 miles away in Anchorage. The hospital is north of the East Parks Highway/South Trunk Road interchange and accessed from South Trunk Road via a roundabout at South Georgeson Drive to South Woodworth Loop. The hospital has no

other access point. The South Trunk Road/South Georgeson Drive roundabout experienced one closure since its opening due to a public safety incident. Emergency vehicle access to the hospital was maintained during this incident, but local subdivision traffic was prevented from using the roundabout for several hours while the investigation took place. This incident points to the vulnerability of access to the hospital in case of the closure of the South Trunk Road interchange and/or the South Trunk Road/South Georgeson Drive roundabout.

Figure 15. Mat-Su Regional Medical Center



Due to the hospital's location and its proximity to the South Glenn/East Parks Highway interchange, alternative access opportunities are limited and do not address all possible closures. Three alternatives assessed in detail by this report are considered viable, if limited, options:

1. **Glenn Highway Access:** A proposed minor collector road was identified in the MSB's 2022 OSHP to provide access to the hospital (see Figure 16) (MSB 2022a). This road would be located east of the hospital and would access the Glenn Highway at the Matanuska Lakes State Recreation Area's (MLSRA) access road. A new, 1.1-mile, two-way, access road would be constructed west toward South Woodworth Loop. This project would affect MLSRA property, a recreation vehicle park, a commercial business, a private home, a private gravel operation, a private

undeveloped parcel, and private farmland. ROW acquisition would be a factor with this option.

This alternative can connect to South Woodworth Loop at two possible locations represented by Segments B and C. Segment A is the frontage road north of the South Glenn Highway and is common to Segments B and C. The total cost differential is insignificant, with the final location of the connection to South Woodworth Loop to be determined during the preliminary engineering phase.

Segment A (Figure 16) represents a 100-foot offset from the South Glenn Highway that initiates from the MLSRA's access road and is approximately 2,700 feet long. Segment B is approximately 2,950 feet long and connects slightly to the north of Segment C. Segment C is approximately 3,000 feet long and connects to South Woodworth Loop near the former fire station.

Figure 16. Alternative Hospital Access



Table 11 provides an opinion of potential costs. Segment A combined with either Segment B or C are nearly equal in costs at approximately \$6.3 million in 2023

dollars. A 3.5 percent per year inflation factor should be added to determine approximate costs for the actual construction year.

Table 11. Hospital Alternative Access Opinion of Potential Costs

Cost Item	Segment A	Segment B	Segment C
Category Basic Bid Total:	\$1,491,316	\$1,778,292	\$1,817,657
Contingency (20%):	\$298,263	\$355,658	\$363,531
Construction Engineering (10%):	\$149,132	\$177,829	\$181,766
Utility Coordination (5%):	\$74,566	\$88,915	\$90,883
Design Engineering (10%):	\$149,132	\$177,829	\$181,766
Preliminary Engineering (5%):	\$74,566	\$88,915	\$90,883
Permitting and Environmental (5%):	\$74,566	\$88,915	\$90,883
ROW (50%):	\$745,658	ROW (25%): \$444,573	ROW (25%): \$454,414
Subtotal Project Estimate:	\$3,057,199	\$3,200,926	\$3,271,783

2. **South Trunk Road Access:** The second option provides access from the north via East Duchess and South Georgeson Drives. This option would require a roundabout or traffic signal at the three-way South Trunk Road/East Duchess Drive intersection. The project would require the upgrade of South Georgeson Drive (North Old Trunk Road) to two 12-foot lanes and two-foot shoulders. The existing embankment could be used and moderately widened, with the goal of remaining within the existing ROW to avoid impacts on adjoining properties, including the UAF Matanuska Experiment Farm and Extension Center. Upgrading this road would have the added benefit of improving access to the Matanuska Greenbelt's Kin Win Trailhead (see Figure 17).

Table 12 provides an opinion of potential costs. A 3.5 percent per year inflation factor should be added to determine approximate costs for the actual construction year.

Figure 17. South Trunk Road Access



Table 12. North Hospital Access Opinion of Potential Costs

Cost Element	% of Construction Cost	Estimated Cost 2023 Value
Estimated Construction Cost	N/A	\$3,632,376
Contingency	20	\$746,475
Construction Engineering	10	\$363,238
Utility Coordination	5	\$181,619
Design Engineering	10	\$363,238
Preliminary Engineering	5	\$181,619
Permitting and Environmental	5	\$181,619
Right-of-Way	5	\$181,619
Total Project Estimate	N/A	5,811,802

Note: N/A = not applicable

- Hospital Access via Baroness Lane:** Another potential option to provide additional access to the hospital is to access from the Trunk Road/College Drive intersection via East Cottrell-Campus Drive, South Baroness Lane, East Dutchess Drive, South Georgeson Drive, and South Woodworth Loop. This new connection may improve access in the East Dutchess Drive area. However, this connection would not provide as direct access to the hospital as a new signal at Trunk Road and East Dutchess Drive would. This connection would require a new road between Trunk Road and

East Cottrell-Campus Drive. It may also require upgrading the other road segments.

4.5.1 Analysis

The preface of this analysis is that access to the Mat-Su Regional Medical Center has only been closed once since it opened in 2006, the result of a public safety incident that limited local access to the hospital and nearby subdivisions. Emergency access to the hospital was maintained during this event, which lasted several hours. The 2018 magnitude 7.0 earthquake did not affect access to the hospital, though there was damage to the Glenn Highway east of the hospital and to the South Glenn/East Parks Highway interchange. The need for an alternative access to the hospital is justified from a resiliency standpoint during emergencies. The hospital's location limits access options. None of the viable options provide true redundancy in access, though they improve resiliency.

Alternative 1 South Glenn Highway Access would:

- Provide more direct access for emergency vehicles and patients traveling west from the Palmer area.
- Provide alternative access from the Wasilla area if the East Parks Highway/North Trunk Road interchange or the South Trunk Road/South Georgeson Drive roundabout are closed. This alternative would add travel time to emergency vehicles and for patients accessing the hospital from the west.
- Attaining this access should have limited impact on businesses and private property, and may improve access to these properties because it would serve as a frontage road.

Alternative 2 North Trunk Road Access would:

- Provide less direct, but relatively convenient, access to the hospital from the north if the East Parks Highway/South Trunk Road interchange and the South Trunk Road/South Georgeson Drive roundabout were closed.
- To be effective, notice would have to be issued to emergency responders and the public to access Trunk Road from the East Palmer-Wasilla Highway to the new South Trunk Road/East Duchess Drive intersection and connecting South Georgeson Drive to South Woodworth Loop.
- This option would add significant travel time to responders and patients because using the East Palmer-Wasilla Highway to access the hospital from Wasilla and Palmer adds several miles to the trip.

Both of these alternatives improve access to the hospital. The best alternative would be for both projects to be constructed. Pursuing these projects should be assessed against

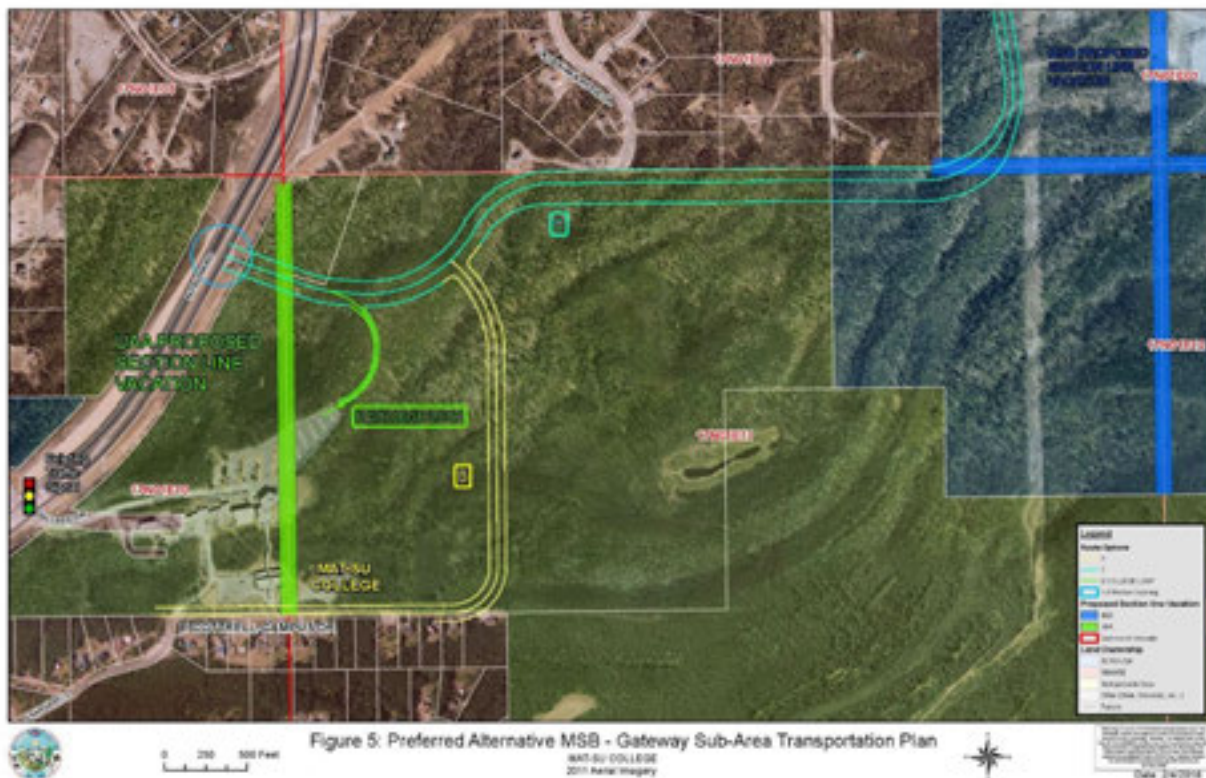
the risk of an actual catastrophic closure of the existing roundabout as well as their benefit compared to other MSB transportation project needs. Under current conditions, if another public safety closure occurs, emergency access would likely be maintained as it was in the earlier incident. Access was not impacted by the 2018 earthquake.

Additionally, after an alternative access has been selected, its intersection with South Trunk Road should be evaluated for inclusion in the OSHP as a primary intersection.

Landfill Access

Another new potential road connection would be to connect North Trunk Road to North 49th State Street with a new road through the MSB Central Landfill and UAA Mat-Su College properties. This option was mentioned in the draft MSB Gateway Sub-Area Transportation Study and provides new access to North Trunk Road at East College Drive, depicted as Route C of that report (see Figure 18; MSB 2015). There is a benefit in having a second access to the landfill to address traffic conflicts on North 49th State Street.

Figure 18. Landfill Access – Route C from Gateway Sub-Area Transportation Study



Source: MSB 2015

The MSB constructed a gravel extension of East Chanlyut Circle along the landfill's western boundary during summer 2023. The opinion of potential costs to construct Route C from the East Chanlyut Circle extension to North Trunk Road at the East College Drive intersection does not include cost for intersection improvements such as left-turn lanes, traffic signals, or a roundabout at North Trunk Road. The landfill road extension, from the landfill boundary to North Trunk Road, is 1.33 miles.

Table 13Error! Reference source not found. provides an opinion of potential costs. A 3.5 percent per year inflation factor should be added to determine approximate costs for the actual construction year.

Table 13. Landfill Road Extension Opinion of Potential Costs

Cost Element	% of Construction Cost	Estimated Costs 2023 Value
Construction Subtotal	N/A	\$5,420,000.00
Construction Administration and Survey	10	\$550,000.00
Contingency	20	\$1,090,000.00
Engineering	10	\$550,000.00
ROW	8.5	\$470,000.00
Utility Relocation	3	\$170,000.00
Permitting	2	\$110,000.00
Environmental	3	\$170,000.00
Total Project Estimate	N/A	\$8,530,000.00

Note: N/A = not applicable

Residential Access

The draft MSB Gateway Sub-Area Transportation Study indicates an option for a connection between East College Drive and South Baroness Lane. for alternative residential access for the Cotrell subdivisions. This connection would cross undeveloped University of Alaska property and connect into the western side of East Cottrell-Campus Drive. This connection is shown on Figure 19. This has the potential to increase traffic that would adversely impact adjacent residences. It may also impact proposed University of Alaska parking facilities. This connection would be approximately 0.2 mile. Based on previous estimates, in 2013 dollars, this connection is likely to cost under \$1 million.

Figure 19. Potential Connection between East College Drive and South Baroness Lane



4.6 Corridor Access Management Plans

In the UMED Sub-Area, a CAMP should be developed for the East Palmer-Wasilla Highway as it is anticipated to have LOS F in 2045. CAMPs should be developed for other major collectors and above, based on CAMP policy. A CAMP should also be developed for Trunk Road between the East Parks Highway and East Bogard Road once the alternative hospital access has been selected to preserve the functionality of the corridor.

4.7 Development Nodes

Two development nodes are proposed for the UMED Sub-Area: the Trunk Road Corridor and the UMED Development Node. The Trunk Road Development Corridor is also in the Fishhook Triangle Sub-Area and is discussed in Section 3.6.2.

4.7.1 UMED

This section discusses the UMED Development Node, shown in Figure 20. A portion of this development node overlaps with the Trunk Road corridor discussed in Section 3.6.2.

Figure 20. UMED Development Node



Type of Node:

Regional/Tourism

Vision

This area is a gateway to the MSB and home to its primary health-care hub, providing tourists with services, lodging, and the forthcoming Mat-Su Visitor Center, while also providing MSB residents with health care facilities, educational facilities, office and retail opportunities, and access to the parks and trails to the east.



Potential Uses:

- Medical:
 - Mat-Su Regional Medical Center
 - Clinics and Medical Office Buildings
- Enhanced education and research to support the valley's agrarian economic sector:
 - UAA Mat-Su College
 - UAF Matanuska Experiment Farm and Extension Center
- Lodging (hotels for visitors and hospital needs)
- MSB Visitor Center
- Trailheads, open space, and recreational access
- Retail
- Housing
 - Student housing
 - Multifamily housing
- Food (restaurants, coffee shops, and others to serve tourists, and hospital and school users)
- Conference facilities



Analysis

The UMED node is located at the intersection of the East Parks Highway and South Trunk Road, and encompasses the Mat-Su College, the Mat-Su Regional Medical Center, adjacent health care facilities, and the UAF Matanuska Experiment Farm and Extension Center, as well as a portion of the Matanuska Greenbelt at the center of the UMED Sub-Area. A portion of the southern area surrounding the Mat-Su Regional Medical Center was the subject of a 2021 master planning process lead by the Mat-Su Health Foundation. The master plan envisioned a larger hospital campus surrounded by multifamily and senior housing as well as townhomes, retail, and a hotel. The master plan also called for substantial road improvements, bike and pedestrian connectivity, and open space provisions (Mat-Su Health Foundation 2021). Health care is one of the fastest-growing employment sectors in the MSB and one of the leading economic drivers nationally. Health care jobs in Alaska pay more than in any other state, as of 2018, with an average salary of \$98,020.

Charette participants in the Study planning process envisioned a wide variety of potential uses in this node, including medical, office, and hotel development around the Mat-Su Regional Medical Center, and access to trails and open space in the center of the sub-area. Other ideas included new road connections to the health center area as well as innovative ideas such as charging infrastructure for electric vehicles and indoor produce-growing facilities.

The UMED Sub-Area is the only development node in this analysis that is currently served by piped water and sewer services from the City of Palmer. A major electrical substation also serves the hospital and surrounding area. This presents a significant advantage in terms of development and density potential within this area. The MSB should capitalize on this existing infrastructure by working with the Mat-Su Regional Medical Center, Mat-Su Health Foundation, UAF, and UAA to incorporate uses that cater to employees and patients at the health care facility, students at the nearby college, and residents in the emerging residential subdivisions south of the node. This could include dining and lodging, both of which are absent within the area, and potential expansion of the healthcare facility itself. Additionally, there should be enhanced research opportunities through UAF and UAA to increase food resiliency and production as well as support the MSB's agricultural sector. This node is also a logical area for townhomes or apartments since denser housing is more feasible to build with the available piped utilities. These denser housing types would provide an alternative to the lower-density housing found elsewhere in the MSB, providing housing at a variety of price points and for specific populations such as seniors and hospital staff. The new Mat-Su Valley Visitor Center would also be located

near this area, providing an opportunity to integrate lodging and dining options with the node as a “Gateway” to the MSB.

Implementation

- MSB partners with the Mat-Su Health Foundation, UAA, UAF, DOT&PF, and City of Palmer to create a **community plan** for development in the node area, including the following elements:
 - Define the **boundaries** of the node area.
 - Articulate a **community vision** for the uses and types of development in the node area.
 - Assuming a new location can be found, plan for redevelopment of the **Park & Ride Site** at the East Parks Highway/South Trunk Road intersection, including a mix of residential and commercial uses.
 - Plan for the preservation of the **UAF Experiment Farm** to allow for growth and expansion of its facilities and research mission.
 - Plan to strengthen and enhance the UAA **Mat-Su Campus**
 - Plan for expansion of the **Mat-Su Regional Medical Center**
 - Coordinate with the City of Palmer to ensure access to **piped water and sewer utilities** for new developments in the node area.
 - Plan for improved **transportation connectivity** within the area, specifically secondary access to the Mat-Su Regional Medical Center, improved access to the college, and improved connections to the neighborhoods west of the node. Additionally, plan for future **transit stops and shelters at key locations** (e.g., hospital, college) in the node area. The MSB (2017) 2035 LRTP calls for increased density around future transit routes and identifies a potential future bus route from Palmer to Wasilla through the UMED Sub-Area. If the MSB considers expanding bus service as its population grows, providing a comfortable and safe transit shelter in node areas will be important.
- Consider establishing a **zoning district** for the node to ensure desired land uses develop as envisioned and to meet the MSB Assembly’s stated goal of managing growth. A more detailed discussion of zoning can be found Section 2.
- Consider adding **gateway features**, such as signage to demarcate the node area to visitors, in coordination with the new Mat-Su Visitor Center.

4.8 Comprehensive Plan Update

The City of Palmer Comprehensive Plan was last adopted in 2006. The MSB should engage with the City of Palmer regarding an update of the comprehensive plan. The plan should consider access to the Mat-Su Regional Medical Center, and the provision of piped

water and sewer within this area. The updated comprehensive plan should address and further define the two potential development nodes in this sub-area.

4.9 Gravel Pit Operator Coordination

Figure 21 shows gravel pits in the UMED Sub-Area. Several large gravel pits are in this sub-area. The MSB should coordinate with the operators of those gravel pits to develop a plan for their eventual closure. The MSB should also coordinate with the broader community to determine the best future uses of these sites. Given the size of some of these gravel pits, they could become substantial traffic generators in the future.

4.10 Non-Motorized Improvements

As previously discussed, a complete non-motorized transportation network provides important benefits to the MSB in terms of transportation choices and quality of life. As shown in Figure 9, the 2023 MSB Bicycle and Pedestrian Plan (MSB 2023) recommends multiple bicycle and pedestrian improvements in the UMED Sub-Area, including:

- 26. South Glenn Highway pathway south of Palmer
- 29. East Maple Springs Way pathway
- 30. North Palmer-Fishhook Road separated path
- 32. South Hemmer Road pathway
- 33. South Hemmer Road extension
- 36. Future Hospital Access Road pathway
- 38. Pioneer Peak Elementary school route improvements
- 39 North Stringfield Road pathway

For additional information about the projects listed above, please see the [2023 MSB Bicycle and Pedestrian Plan](#).

The Pioneer Peak Elementary and North Stringfield Road pathways would support development of the Trunk Road Corridor node. None of the other projects would help implement the proposed North Trunk Road Corridor node.

In addition to the projects listed above, non-motorized facilities should be incorporated on all the unconstructed OSHP roads (identified in Section 4.3) based on the MSB's Complete Streets Policy (when adopted).

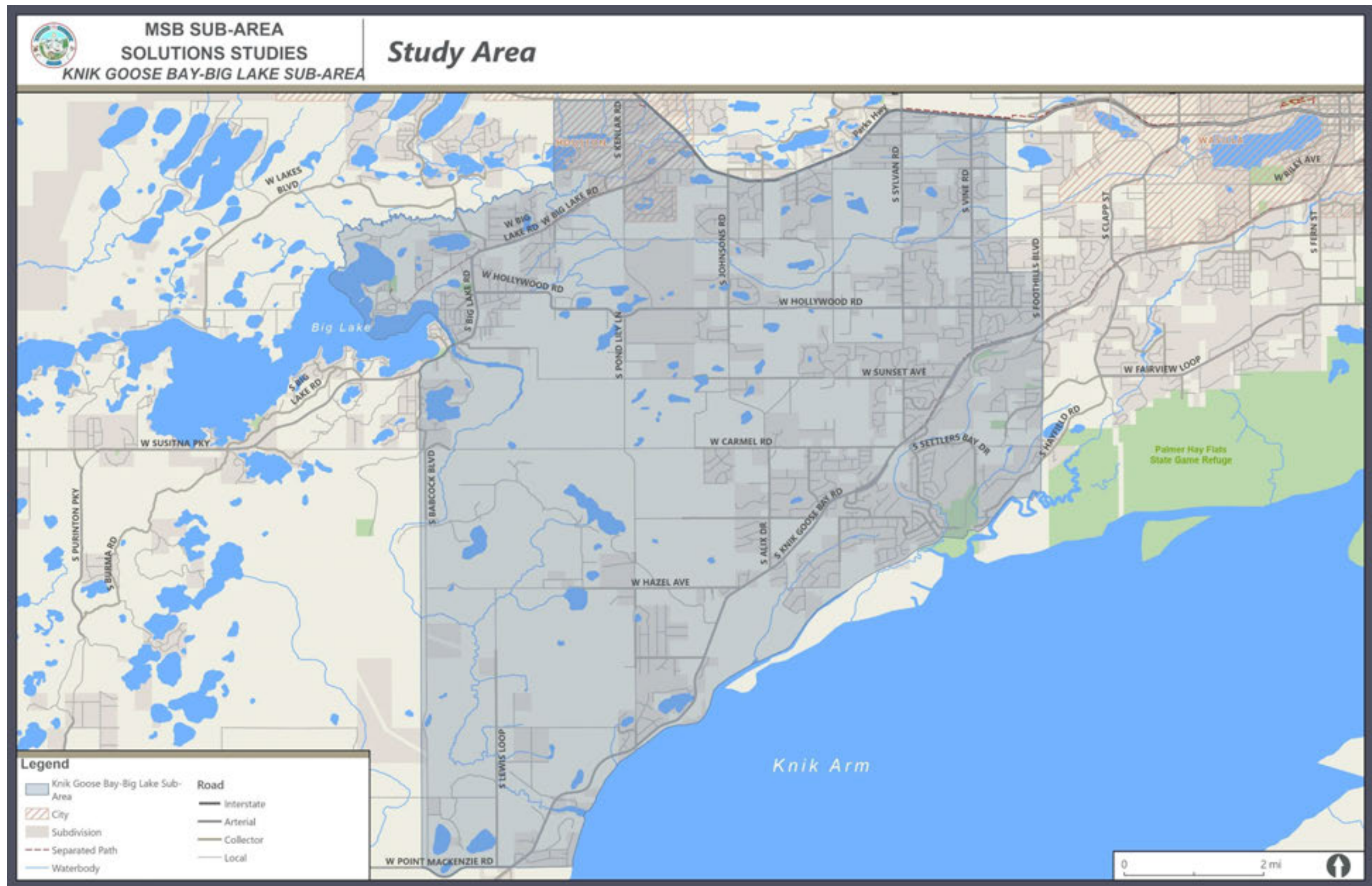
5 Knik Goose Bay-Big Lake Sub-Area

The KGB-Big Lake Sub-Area is located west of Wasilla and is roughly bounded by Vine Road to the east, the West Parks Highway to the north, West Big Lake Road and South Big Lake Road to the west, and South Knik Goose Bay Road to the south (see Figure 22).

The sub-area is composed of portions of the Meadow Lakes, Big Lake, and Knik-Fairview Community Council districts as well as the southern portion of the City of Houston. This sub-area is served by the Knik, Meadow Lakes, and Big Lake Road Service Areas, with the City of Houston maintaining city-owned roads. The area includes many small lakes, the Lucille Creek and Fish Creek drainages, and several large wetlands. The sub-area is primarily residential, with commercial areas located along the West Parks Highway; Big Lake Road, within the Big Lake Town Center; and South Knik Goose Bay Road. The DOT&PF is preparing a Planning and Environmental Linkage study to locate a southern Parks Highway alternative corridor that, if built, would bisect a portion of this sub-area between West Hollywood Road and the West Parks Highway.

The lack of north-south and east-west connectivity within the sub-area creates an incomplete road network. This lack of connectivity increases local travel time, hampers emergency response, requires using arterials for local trips, and affects safety.

Figure 22. KGB-Big Lake Sub-Area Study Area



5.1 Level of Service Analysis

Segment capacity for roadways classified as collectors and higher within the Fishhook Triangle, UMED, and KGB-Big Lake Sub-Areas were estimated using the current Draft TDM and FDOT Level of Service Handbook to determine a planning-level quality of service of motorized vehicles and roadway operations. By estimating the roadways segment capacity and LOS, MSB would be able to prioritize which roadway segments would need future improvements to provide sufficient capacity in the future.

A total of 58 roadway segments were identified within the KGB-Big Lake Sub-Area. However, AADT was not available for 14 of the roadway segments. Most of the roadway segments analyzed are estimated to operate at LOS B in 2045. Table 14 provides the roadway segments that are estimated to operate at LOS D or worse in 2045.

Table 14. KGB-Big Lake Sub-Area Roadways at/over Capacity in 2045

Roadway	Segment Extents	Peak Hour Directional Threshold Capacity	Adjusted Peak Hour Directional Threshold Capacity	2045 AADT	Adjusted Peak Hour Directional Volume	LOS
S Knik Goose Bay Rd	Point MacKenzie & S Pinnacle Peak Dr	940	658	20,073	2,065	F
S Vine Rd	S Knik Goose Bay Rd & W Parks Hwy	730	511	8,584	883	E
W Hollywood Rd	S Claiborne Dr & Big Lake Rd	730	511	4,296	507	D
S Big Lake Rd	S Echo Lake Dr & W Parks Hwy	730	511	7,851	808	E

Notes: Dr = Drive; Hwy = Highway; Rd = Road; S = South; W = West

Based on this analysis, it is recommended to conduct feasibility studies for the roadway segments that operate at LOS E and F in 2045, prioritizing roadway segments operating at LOS F. This analysis only considered roadway segment capacity and did not include intersection analysis. The feasibility studies would determine the extents of roadway widening required, intersection control improvements, and other roadside enhancements. The feasibility studies would include traffic data collection, intersection capacity analysis, intersection alternatives analysis, and non-motorized need determinations while also considering environmental impacts. Please see the Study Segment Capacity Memo in Appendix D for additional information.

5.2 Environmental and ROW Considerations

Many of the projects identified in Table 15 are likely to involve roadway widening.

Table 15. KGB-Big Lake Sub-Area Environmental and ROW Considerations

Roadway	Wetlands (acres)	Floodplains (acres)	Cultural Resources (number) ^a	ROW
S Knik Goose Bay Rd	2.4	0.0	N/A	\$698,000
S Vine Rd	3.7	0.1	N/A	\$1,880,000
W Hollywood Rd	13.1	0.0	N/A	\$4,230,000
Big Lake Rd	1.7	0.1	N/A	\$1,482,000

Note: N/A = not applicable; Rd = Road; S = South; W = West

^a Cultural resources were not identified for this sub-area, but known cultural resources are within the area.

5.3 Unconstructed OSHP Road Prioritization

The OSHP identifies future road corridors and upgrades needed to safely and efficiently accommodate the MSB's growing population and transportation needs within the KGB-Big Lake Sub-Area. Some of the roads highlighted in the OSHP may be built within the next 5 to 10 years, and others may not be built for another 20 years. When and where roads are built would depend on population growth, need, MSB Assembly approval, and funding.

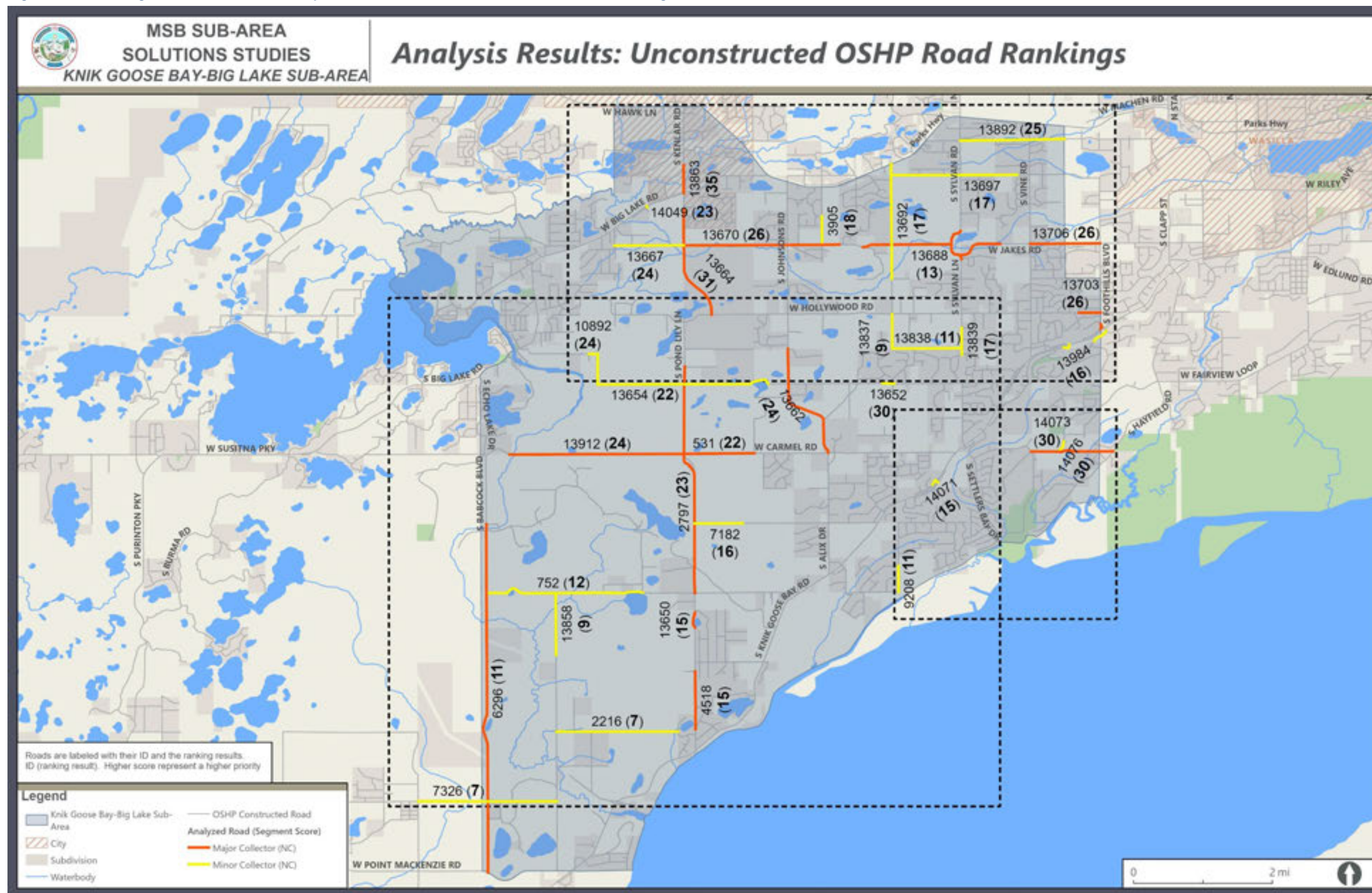
The OSHP identified future road connections in the MSB with a focus on improving network access and connectivity. The OSHP did not prioritize these new roads but identified all potential connections. Prioritizing the roads would help the MSB implement the OSHP and budget for road projects.

The project team prioritized the OSHP-recommended roads in the KGB-Big Lake Sub-Area based on:

- Acres of wetland impacts
- Road connectivity
- Functional classification
- Anticipated changes in future population density
- Provision of alternative access
- Provision of congestion relief
- Inclusion in an adopted comprehensive plan
- Location within 0.5 mile of a school, college, EMS/fire station, or hospital
- Improvement of access to a significant recreation facility
- Improvement of access to a proposed development node

Figure 23 and Table 3 show the project improvement prioritization results for the KGB-Big Lake Sub-Area.

Figure 23. KGB-Big Lake Sub-Area – Analysis Results: Unconstructed OSHP Road Rankings



5.3.1 Analysis

The KGB-Big Lake Sub-Area is developing. As it develops, an effort should be made to improve both the north-south and east-west collector road network. Wetlands affect potential development throughout this sub-area and are especially prevalent within the southwestern portion of the sub-area. Infill is occurring south of the West Parks Highway and north of West Hollywood Road with, for example, several detached fourplex units being constructed east of South Sylvan Road. Growth is also occurring along the South Vine Road corridor within the eastern portion of the sub-area and around the Reddington Junior/Senior High School/Dena'ina Elementary Schools complex near Clay Chapman and Knik Knack Mud Shack Roads. The Settlers Bay area continues to develop; there is also a need for secondary access to the Settlers Bay development. This subdivision currently only has one access point that may not be sufficient in the case of an emergency, such as a wildfire.

The DOT&PF is in the process of upgrading South Knik Goose Bay Road to four lanes to the Settlers Bay area at Milepost (MP) 8.4. These improvements would address serious traffic and safety concerns that have affected this roadway for years, causing it to be identified as a Highway Safety Corridor. Once these improvements are constructed, access to South Knik Goose Bay Road between South Settlers Bay Drive (MP 8.4) and North Point MacKenzie Road (MP 17.2) would be improved, increasing development pressure within the southwestern portion of the sub-area.

The community of Big Lake's primary access is Big Lake Road. Big Lake is also connected to West Hollywood Road, giving it alternative access to the West Parks Highway and South Knik Goose Bay Road via South Vine Road. Road improvements within the northern portion of the sub-area would have the additional benefit of providing access options to the Big Lake community.

5.3.2 Project Progression

Hollywood Road North and East: Improve the Grid

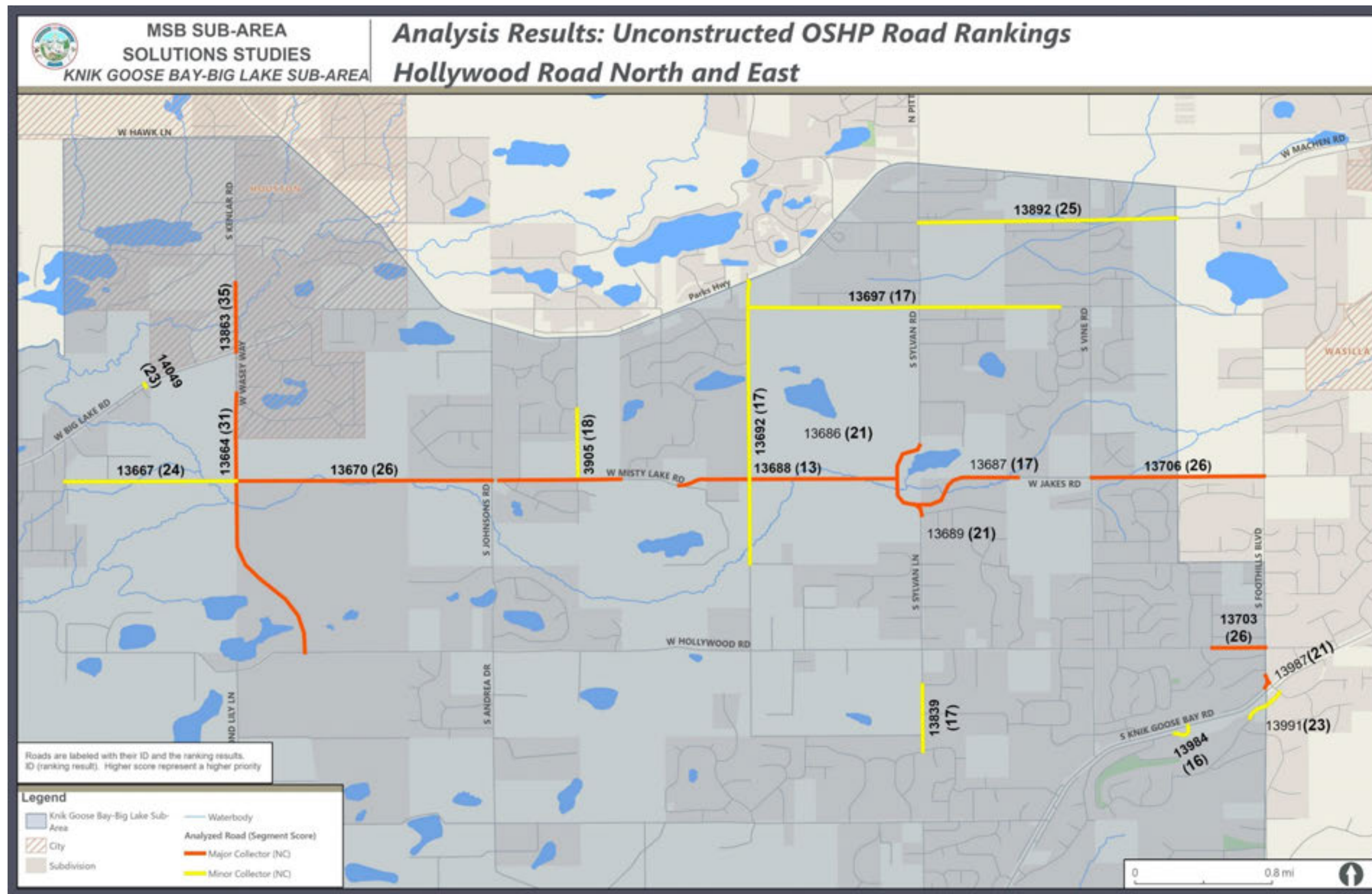
Several projects scored high between West Hollywood Road and the West Parks Highway. Initiating a program to improve the grid within this portion of the sub-area would provide redundant access to the West Parks Highway, South Knik Goose Bay Road, and the community of Big Lake. This is an area of significant growth. A key component of improving the transportation system within this northern portion of the sub-area would be the DOT&PF's need to upgrade West Hollywood Road to function as future arterial. Table 16 and Figure 24 shows project improvement prioritization for unconstructed OSHP roads.

Table 16. Project Prioritization Results for Hollywood Road North and East

ID	Road Name or Description	Classification	Result
13863	S Kenlar Rd Realignment to align with W Wasey Lane	Major Collector	35
13664	W Wasey Way/W Hollywood Connection South	Major Collector	31
13703	W Hollywood Rd/Foothills Drive Connection	Major Collector	26
13706	W Jakes Rd Ext East	Major Collector	26
13670	Misty Lake Rd (Jakes Rd) Ext West (between Kenlar Dr and W Misty Lake Rd)	Major Collector	26
13892	W Knox Dr/W Museum Pl Connection (13892)	Minor Collector	25
13987	S Pinnacle Peak Dr/S Country Dr Connection	Minor Collector	24
13667	W Misty Lake Rd (Jakes Rd) Ext West	Minor Collector	24
13991	S Foothills Blvd/S Country Dr Intersection Realignment (13991)	Major Collector	23
14049	W Creek Frontage Rd/W Big Lake Rd Connection	Minor Collector	23
13686	S Sylvan Rd Connection South A	Major Collector	21
13689	S Sylvan Rd Connection South B	Major Collector	21
3905	S Ridgecrest Rd	Minor Collector	18
13687	W Jakes Rd Ext West A	Major Collector	17
13839	S Sylvan Ln Connection	Minor Collector	17
13692	S Vanamanita Ln Ext North	Minor Collector	17
13697	W Calico Dr Ext W	Minor Collector	17
13984	W Binnacle Dr/S Knik Goose Bay Rd Connection	Minor Collector	16
13688	W Jakes Rd Ext West B	Major Collector	13

Notes: Blvd = Boulevard; Dr = Drive; Ext = Extension; ID = Identifier; KGB = Knik Goose Bay; Ln = Lane; Pl = Place; Rd = Road; S = South; W = West. The higher the results, the higher the priority.

Figure 24. Analysis Results: Unconstructed OSHP Road Rankings – Hollywood Road North and East



South of Knik Goose Bay Road between Settlers Bay Drive to South Royal Lane Connections

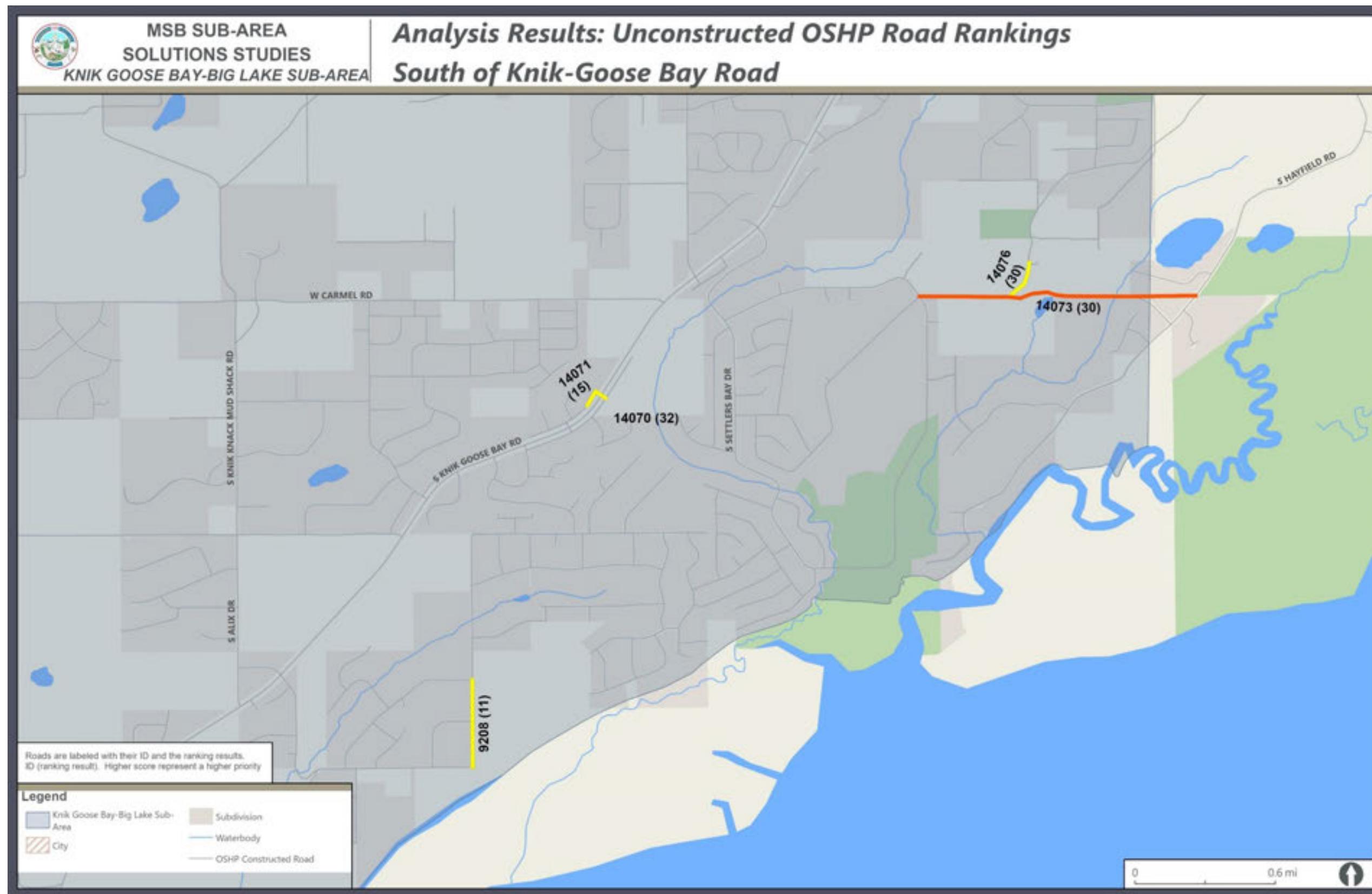
The southern side of Knik Goose Bay Road between Settlers Bay Drive (MP 8.4) and South Royal Drive (MP 10.8) has several large subdivisions with few access points to South Knik Goose Bay Road. Local road connections would help this potential emergency access situation. The South Settlers Bay Drive East connection to South Hayfield Road and the proposed south extension of West Lupine Drive would connect these subdivisions to West Fairview Loop, providing emergency access options east of South Knik Goose Bay Road. These connections would improve the resiliency of the road network within this area. The South Rubacaba Street connection provides access to additional access opportunities northeastward from the relatively isolated O'Brien Creek area. The West Douglas Lane improvements would better align a north-south intersection with South Knik Goose Bay Road. Table 17 and Figure 25 shows project improvement prioritization for unconstructed OSHP roads.

Table 17. Project Prioritization Results for South of Knik-Goose Bay Road

ID	Road Name or Description	Classification	Result
14073	S Settlers Bay Dr connection east to S Hayfield Rd Connection	Major Collector	30
14076	W Lupine Ln Ext South (connects to Fairview Loop)	Minor Collector	30
14070	W Douglas Ln/W Donna Marie Intersection at S Knik Goose Bay Rd	Minor Collector	15
14071	W Douglas Ln Connection to S Knik Goose Bay Rd	Minor Collector	15
9208	S Rubacaba St	Minor Collector	11

Notes: Dr = Drive; Ext = Extension; ID = Identifier; Ln = Lane; Rd = Road; S = South; St = Street; W = West.
The higher the results, the higher the priority.

Figure 25. Analysis Results: Unconstructed OSHP Road Rankings South of Knik-Goose Bay Road



Hollywood South to Carmel Road Grid Improvements

Several collector road connections are within this mid-section of the sub-area that would improve both north-south and east-west traffic flow. This area is developing, with the Reddington Junior/Senior High School/Dena'ina Elementary School complex just south of West Carmel Road on South Knik Knack Mud Shack Road. West Sunset Avenue is an east-west corridor midway between Hollywood and West Carmel Roads. Connecting this area to West Hollywood Road would provide access to the Big Lake community and West Parks Highway without having to travel out of direction via South Knik Goose Bay Road. These connections also provide optional emergency access routes, eliminating the need to solely depend on South Knik Goose Bay Road for evacuation. Westward extensions of West Sunset Avenue and West Carmel Road connecting to the Big Lake road network would have to contend with significant wetland areas that would increase construction costs and require a higher level of environmental documentation. Table 18 and Figure 26 shows prioritization of unconstructed OSHP roads.

Table 18. Project Prioritization Results for West Hollywood Road South to West Carmel Road

ID	Road Name or Description	Classification	Result
13652	W Sunset Ave Connection	Minor Collector	30
13662	S Andrea Dr South Ext	Major Collector	24
13912	W Carmel Rd Ext B	Major Collector	24
10892	W Hughes Homestead Rd	Minor Collector	24
2797	S Ogard St/South Pond Lily Ln to W Carmel Rd	Major Collector	23
531	W Carmel Rd Ext A	Major Collector	22
13654	W Sunset Ave Ext West	Minor Collector	22
13839	S Sylvan Road Ext South to S Timberland Lp	Minor Collector	17
13650	S Ogard St/S Ellexson Rd Connection South	Major Collector	15
752	W Hazel Ave	Minor Collector	12
6296	S Kimberly St	Major Collector	11
13838	S Sylvan Ln/S Vanamanita Ln Connection	Minor Collector	11
13837	S Vanamanita Ln Ext South	Minor Collector	9

Notes: Ave = Avenue; Dr = Drive; Ext = Extension; ID = Identifier; Ln = Lane; Lp = Loop; Rd = Road; S = South; St = Street; W = West. The higher the results, the higher the priority.

South Carmel Road South and West to Point McKenzie Road

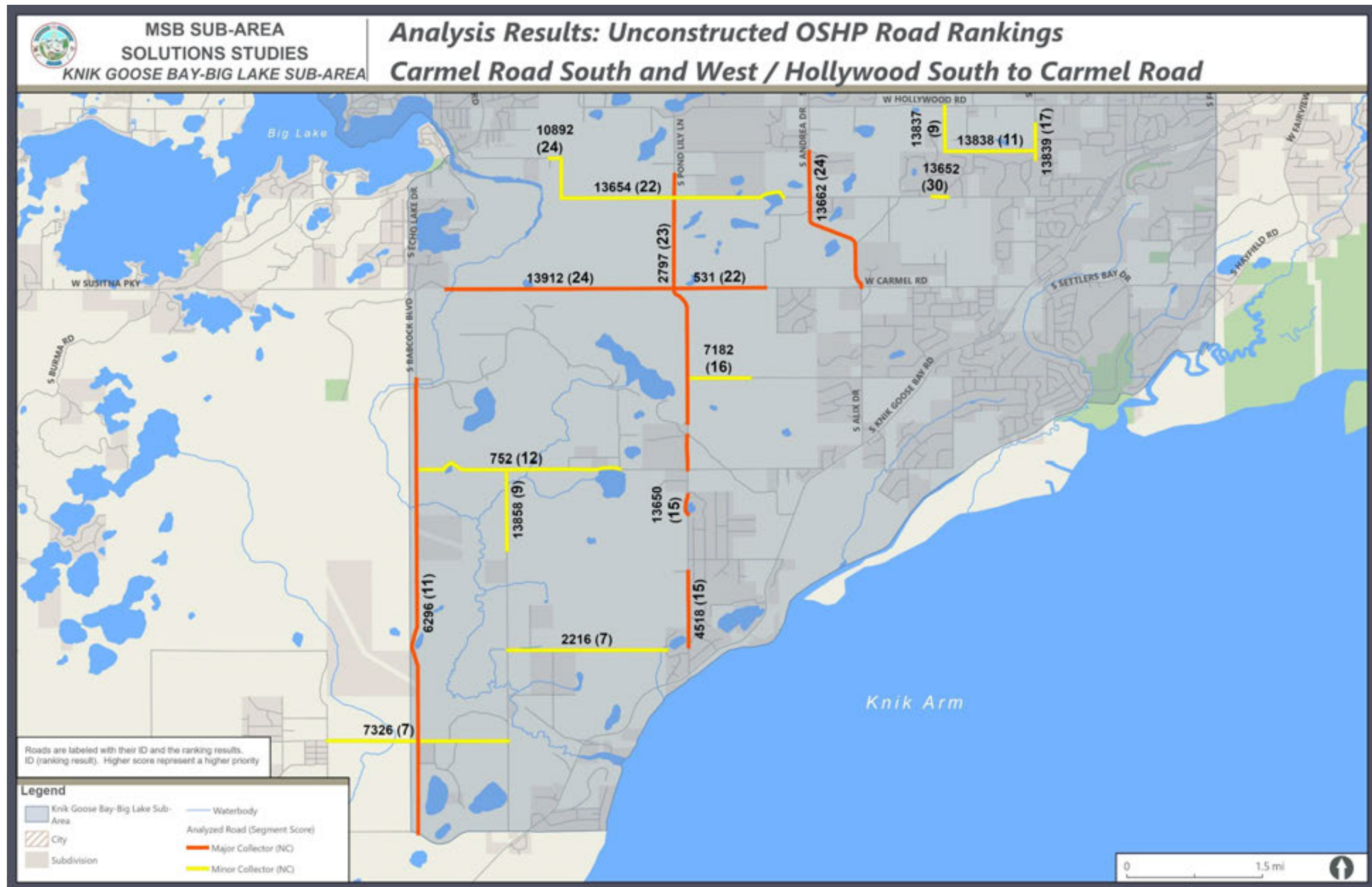
The remaining OSHP collector roads are within the southwestern portion of the sub-area. This is the least densely populated section of the sub-area, where several drainages and extensive wetlands are located. These new roads should be considered long-term improvements and should be reevaluated as future population growth and development occur. Table 19 and Figure 26 shows project improvement prioritization for unconstructed OSHP roads.

Table 19. Project Prioritization Results for West Carmel Road South and West

ID	Road Name or Description	Classification	Result
2797	S Ogard St/Hazel Avenue to W Carmel Rd	Major Collector	23
7182	W Clay Chapman Rd	Minor Collector	16
4518	S Malemute Cir	Major Collector	15
13650	S Ogard St/S Ellexson Rd Connection South	Major Collector	15
752	W Hazel Ave	Minor Collector	12
6296	S Kimberly St	Major Collector	11
13858	S Lewis Lp Ext N to W Hazel Ave Ext	Minor Collector	9
2216	W Little Jack Ave	Minor Collector	7
7326	W Cindy Way	Minor Collector	7

Notes: Ave = Avenue; Cir = Circle; Ext = Extension; ID = Identifier; Lp = Loop; Rd = Road; S = South; St = Street; W = West. The higher the results, the higher the priority.

Figure 26. Analysis Results: Unconstructed OSHP Road Rankings – Carmel Road South and West/Hollywood South to Carmel Road



5.4 Corridor Access Management Plans

Access management helps ensure the functional longevity of arterial and collector systems. While CAMPs in the sub-area should be developed for all major collector/arterials and above, special consideration should be given to developing an access management plan for South Knik Goose Bay Road between South Settlers Bay Drive and West Point MacKenzie Road to establish access points, before it experiences extreme population and traffic growth, to extend its functional life.

Historically, South Knik Goose Bay Road has had safety concerns with parts of it being designated a Highway Safety Corridor. While there have been improvements along the corridor, resulting in the first 4 miles being substantially improved and no longer a Highway Safety Corridor, that designation remains between MP 4.5, just south of the South Knik Goose Bay Road/West Fairview Loop-South Clapp Street intersection to its endpoint at MP 17.2. South Knik Goose Bay Road is also anticipated to have LOS F by 2045.

Access management plans should be developed as part of the design of all arterials, major collectors, and minor collectors to ensure they maintain their appropriate functional role within the KGB-Big Lake Sub-Area's road network. Subdivision connectivity should be an important element of future subdivision plat approvals. A functioning local road network that connects to collector roads that funnel into the arterial road system is the cornerstone of a viable road transportation system within this sub-area.

5.5 Development Nodes

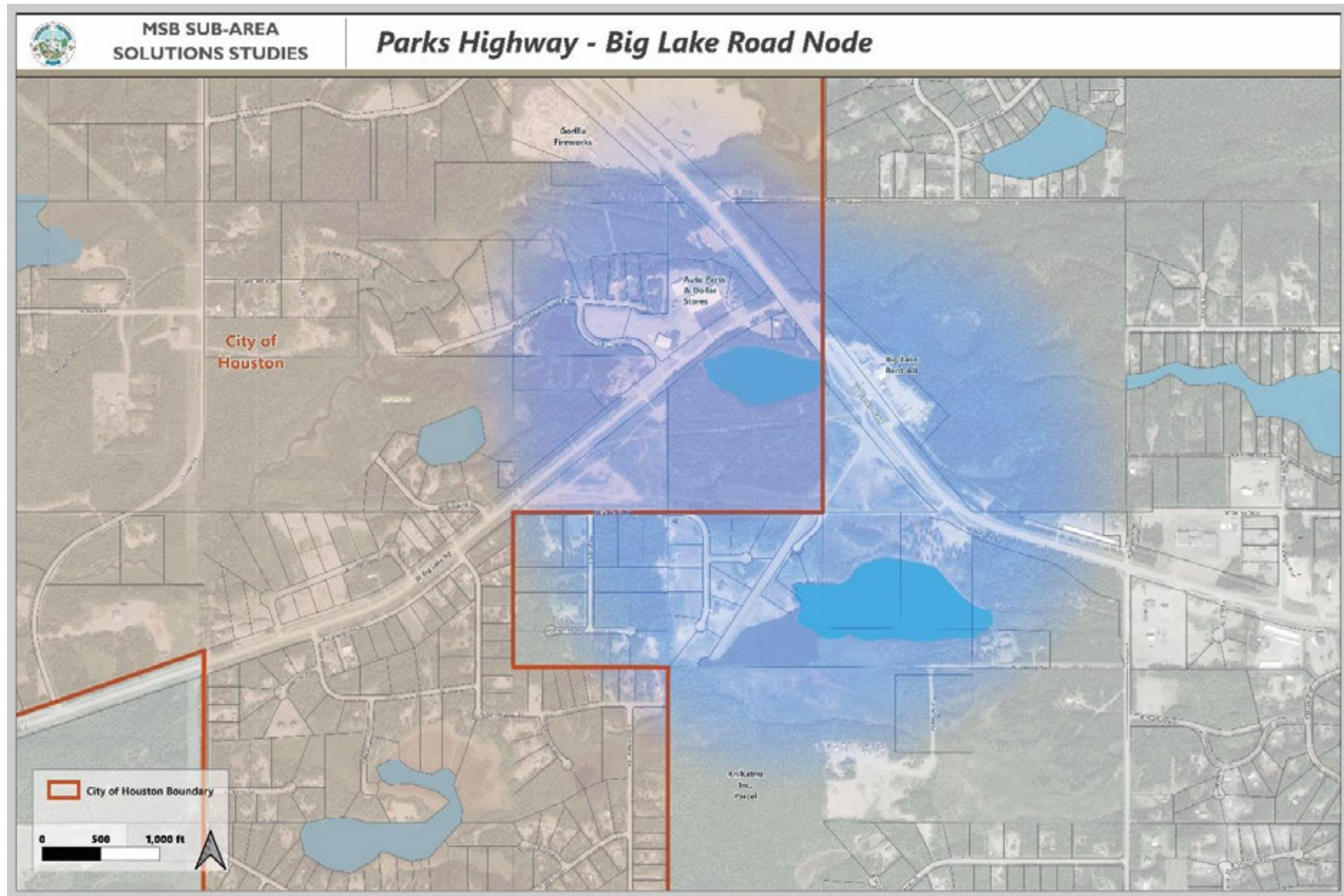
The project team identified three potential development nodes in this sub-area: West Parks Highway & Big Lake Road, Big Lake Town Center, and Settlers Bay.

Please note that in addition to the development nodes identified in this report, there is considerable interest in developing the South Sylvan Road/North Pittman Road and West Parks Highway as a development node. The Meadow Lakes Comprehensive Plan recognizes the community's desire for concentrated development nodes rather than having it spread along the West Parks Highway. This plan identifies the West Parks Highway/North Pittman Road area as a potential town site. Additional study should be conducted to determine if the community desires a neighborhood node at this location. This issue could be analyzed as an independent study or part of a comprehensive plan update.

5.5.1 West Parks Highway & West Big Lake Road

Figure 27 shows the West Parks Highway & West Big Lake Road node.

Figure 27. West Parks Highway & West Big Lake Road Node



Type of Node:

Neighborhood

Vision

This node consists of a neighborhood center containing grocery, retail, and other services for residents of the Big Lake area; areas farther east along the West Parks Highway, including Houston and Willow; and an adjacent, medium-density, residential development. Development should be designed with walkability in mind while preserving wetlands and natural areas.

Potential Uses:

- Services (e.g., banking, insurance, salons, automotive repair)
- Light industrial uses
- Small-scale commercial (e.g., retail, small office)
- Food (grocery, coffee shop, limited dining)
- Medical (dentist and doctors' offices)



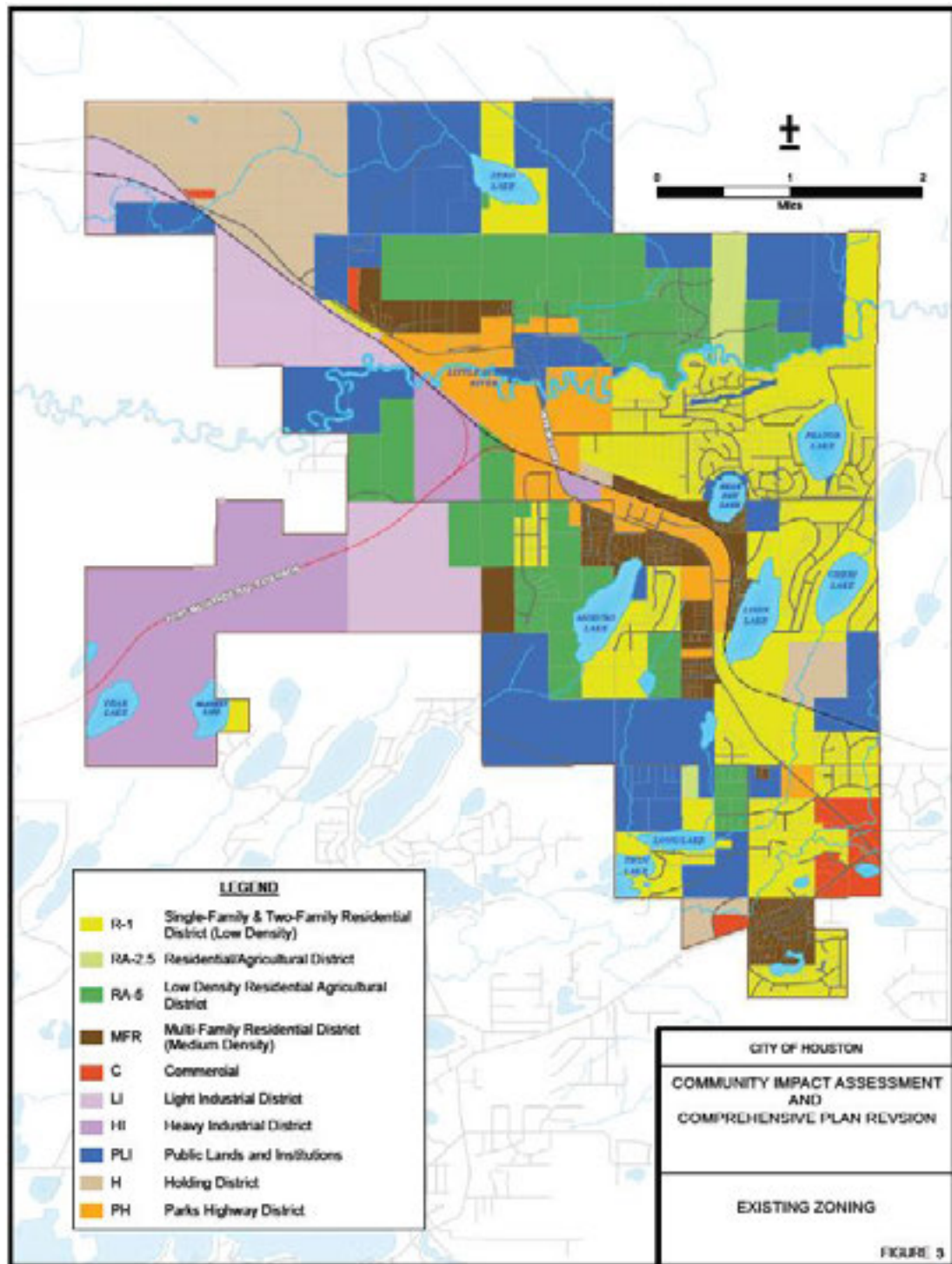
Analysis

The area around the West Parks Highway/West Big Lake Road intersection is not currently highly developed. An automotive parts store is on the eastern side of the intersection and a church is across West Big Lake Road. There are also several lakes in this node area, which would prevent development on the immediate southern portion of the intersection. However, charrette participants indicated this could be a potentially beneficial area for future commercial development to serve populations living in the Big Lake area. Development within this area could also serve residents living in Houston, Willow, and other areas farther north along the West Parks Highway who would prefer to avoid driving all the way to Wasilla to shop.

The western portion of this node is within the City of Houston and is governed by Houston Municipal Code Title 10: Land Use Regulations. The City has zoned this area “C – Commercial,” which is intended “to provide a broad range of goods and services to meet the needs of the population of the City as well as the traveling public utilizing the Parks Highway.”⁶ As shown in Figure 28, this is one of the only areas in Houston zoned for commercial use. The zoning code allows a broad range of commercial uses but also requires generous setbacks and 25-foot native vegetation buffers between commercial uses and the highway. This requirement would not preclude neighborhood-level commercial development in this node but would reduce its immediate appearance as a commercial area to travelers along the West Parks Highway. The *City of Houston Comprehensive Plan* also identifies this area as “Commercial Mixed Use,” which is not a zoning code but is instead designed to guide future land use decisions (R&M Consultants, Inc. 2016). This land use encompasses commercial and residential uses with safe and efficient access management.

⁶ Houston Municipal Code 10.03.070, available at <https://www.codepublishing.com/AK/Houston/#!/Houston10/Houston1003.html#10.03.070>

Figure 28. City of Houston Zoning Map



Source: R&M Consultants, Inc. 2016

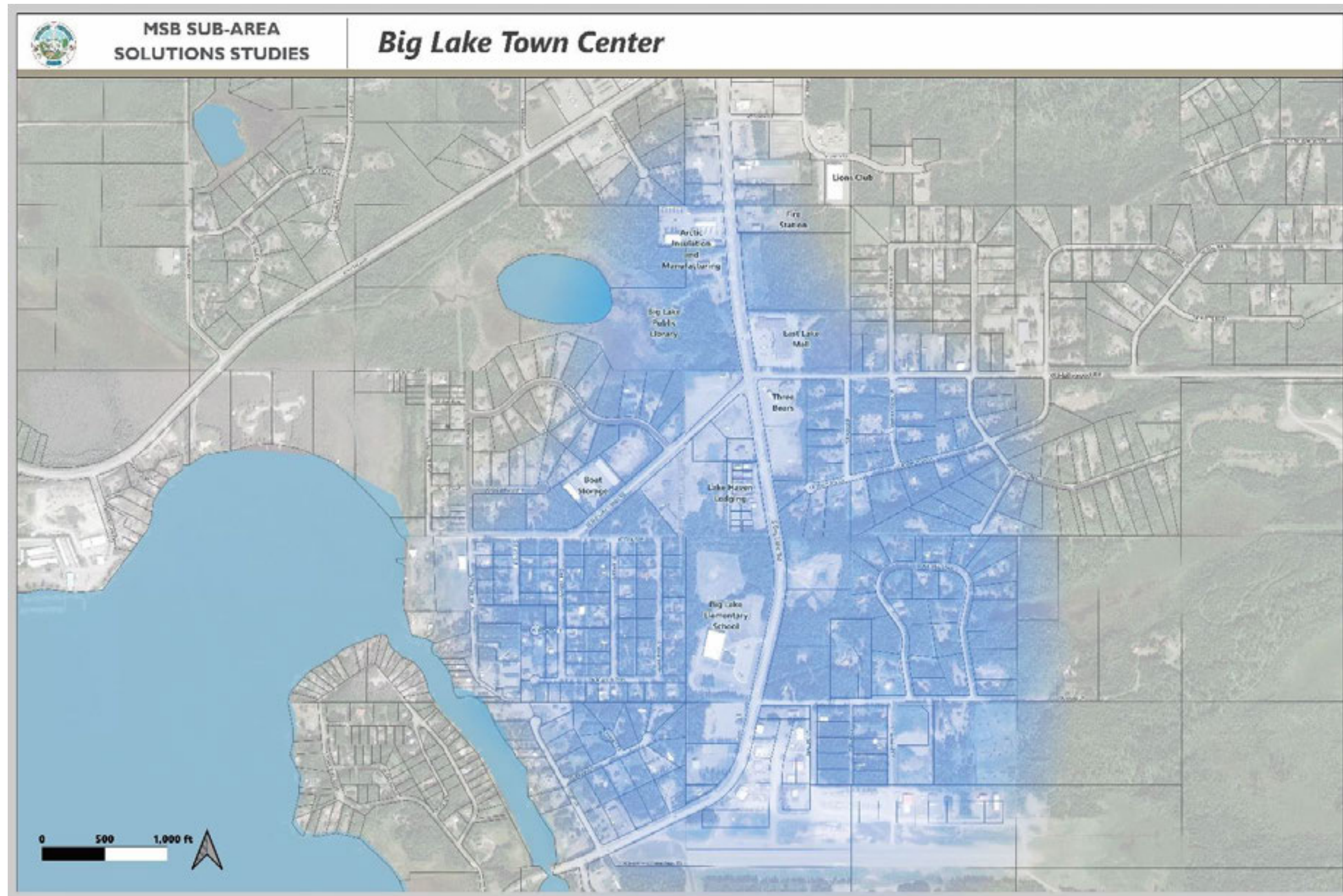
Implementation

- **Work with the City of Houston** to encourage consistent planning for the area across jurisdictional boundaries, and conduct outreach to developers and landowners to attract commercial development to the area of the type envisioned in the City of Houston's zoning code.
- Plan for effective **transportation improvements and access management** to ensure safe circulation and access to the major intersection.
- Add **gateway features** such as signage to demarcate the entrance to the Big Lake area to travelers using the West Parks Highway.
- Consider establishing a **zoning district** for the area of the node **outside** the City of Houston to complement the adjacent land use guidelines in the City of Houston's zoning district and help meet the MSB Assembly's stated goal of managing growth.

5.5.2 Big Lake Town Center

Figure 29 shows the Big Lake Town Center node.

Figure 29. Big Lake Town Center Node



Type of Node:

Neighborhood/Tourism

Vision

A walkable commercial, neighborhood, and tourist center for the Big Lake Community, featuring community amenities such as stores, a community center, library, and medical facilities as well as tourist-oriented services such as lodging, dining, and recreational businesses.

Potential Uses:

- The community's desired uses for this area were well articulated in the Big Lake Community Comprehensive Plan:
 - Mixed use: shops, food, retail goods and services; housing, including higher density housing, within walking distance of shops and services
 - A central area for a library, school, fire station, community center, park, etc.
 - Pedestrian friendly, walking access
 - An alternative to strip commercial development
 - A hub for recreation activities at the lake



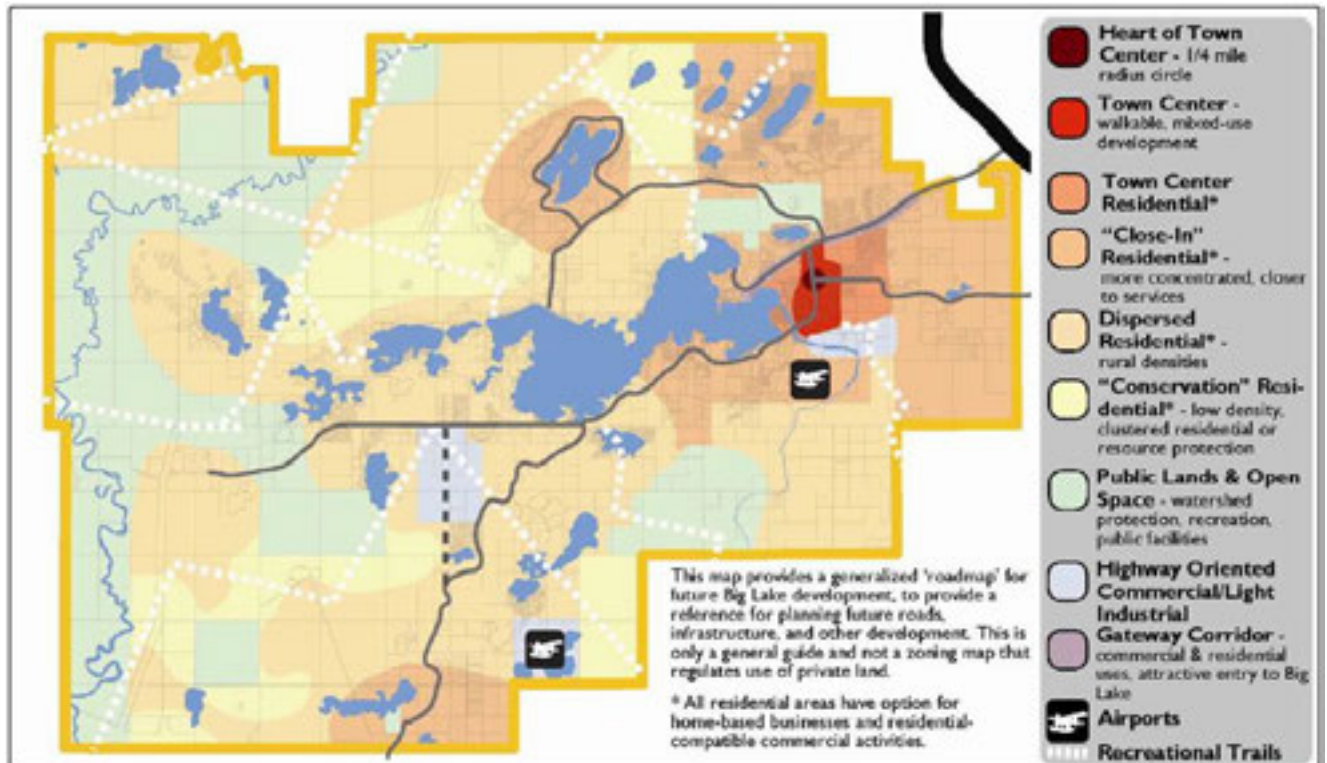
Analysis

The Big Lake Road/West Hollywood Road intersection lies at the heart of the Big Lake community. It currently contains a concentration of commercial uses including a Three Bears grocery and warehouse store, several commercial businesses, an elementary school, a public library, a fire station, and the Big Lake Airport which provides access to the community. The area was envisioned in the 2009 Big Lake Community Comprehensive Plan as an important center to Big Lake life and a pedestrian-friendly “alternative to strip commercial development.” The Big Lake Comprehensive Plan shows a 0.25-mile radius around the “Heart of Town Center” area and a larger “Town Center” region as shown on the “Big Lake – Guidemap” in Figure 30 (Big Lake Planning Team et al. 2009). Similar to the Houston Comprehensive Plan discussed in the “Parks Highway & Big Lake Road

Node,” this is not intended as a prescriptive zoning map but rather as a vision of what the community would like to see in this area.

Charrette participants identified several creative possibilities for this area including increased access to all of the lakes in the area and a bike and pedestrian path leading from the town center to Big Lake itself. Other ideas included electric vehicle charging stations, future transit stops, senior or affordable housing development, and expanded cabins or other lodging near Big Lake.

Figure 30. Big Lake Guidemap



Source: Big Lake Planning Team et al. 2009

Implementation

- Continue to carry out the vision articulated in the **Big Lake Community Comprehensive Plan** and consider updating the plan, which was last updated in 2009.
- Engage in strategic investments around **active transportation infrastructure and placemaking**, including better walkability in the town center area, pedestrian/bike access to Big Lake, priority school route improvements, and improved signage and/or streetscapes.
- Plan for future use of the **MSB-owned land adjacent to the Public Library** for commercial development, housing, and/or to improve access to Big Lake.

- Engage proactively with **Three Bears** to clarify their plans for the store and adjacent parcel.
- Promote the **Big Lake Airport** as an aircraft service center and as a tourism and recreation access point.
- Consider establishing a **zoning district** for the node to ensure desired land uses develop as envisioned and to meet the MSB Assembly's stated goal of managing growth. A more detailed discussion of zoning can be found in Section 2.

5.5.3 Settlers Bay

Figure 31 shows the Settlers Bay node.

Figure 31. Settlers Bay Node



Type of Node:

Neighborhood / Tourism

Vision

A commercial area that serves both current and future, nearby, multifamily, residential development and single-family development southwest along South Knik Goose Bay Road as well as tourists visiting the lodge, golf course, and adjacent natural areas.

Potential Uses:

- Lodging
- Services (e.g., banking, insurance, salons, automotive repair)
- Recreational retail (e.g., hunting supplies, golf stores, hiking apparel)
- Food (e.g., dining, brewpub, coffee shop)



Analysis

The Settlers Bay node is located along South Knik Goose Bay Road within an area of the MSB that is seeing a large amount of single-family, residential development. This area is also experiencing more multifamily development than many other areas of the MSB, including a large row of attached duplex condominiums next to the Settlers Bay Lodge, attached townhomes farther north along the road, and the Knik Tribe's forthcoming housing development.⁷ The Settlers Bay Lodge has also been recently renovated by a local developer, increasing the potential for tourism within the area. Additionally, the Great Land Trust (2023) recently donated 187 acres of undeveloped land to the MSB to be incorporated into Settlers Bay Coastal Park for recreational and habitat protection uses. Other businesses near the lodge include a gas station, an early learning center, and an urgent care center. As the population of the area increases, there likely would be corresponding demand for more services, particularly for residents who wish to avoid driving to Wasilla.

Unlike some of the other nodes in this report, no large parcels of publicly owned land are nearby, and no particularly large and highly developable private parcels are immediately adjacent to the main node. Across from the lodge is a large parcel owned by a residential developer, and many other parcels along South Knik Goose Bay Road are smaller or partially developed. The Settlers Bay development has its own private water and sewer system, and the lodge is tied into this system.

⁷ As described in stakeholder interviews conducted in 2022.

Implementation

- Engage in a **community plan** for development in the node area, including the following considerations:
 - Define the **boundary** of the node area.
 - Articulate a **community vision** for the uses and types of development in the node area.
 - Coordinate with the **Settlers Bay Lodge, Knik Tribe**, nearby **multifamily housing developers, and other stakeholders** to plan for future needs in the area.
 - Coordinate potential **shared water or sewer systems** with property owners.
- Consider establishing a **zoning district** for the node to ensure desired land uses develop as envisioned and to meet the MSB Assembly's stated goal of managing growth. A more detailed discussion of zoning can be found in Section 2.
- Proactively invest in **pedestrian and bike infrastructure** and facilities in the node to improve safety along South Knik Goose Bay Road, as detailed in the MSB Bicycle and Pedestrian Plan Project #16 (MSB 2023).
- Plan for a **future transit stop and shelter** in the node area. The MSB (2017) 2035 LRTP calls for increased density around future transit routes and identifies South Knik Goose Bay Road as a potential future bus route. If the MSB considers expanding bus service as its population grows, providing a comfortable and safe transit shelter in node areas would be important.

5.6 Comprehensive Plan Update

Multiple comprehensive plans cover parts of this sub-area, including the Big Lake Comprehensive Plan, City of Houston Comprehensive Plan, the Knik Fairview Comprehensive Plan, and the Meadow Lakes Comprehensive Plan. This sub-area is also covered by the borough-wide Comprehensive Plan. The Big Lake, Knik Fairview, and Meadow Lakes plans are all more than 10 years old and should be updated because there has been substantial population and economic growth in this sub-area.

One of the trends experienced in this sub-area is the conversion of recreational properties to year-round residences. This has occurred for several reasons such as housing being more affordable here than in other parts of the Anchorage/Matanuska-Susitna urban area while still being within commuting range of multiple employment options. Interest in living in this sub-area has increased post-COVID with more opportunity for remote or hybrid jobs that no longer require a daily commute to an office.

This sub-area has the potential for substantial growth as large amounts of undeveloped land are within easy commuting distance of Wasilla and Palmer.

Additionally, these comprehensive plans should be updated to present the development node analysis (see *Development Node Analysis and Recommendations*, Appendix C) to a broader audience and further refine these concepts to fit into the larger community vision.

5.7 Gravel Pit Operator Coordination

As previously discussed, gravel pits represent a development opportunity. As shown in Figure 32, multiple gravel pits are in this sub-area. However, they are relatively small and not located near the proposed development nodes.

5.8 Non-Motorized Improvements

As previously discussed, having a robust non-motorized transportation network is important because it provides people with transportation choices, reduces congestion, and provides other benefits. The 2023 MSB Bicycle and Pedestrian Plan (MSB 2023) recommends multiple bicycle and pedestrian improvements in the KGB-Big Lake Sub-Area, including:

- 67. Settlers Bay area trail connections
- 68. South Knik Goose Bay Road crossing
- 71. North Pittman Road path
- 72. South Vine Road separated path
- 76. South Knik Goose Bay Road separated path
- 77. Dena'ina Elementary school route improvements*
- 78. Reddington Junior/Senior High School route improvements
- 79. West Hawk Lane and Hawk Lane east pathway extension to West Parks Highway*
- 80. Houston Middle School route improvements*
- 81. North Beaver Lake Road/West Hawk Lane/South Kenlar Road pathway loop
- 82. South Big Lake bike trail extension
- 83. Big Lake Elementary school route improvements*
- 84. West Northshore Drive pathway west rehabilitation

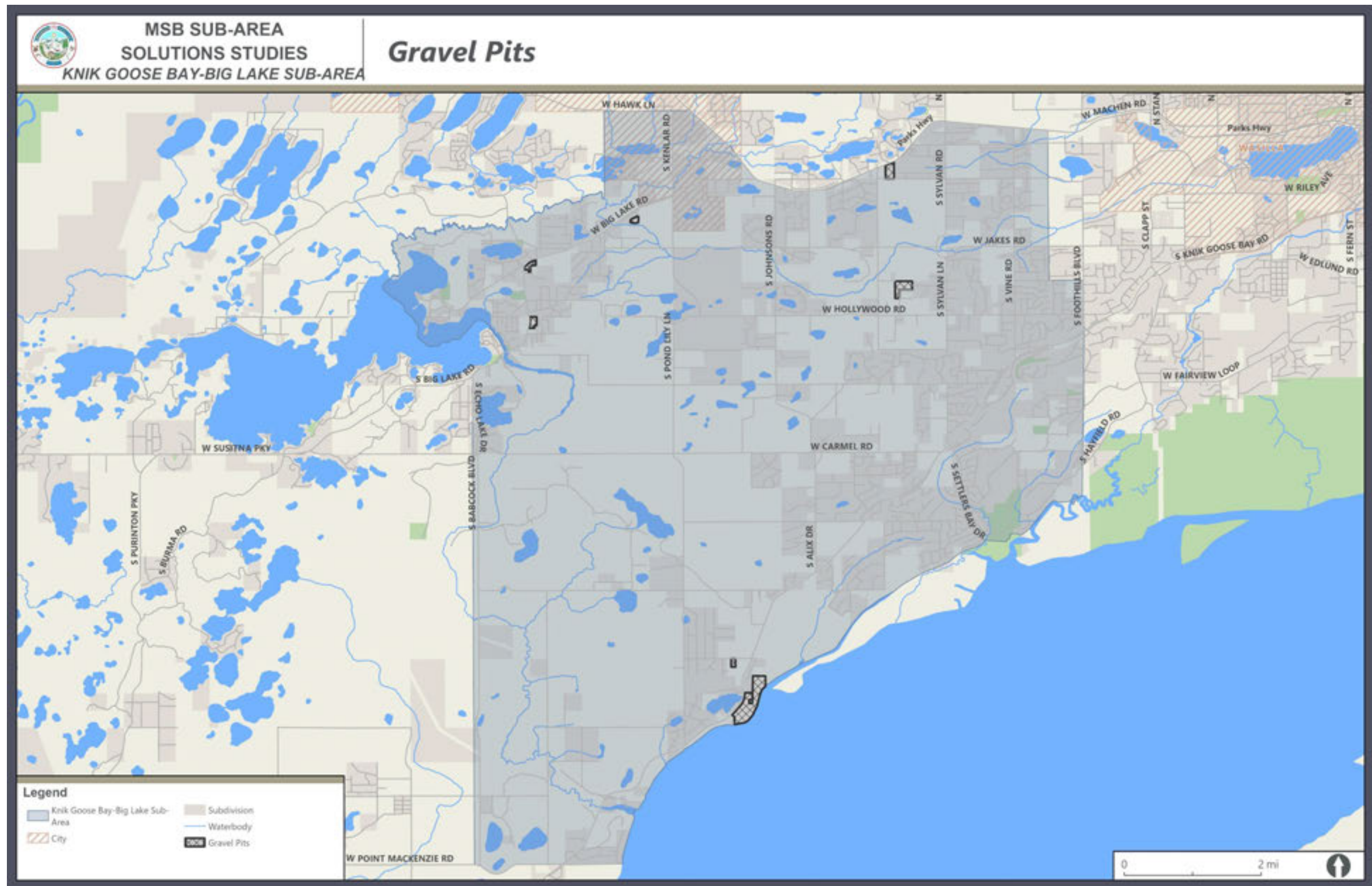
For additional information about the projects listed above, please see the [2023 MSB Bicycle and Pedestrian Plan](#). Projects above identified with an “*” are also identified in the CSAP as necessary improvements to accessing schools within disadvantaged population areas (MSB 2025).

The South Big Lake bike trail extension, Big Lake Elementary, and West Northshore Drive pathway west rehabilitation projects would support the development of the Big Lake Town Center development node. The other projects would not directly support the development of the Settlers Bay and West Parks Highway & West Big Lake Road

development nodes. Collectively, these projects would increase safety for students or families using non-motorized transportation to and from schools, as well as provide more transportation choices for the general public. Overall, strengthening the multimodal transportation network would enhance the recommended development nodes.

In addition to the projects listed above, non-motorized facilities should be incorporated on all unconstructed OSHP roads (identified in Section 5.3) based on the MSB's Complete Streets Policy (when adopted).

Figure 32. Gravel Pits in the KGB-Big Lake Sub-Area



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APPENDIX A:

EXISTING CONDITIONS

Matanuska-Susitna Borough



Fishhook Triangle Existing Conditions Report

November 2022

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Appendices

Appendix A Existing Non-Infrastructure Policy and Codes

Acronyms/Abbreviations

ACS	American Community Survey
ADEC	Alaska Department of Environmental Conservation
CTP	Community Transportation Program
DOL&WD	Alaska Department of Labor and Workforce Development
DOT&PF	Alaska Department of Transportation and Public Facilities
FFY	Federal Fiscal Year
GIS	Geographic Information System
HSIP	Highway Safety Improvement Program
LRTP	Long Range Transportation Plan
MEA	Matanuska Electrical Association
MHI	Median Household Income
MPO	Metropolitan Planning Organization
MSA	Metropolitan Statistical Area
MSB	Matanuska-Susitna Borough
OS&HP	Official Streets and Highway Plan
RSA	Road Service Area
SASS	Sub-Area Solutions Studies (original name for these studies. Renamed in September 2025 to 'Community Growth Solutions Study')
Study	Community Growth Solutions Study
SCM	Subdivision Construction Manual
SpUD	Special Use District
STIP	Statewide Transportation Improvement Program

1. Introduction

1.1 Project Overview

The Matanuska-Susitna Borough (MSB) Assembly adopted their 2023–2028 Strategic Plan to focus on three key areas:

1. Foster economic growth and diversification within the MSB,
2. Support the delivery of high-quality MSB services, and
3. Help manage growth throughout the MSB.



As part of implementation of the Strategic Plan, the MSB is developing the Community Growth Solutions Study (hereafter referred to as ‘Study’), with the goal of supporting a safe, robust transportation system that can be a catalyst for economic growth and prosperity in the MSB.

A functioning transportation system is more than just a road network. While new or expanded roads can provide short-term solutions to transportation problems, they are most effective when paired with non-infrastructure programs and policies to protect the roadway network over the long term.

This project’s purpose is to identify infrastructure and non-infrastructure solutions to transportation needs that address the MSB’s Strategic Plan focus areas. Combining infrastructure and non-infrastructure-based transportation solutions can result in better mobility, which can lower business costs, improve freight movement, and provide better employment opportunities. It can also improve quality of life as residents can get places faster using a variety of travel options, making the MSB an even more desirable place where people want to live.

The project consists of the following four sub-areas:



1.2 Project Goals

The project’s goals are to:

- Identify current and future transportation deficiencies
- Establish purpose and need for proposed solutions
- Prioritize the *Official Streets and Highway (OS&HP)* corridor recommendations

- Promote comprehensive solutions to MSB's growth-related transportation issues
- Demonstrate the linkage between transportation, land use, and economic development

1.3 Planning Process

The planning process used to develop the study for each sub-area is shown in Figure 1.

Figure 1. Planning Process



Throughout the planning process, the MSB will engage with the public, stakeholders, and partner agencies. This input will guide the development of the study and establish public understanding of the relationship between transportation improvements and their functionality and safety with land use policies, as well as how transportation and land use are important to economic development and investments.

1.4 Study Area

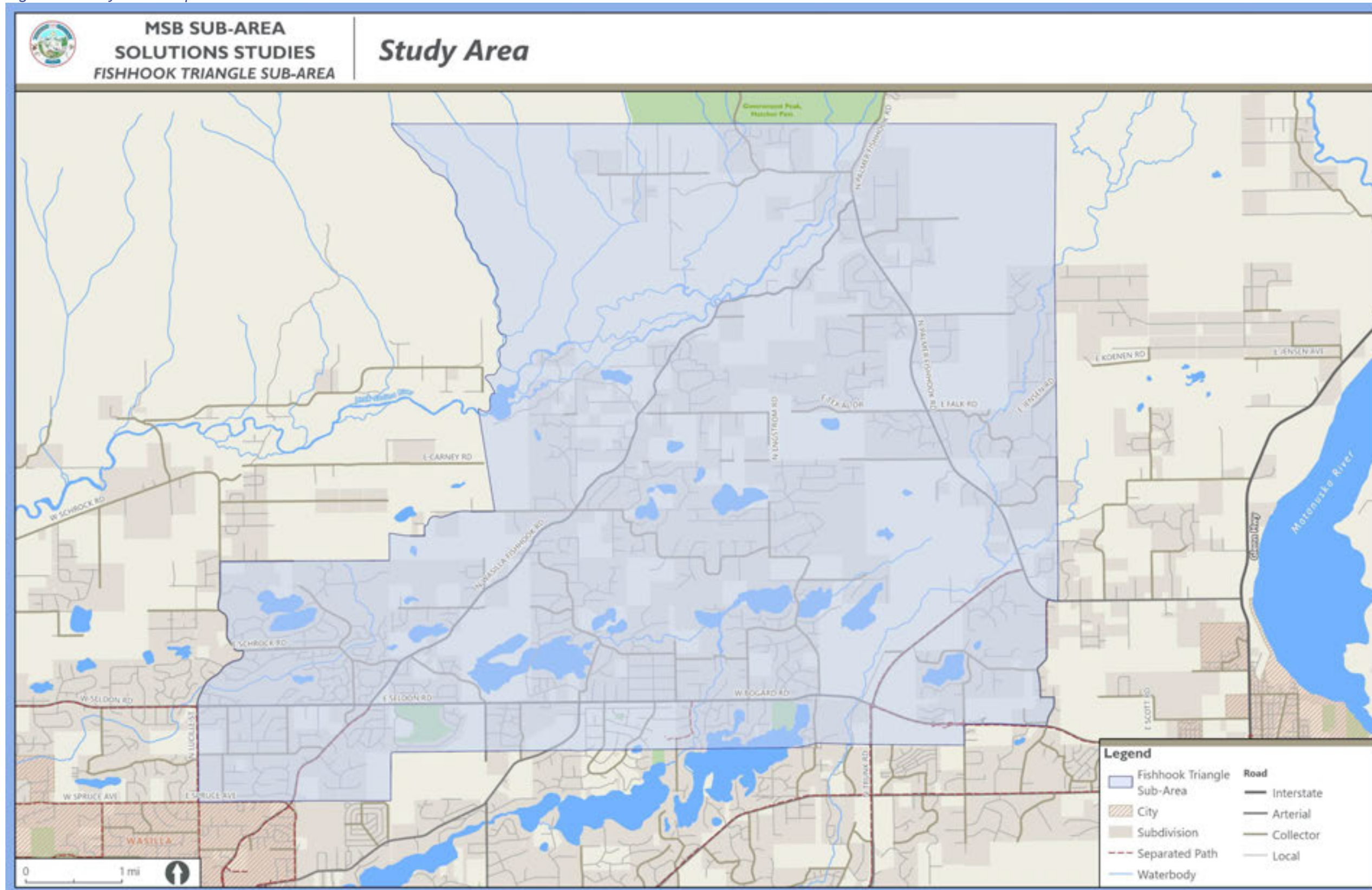
The Fishhook Triangle Sub-Area is the area generally bounded by Bogard and Seldon Roads to the south; Trunk and Palmer Fishhook Roads serving as its eastern and northeastern legs, respectively; and Wasilla-Fishhook Road serving as its western leg. Figure 2 shows the entire Fishhook Triangle Sub-Area. This sub-area includes the entire Fishhook Community Council and portions of the Farm Loop, North Lakes, and Tanaina Community Councils.

The Fishhook Triangle Sub-Area is experiencing rapid residential development; however, it has few supporting commercial services, requiring residents to frequently travel to Palmer, Wasilla, or Anchorage. The 2011 opening of the New Trunk Road provided the Fishhook Triangle more direct access to the Parks Highway, making the trip to Palmer, Wasilla, or Anchorage less time consuming and safer. Better access has also contributed to the recent rapid residential growth within this sub-area. Residents enjoy the quality of life that the Fishhook Triangle Sub-Area provides, with access to the nearby Government Peak Recreation Area, Hatcher Pass, Skeetawk Downhill Ski Area, and the state-managed

Matanuska Valley State Moose Range, all of which are experiencing increased winter and summer recreation use.

The current road network within the sub-area lacks connectivity. There are few collector roads connecting subdivisions to each other or to Bogard-Seldon, Palmer Fishhook, Wasilla-Fishhook, or Trunk Roads. For example, several subdivisions funnel their traffic to Engstrom Road to access Bogard Road at the base of the “Triangle.” The Bogard Road/Engstrom Road intersection is heavily congested, in part because Engstrom Road does not have alternative connections to Trunk, Wasilla-Fishhook, or Palmer-Fishhook Roads.

Figure 2. Study Area Map



2 Demographics

This section provides a demographic summary to provide context for the existing conditions and anticipated changes in the sub-area.

2.1 Population

Figure 3 shows the historical and projected future population of the MSB and Alaska. According to the Alaska Department of Labor and Workforce Development (DOL&WD)¹, both the state and MSB grew rapidly from the 1970s through the 2000s. Beginning in 2010, the Alaskan population began to stabilize, growing only 3 percent between 2010 and 2022.

Much of Alaska's population growth results from significant in- and out-migration, as compared to other states. Economic factors, such as the volatility of the oil industry and recessions on national and state levels, significantly impact the state's population. Readjustment of military personnel to bases in other states has also historically had notable impacts on Alaska's population.² The

DOL&WD's most recent population forecast, published in 2021, assumes that slow population growth in the state over the 2021 to 2050 horizon will result from an aging population, lower birth rates, and a net out-migration³ of between -0.7 and -0.2 percent.⁴ The rapid growth in the MSB is predicted to be offset by a net decrease in population in Anchorage, population decreases in other Southcentral communities and the Southeast region of the state, and stagnant population numbers in other regions.⁵



Overall, the MSB is by far the fastest-growing area in Alaska, resulting in the need for new housing stock; potential increases in traffic congestion; and the need to consider future development patterns and nodes that affect the location, construction, and preservation of new collector and arterial corridors.

¹ DOL&WD, Alaska Population Estimates, 2021, <https://live.laborstats.alaska.gov/pop/index.cfm>

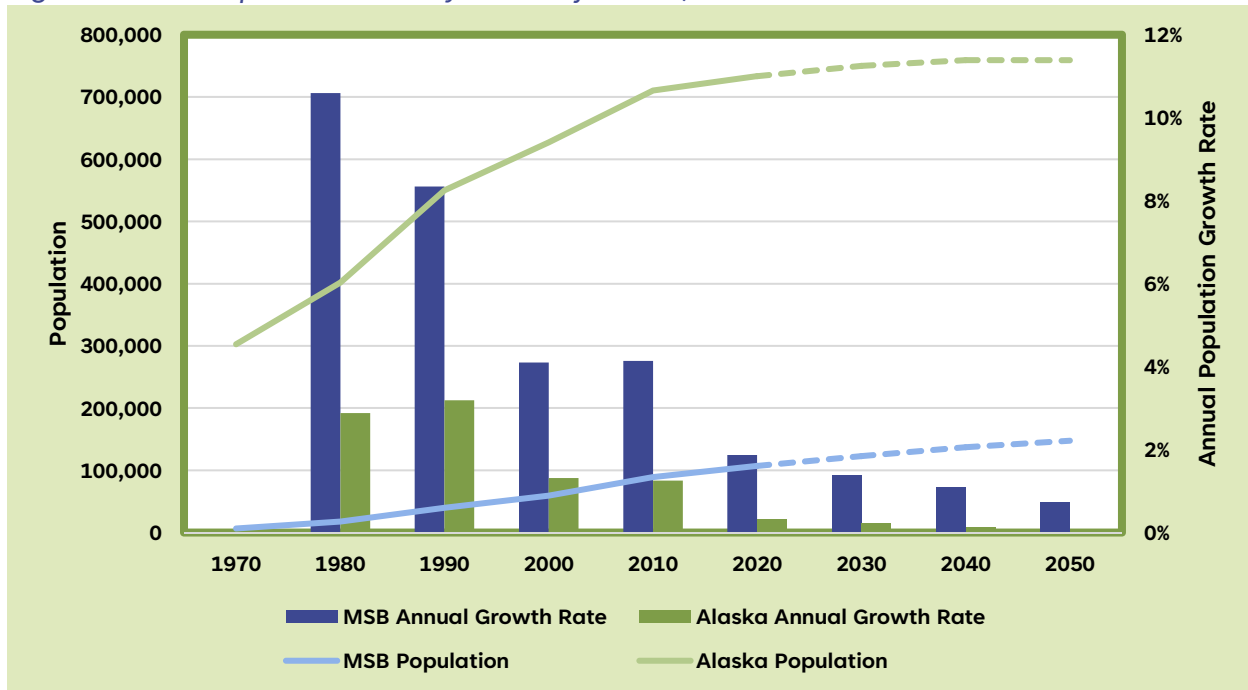
² DOL&WD, Alaska Population Overview: 2019 Estimates, December 2020

³ Net out-migration refers to the difference between the number of people moving from an area compared to those moving to the area. Net outmigration means that more people are expected to move out of Alaska than into the state.

⁴ DOL&WD, Alaska Population Estimates, 2021, <https://live.laborstats.alaska.gov/pop/index.cfm>

⁵ DOL&WD, Alaska Population Projections: 2021 to 2050, June 2022

Figure 3. MSB Population History and Projections, 1960–2050



Source: DOL&WD, Alaska Population Estimates, 2021, <https://live.laborstats.alaska.gov/pop/index.cfm>

By contrast, the MSB population grew 22 percent over the same period. These trends are projected to continue, with the DOL&WD forecasting a 38 percent increase in population within the MSB by 2050, compared with only 4 percent statewide.⁶ The MSB is growing much faster than the Anchorage Metropolitan Statistical Area (MSA), of which the MSB is a part. The Anchorage MSA is expected to see a 4 percent decrease in population by 2050. More than half of the MSB's new residents are in-migrants from within Alaska, mostly from Anchorage. The MSB is one of only two regions in Alaska that has experienced net positive in-migration in the past 20 years. Families with children are particularly prominent in the demographic breakdown of residents moving from Anchorage to the MSB. Overall, this migration from other areas of the state is the main reason for the MSB's recent and continuing population growth.⁷

This rapid population increase affects many aspects of life in the MSB that are discussed throughout this report, including housing prices, residential and commercial development and real estate, traffic, transportation infrastructure and connectivity, school capacity, commuting patterns, and the regional economy.

⁶ DOL&WD, Alaska Population Estimates, 2021, <https://live.laborstats.alaska.gov/pop/index.cfm>

In 2020, the Fishhook Triangle Sub-Area had a population of 16,471, which was approximately 15.3 percent of the MSB's total population.⁸ Figure 4 shows the population distribution within the sub-area.

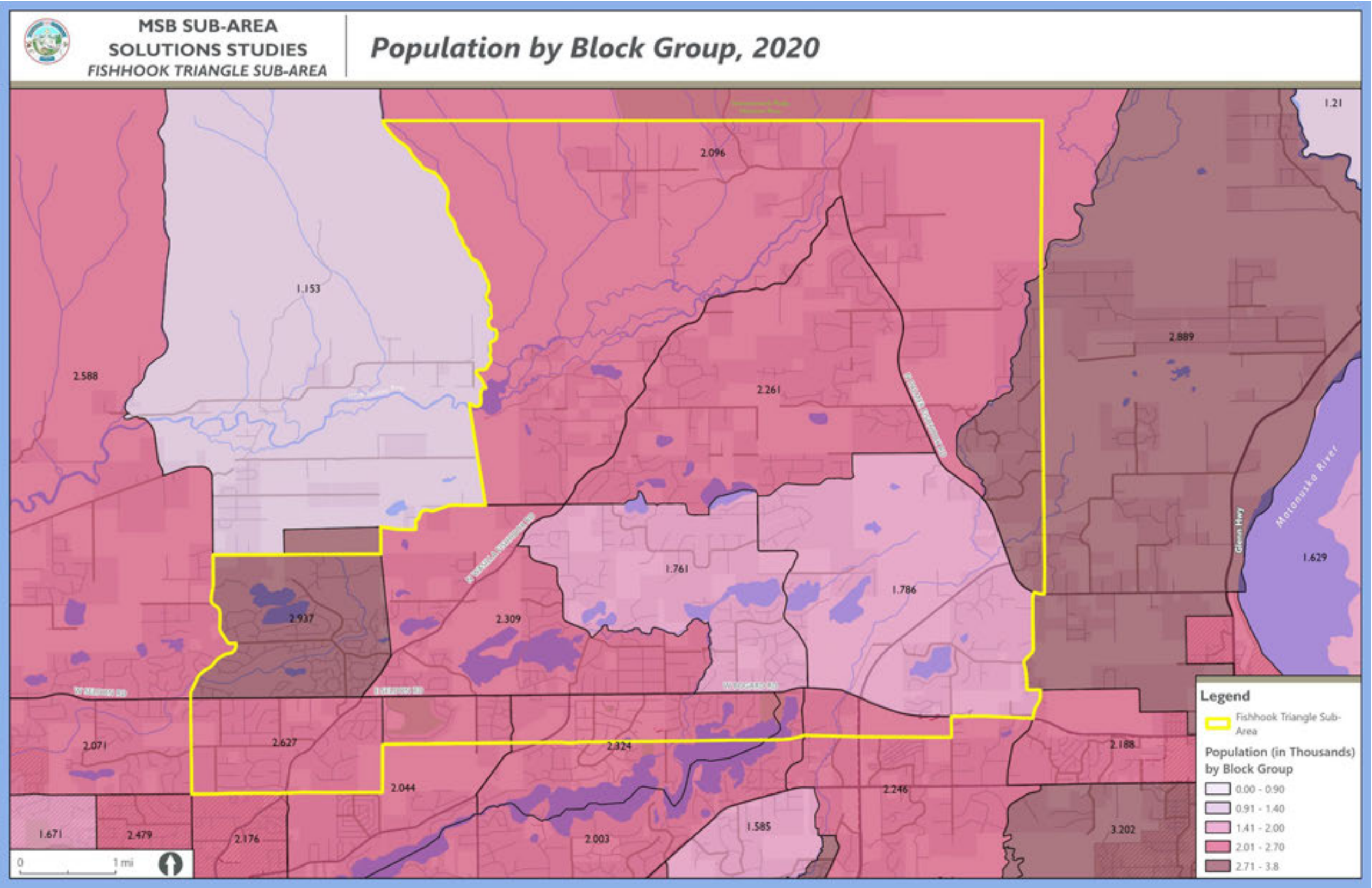
2.2 Population Density

The average population density in the Fishhook Triangle Sub-Area is 382 people per square mile⁹, which is below the U.S. Census definition of an urbanized area (1,000 people per square mile) and urban fringe area (500 people per square mile). This is due, in part, to the large amount of undeveloped space in the northern part of the sub-area. However, the southern parts of the sub-area are considerably denser, with population densities near or exceeding 1,000 people per square mile along the Bogard-Seldon Road Corridor. The population density by Census Block Group in the sub-area is shown in Figure 5.

⁸ American Community Survey, 5-year Estimates, 2020, via ESRI's ACS Population Summary, 2022

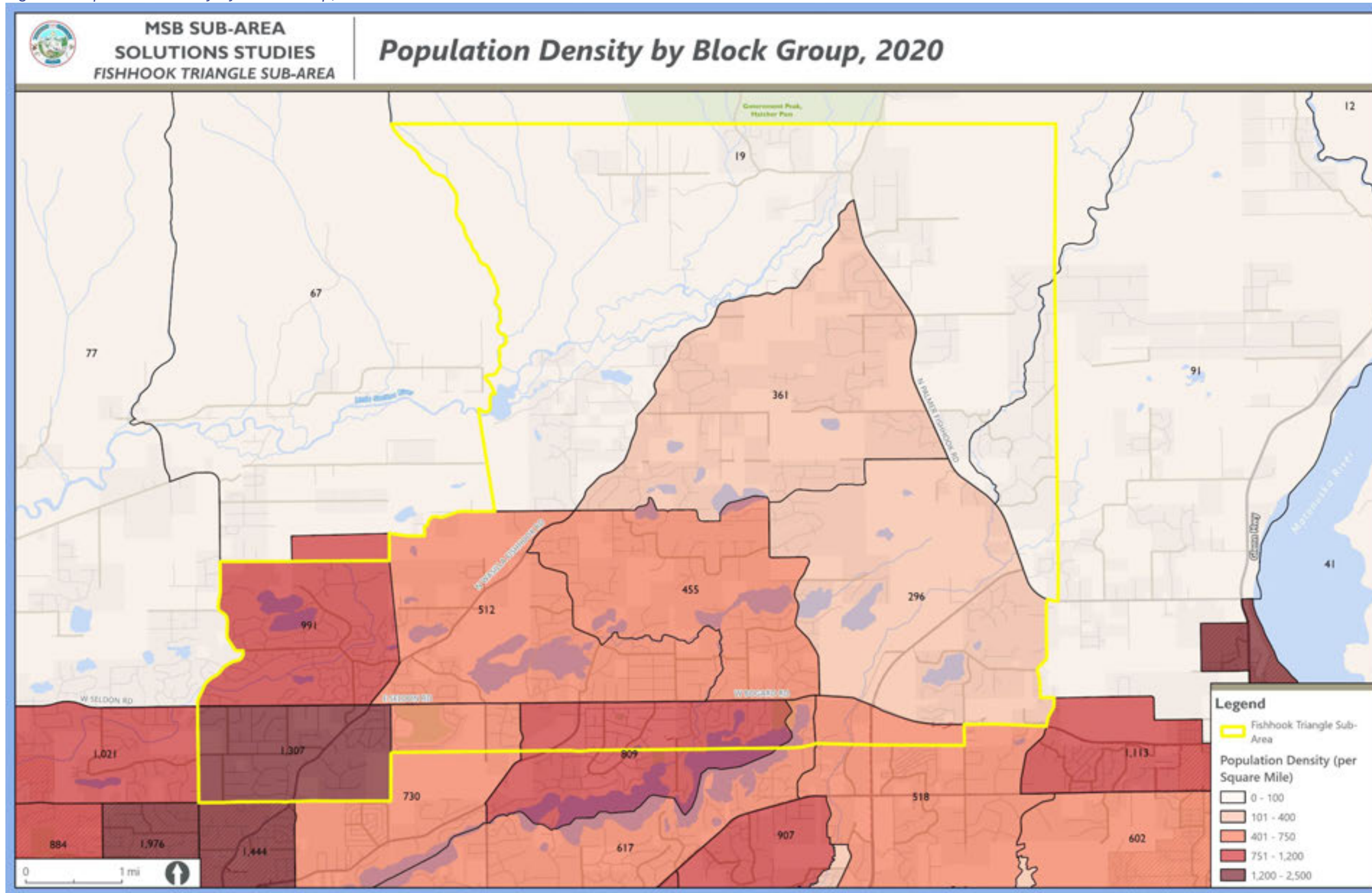
⁹ American Community Survey, 5-year estimates, 2020, via ESRI's ACS Population Summary, 2022

Figure 4. Population by Block Group, 2020



Source: American Community Survey, 2016–2020 5-year Estimates Summary

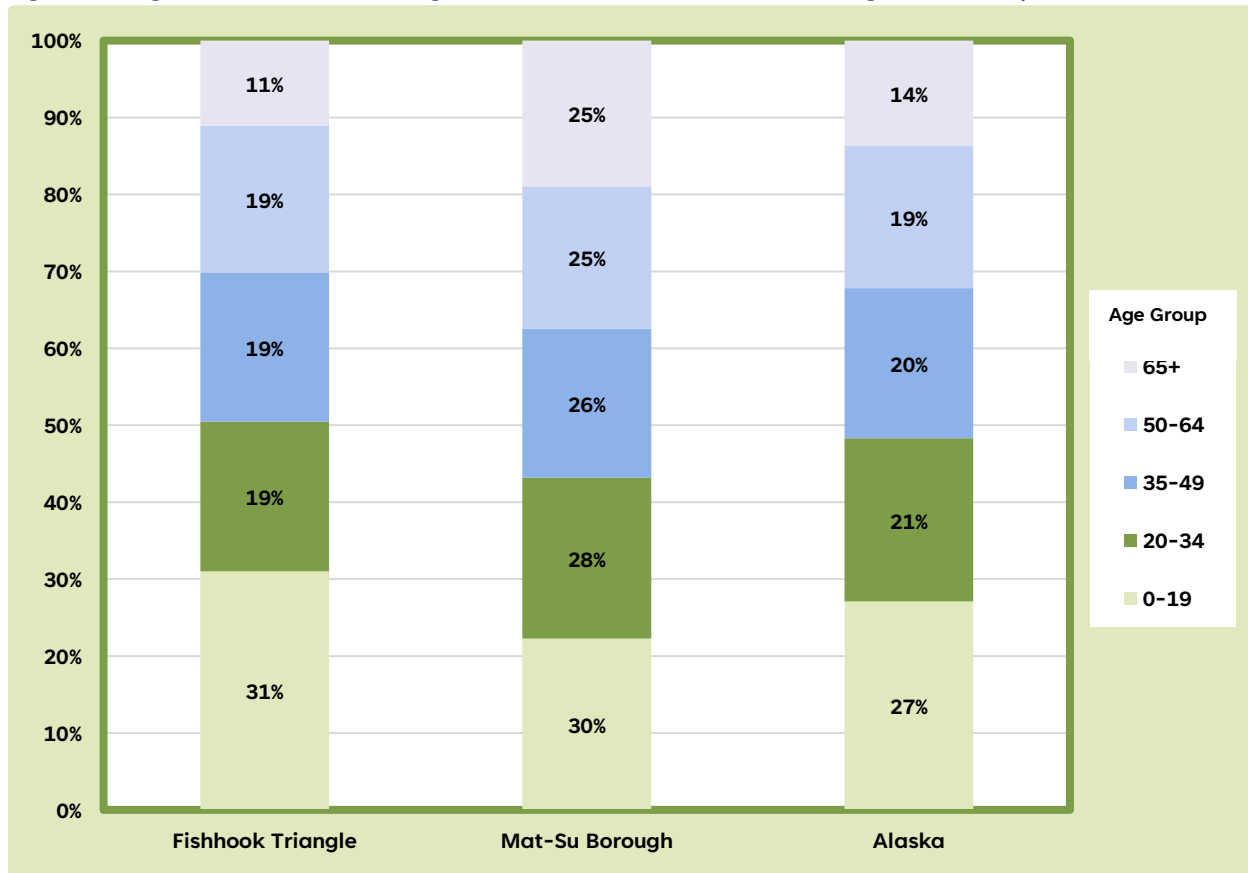
Figure 5. Population Density by Block Group, 2020



2.3 Age

Fishhook Triangle Sub-Area residents are younger than the MSB and statewide averages, as shown in Figure 6. In 2020, 31 percent of the population was under age 19, and 19 percent was between the ages of 20 and 34.¹⁰ Only 11 percent of the Fishhook Triangle Sub-Area population was over 65 years of age, compared to 25 percent MSB-wide. This younger population may reflect a large share of families with children in the sub-area and the large share of family households discussed below.

Figure 6. Age of Fishhook Triangle Sub-Area Residents with Regional Comparison, 2020



Source: American Community Survey, 2016–2020 5-year Estimates; DOL&WD, Alaska Population by Age and Sex, 2010, 2020 to 2021, 2021, <https://live.laborstats.alaska.gov/pop/estimates/data/AgeBySexAK.xls>

According to the 2020 American Community Survey¹¹, the average household size within the Fishhook Triangle Sub-Area is 2.9 people per household. This is similar to the MSB, and slightly more than the statewide average of 2.7 people per household.

¹⁰ American Community Survey, 5-year estimates, 2020, via ESRI's ACS Population Summary, 2022

¹¹ American Community Survey, 5-year estimates, 2020, via ESRI's ACS Population Summary, 2022

Approximately 77 percent of the households in the Fishhook Triangle Sub-Area are family households¹², compared with 71 percent within the MSB overall and 65 percent statewide. Additionally, 38 percent of households in the Fishhook Triangle Sub-Area have children under age 18, compared with 35 percent within the MSB and 34 percent statewide. This large share of family households and households with children helps explain the larger-than-average household size and the number of young residents within the sub-area. It also demonstrates the continued demand for schools within the sub-area and the need for road safety, connectivity, and transit, particularly for children too young to drive vehicles.

2.4 Race/Ethnicity

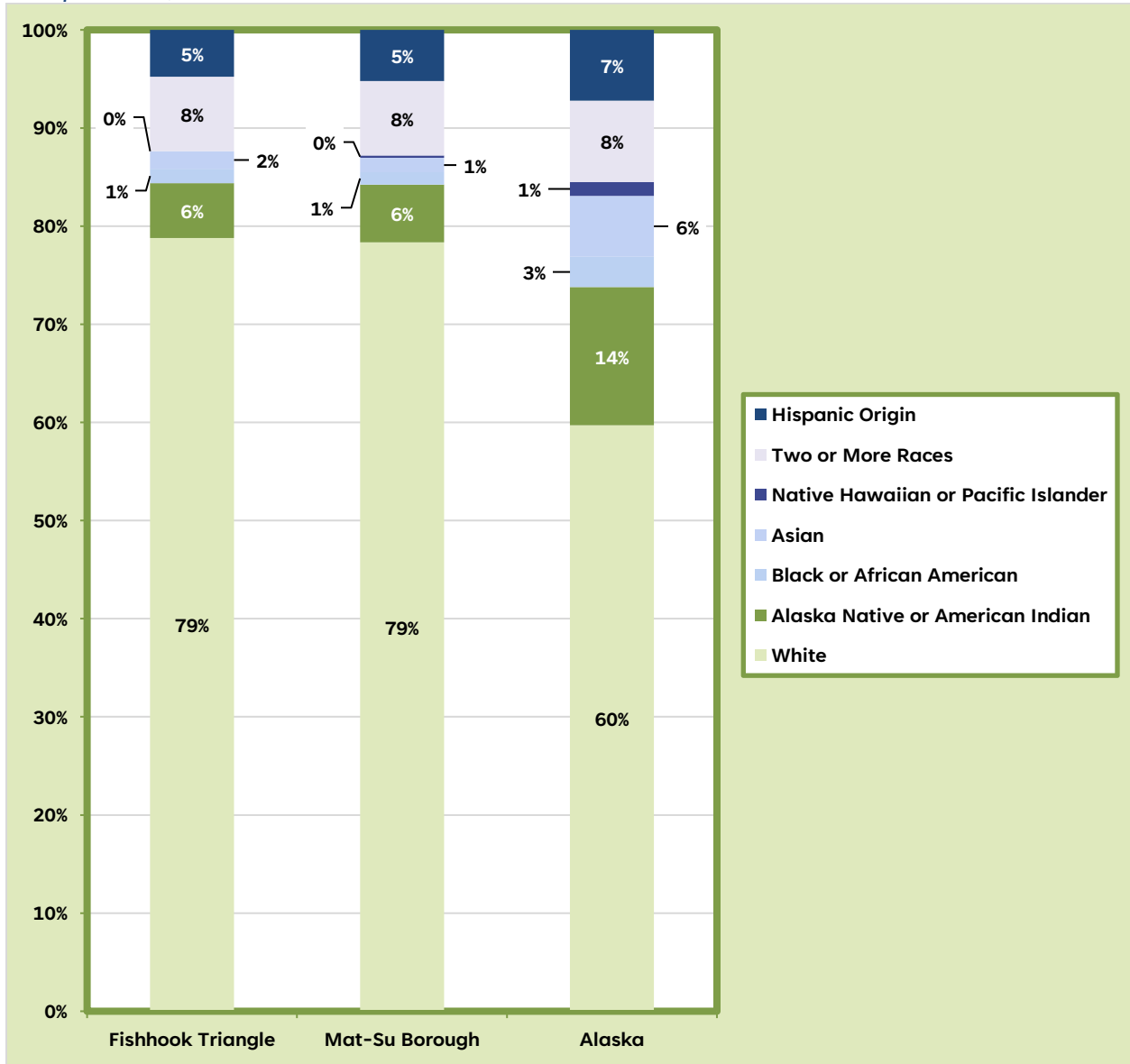
The Fishhook Triangle Sub-Area has a similar level of racial and ethnic diversity as the MSB as a whole, though it is less diverse than reported statewide, as shown in Figure 7. The 2020 American Community Survey¹³ reported that 79 percent of the sub-area's population identified as white, 8 percent as two or more races, 6 percent as Alaska Native or American Indian, 5 percent as Hispanic origin, 2 percent as Asian, and 1 percent as Black or African American. MSB-wide, the 2020 American Community Survey reported that 79 percent of residents identified as white, 8 percent as two or more races, and 6 percent as Alaska Native or American Indian. Statewide, the 2020 American Community Survey reported 60 percent of residents identified as white, 8 percent as two or more races, and 14 percent as Alaska Native or American Indian (approximately twice the share of the MSB population).

Figure 8 shows the geographic distribution of minority populations in the Fishhook Triangle Sub-Area. A higher concentration of minority populations occurs within the central subdivisions in the Fishhook Triangle Sub-Area.

¹² A family household refers to a household that is composed of a family (i.e., a group of two or more people related by birth, marriage, or adoption and residing together). It includes any unrelated people who may be residing there.

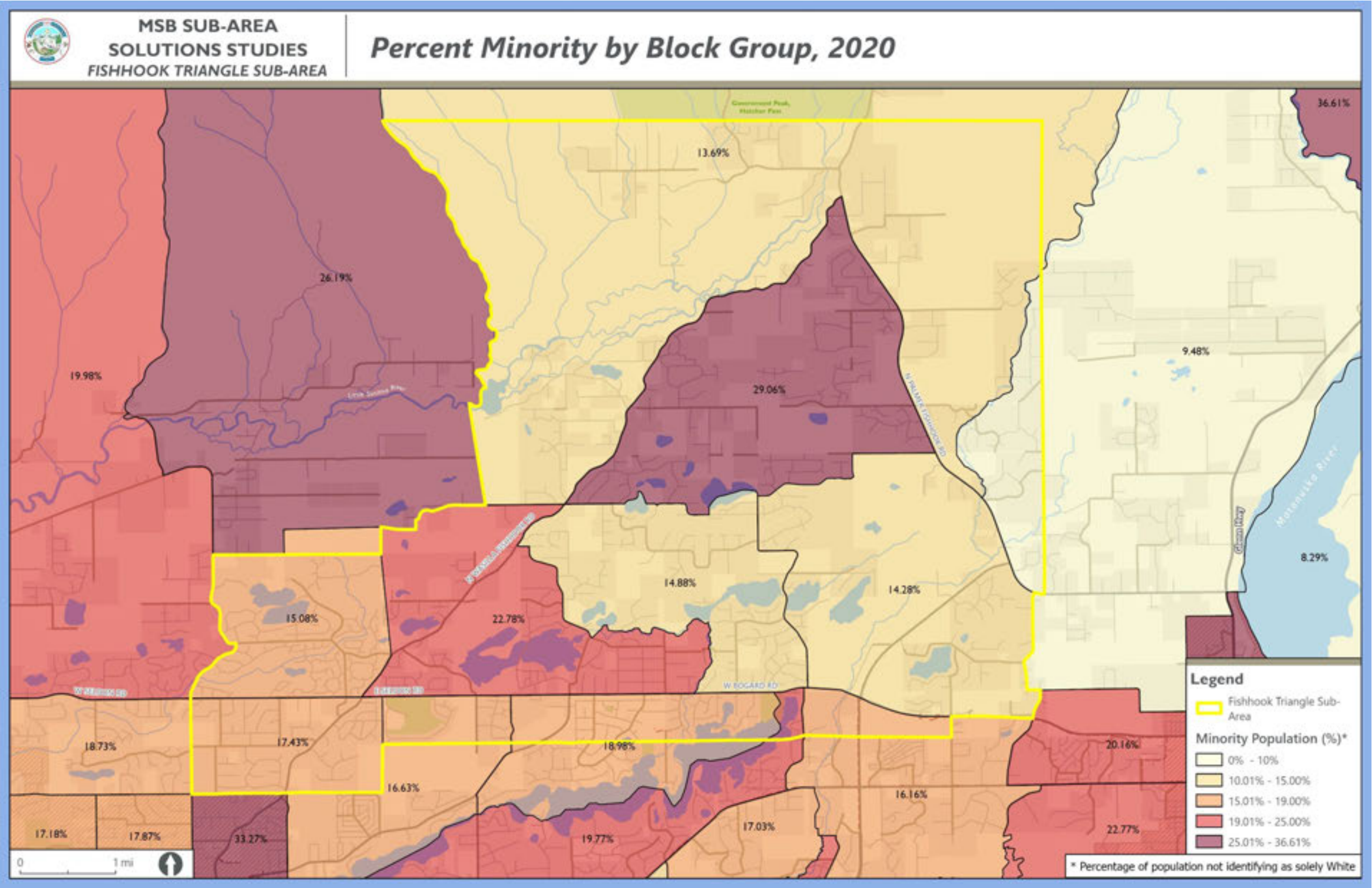
¹³ American Community Survey, 5-year estimates, 2020, via ESRI's ACS Population Summary, 2022

Figure 7. Race and Ethnicity in the Fishhook Triangle Sub-Area with Regional Comparisons, 2020



Source: DOL&WD, Alaska Population by Race and Hispanic Origin, 2020 to 2021, 2021, <https://live.laborstats.alaska.gov/pop/estimates/data/RaceHispAK.xls>; American Community Survey 5-Year Estimates, 2020

Figure 8. Percent Minority, 2020

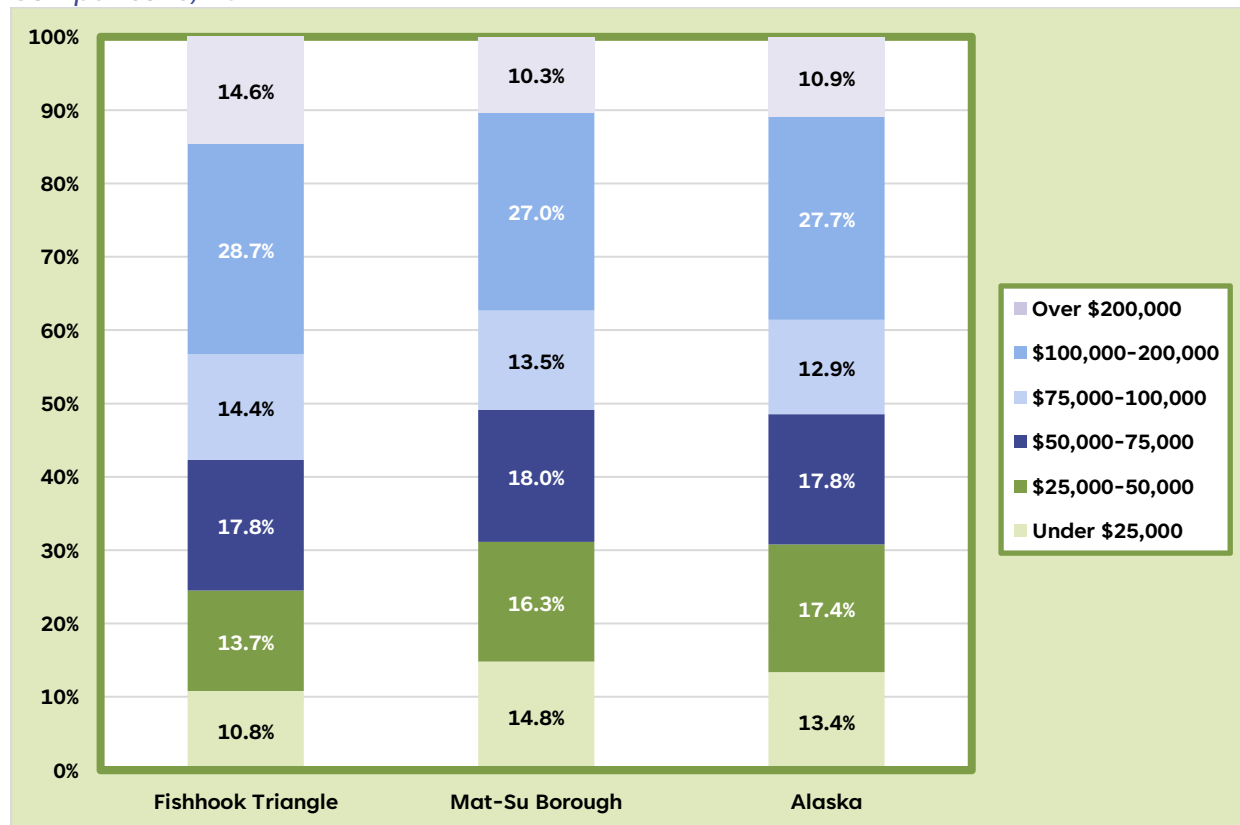


Source: American Community Survey, 2016–2020 5-year Estimates Summary

2.5 Median Household Income

In 2022, ESRI¹⁴ reports that the Fishhook Triangle Sub-Area has a Median Household Income (MHI) of \$86,517. This is higher than the MSB's MHI of \$76,316 and the statewide MHI of \$77,141. When broken down by income bracket, as shown in Figure 9, Fishhook Triangle households are comparatively well-off, with 43 percent of households in the sub-area earning more than \$100,000 per year, compared to 37 percent within the MSB. Additionally, a smaller share of lower-income households, 10.8 percent, earn under \$25,000 per year, as compared with 14.8 percent MSB-wide.

Figure 9. Household Income Distribution in the Fishhook Triangle Sub-Area with Regional Comparisons, 2022



Source: ESRI Market Profiles for Fishhook Triangle District, MSB, State of Alaska, 2022

¹⁴ A leading provider of Geographic Information Systems (GIS) software and datasets, ESRI uses Census, U.S. Post Office, and other data to create population and economic estimates across the United States.

3 Land Use Plans

This section summarizes the land use plans that cover the Fishhook Triangle Sub-Area.

3.1 Borough-Wide Comprehensive Plan

The *Matanuska-Susitna Borough Comprehensive Development Plan*¹⁵ provides general goals and policy recommendations to guide the MSB's future development in a manner that improves quality of life, public health, safety, and welfare. Implementation of the plan is done in many ways, including Title 17 Zoning Ordinances, which include the ability to establish Special Use Districts (SpUDs), subdivision regulations, capital improvement programs, specific ordinances, and general policies. The plan is updated whenever a community comprehensive plan, lake management plan, regional plan, asset plan, or other specialty plan is adopted by the Assembly.

3.2 MSB Core Area Plan

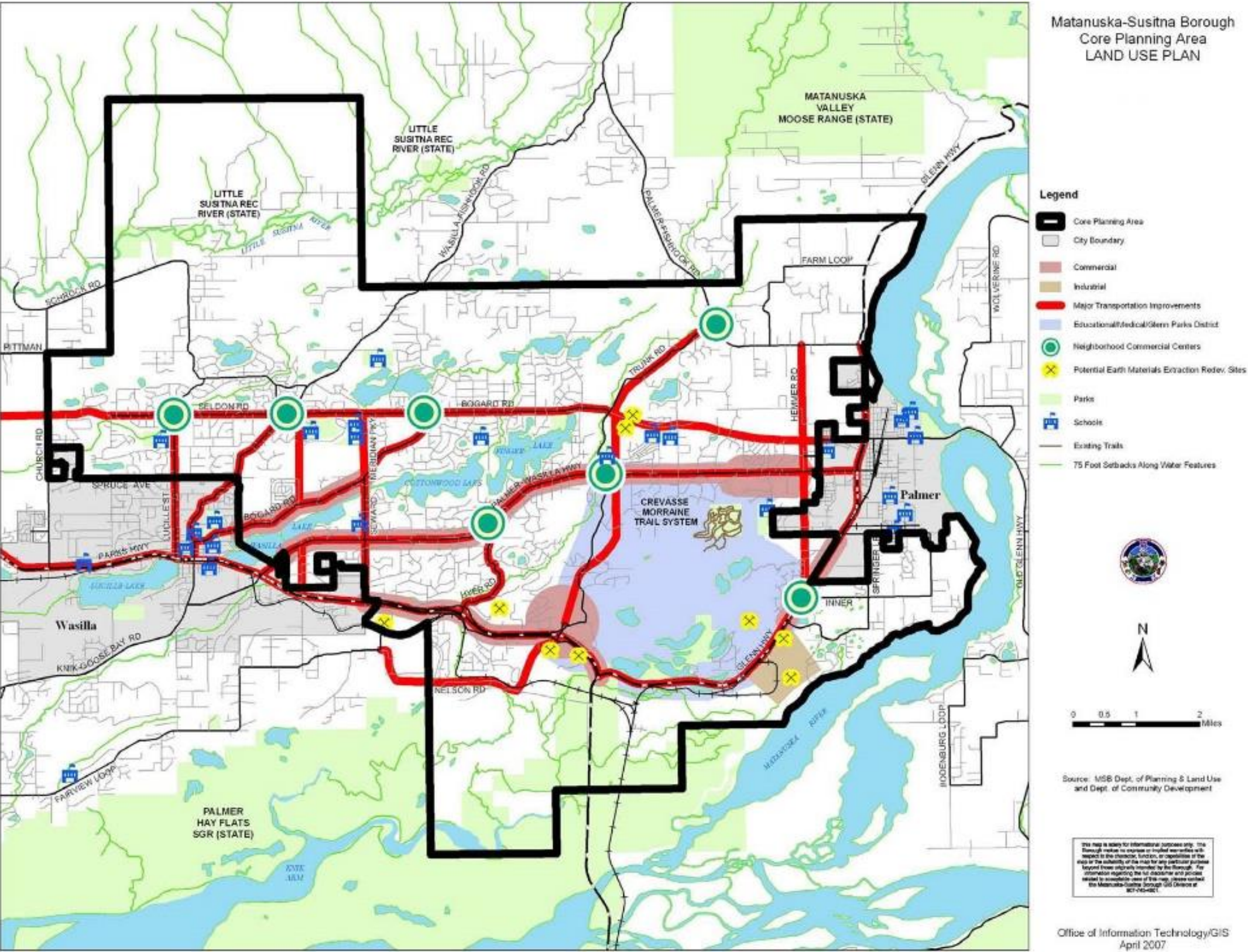
The *Matanuska-Susitna Borough Core Area Comprehensive Plan*¹⁶ established goals and policies to guide the Core Area's development to enhance the quality of life and the public health, safety, and welfare of residents. This plan established a framework to guide public and private decisions about land use and public infrastructure within the Core Area. A portion of the Fishhook Triangle is contained within the Core Area Plan boundaries. These include the northern section of the North Lakes Community Council, the eastern portion of the Tanaina Community Council, and the western part of the Farm Loop Community Council. The Fishhook Community Council is located north of the Core Area boundary and has its own comprehensive plan. The Core Area plan's land use plan map (see Figure 10) identified conceptual locations for different types of development.

The Core Area plan identified needed transportation improvements based on the 2007 *Long Range Transportation Plan* (LRTP). Those projects are not listed here as the MSB updated its LRTP in 2017 (see Section 10.9.1 for updated project recommendations). The Core Area plan was last updated in 2007. Since then, certain plan recommendations have been implemented through Title 17.61, Core Area, of the MSB's Zoning Code. The Core Area Plan will likely be updated in the near future, as part of the MSB is expected to be designated an urban area by the U.S. Census Bureau in late 2022.

¹⁵ MSB, *Matanuska-Susitna Borough Comprehensive Development Plan*, 2005 Update, <https://matsugov.us/plans/borough-wide-comprehensive-plan>

¹⁶ MSB, *Matanuska-Susitna Borough Core Area Comprehensive Plan*, 2007 Update, <https://matsugov.us/plans/core-area-comprehensive-plan>

Figure 10. MSB Core Area Plan, Land Use Plan Map



Source: MSB, Matanuska-Susitna Borough Core Area Comprehensive Plan, 2007 Update, <https://matsugov.us/plans/core-area-comprehensive-plan>

3.3 Fishhook Community Comprehensive Plan

The *Fishhook Comprehensive Plan*¹⁷ was adopted by the MSB Assembly in March 2017. This plan established the following Community Vision Statement:

The Fishhook Community Comprehensive Plan provides guidance for growth in the Fishhook area while protecting the area's natural beauty and re-affirming individual and property rights. The goal of this document is to preserve and enhance the Fishhook area's scenic, recreational, rural, residential, agricultural, and cultural identity while allowing for expanded economic opportunities.

The plan established the following land use goals:

- Goal 1. Respect existing private property rights while minimizing impacts to neighboring property owners.
- Goal 2. Maintain the rural character of Fishhook.
- Goal 3. Maintain the area's scenic, recreational, and residential qualities.
- Goal 4. Protect and preserve cultural resources wherever possible.
- Goal 5. Work with the community to identify methods of fostering growth in a compatible manner with the area's rural and recreational lifestyle.

The plan also established the following transportation goals:

- Goal 1. Develop a road grid network.
- Goal 2. Develop a secondary road system to prevent additional access directly onto state roads that function as arterials, and ensure that local collector roads intersect with state roads at reasonable intervals. Projects include:
 - Tex-Al Drive: Connect eastern and western segments to provide a new east-west corridor between Palmer- and Wasilla-Fishhook Roads.
 - Engstrom Road: Extend the road north to Tex-Al Drive as well as beyond to Covington Street and Independence Avenue to provide better north-south connectivity. Additionally, provide a connection to Palmer-Fishhook or Trunk Road.
 - Extend New Hope Drive west to connect to Independence Avenue.
- Goal 3. Site future schools at least 0.25 mile from major roads to avoid the creation of school speed zones and to allow children to walk to school.

¹⁷ MSB, *Fishhook Comprehensive Plan*, adopted March 21, 2017, <https://matsugov.us/docs/general/13532/final-adopted-plan-3-21-17.pdf>

- Goal 4. Encourage MSB platting, road regulations, and standards for public safety as a priority.

4 Existing Land Use

Figure 11 shows the existing land use within the Fishhook Triangle Sub-Area. The primary land use is residential. Large tracts of undeveloped land are interspersed with agricultural activities, gravel operations, and cottage businesses such as bed and breakfasts. Commercial and retail activities are limited, with residents traveling to Palmer, Wasilla, or Anchorage for retail, medical, or government services.

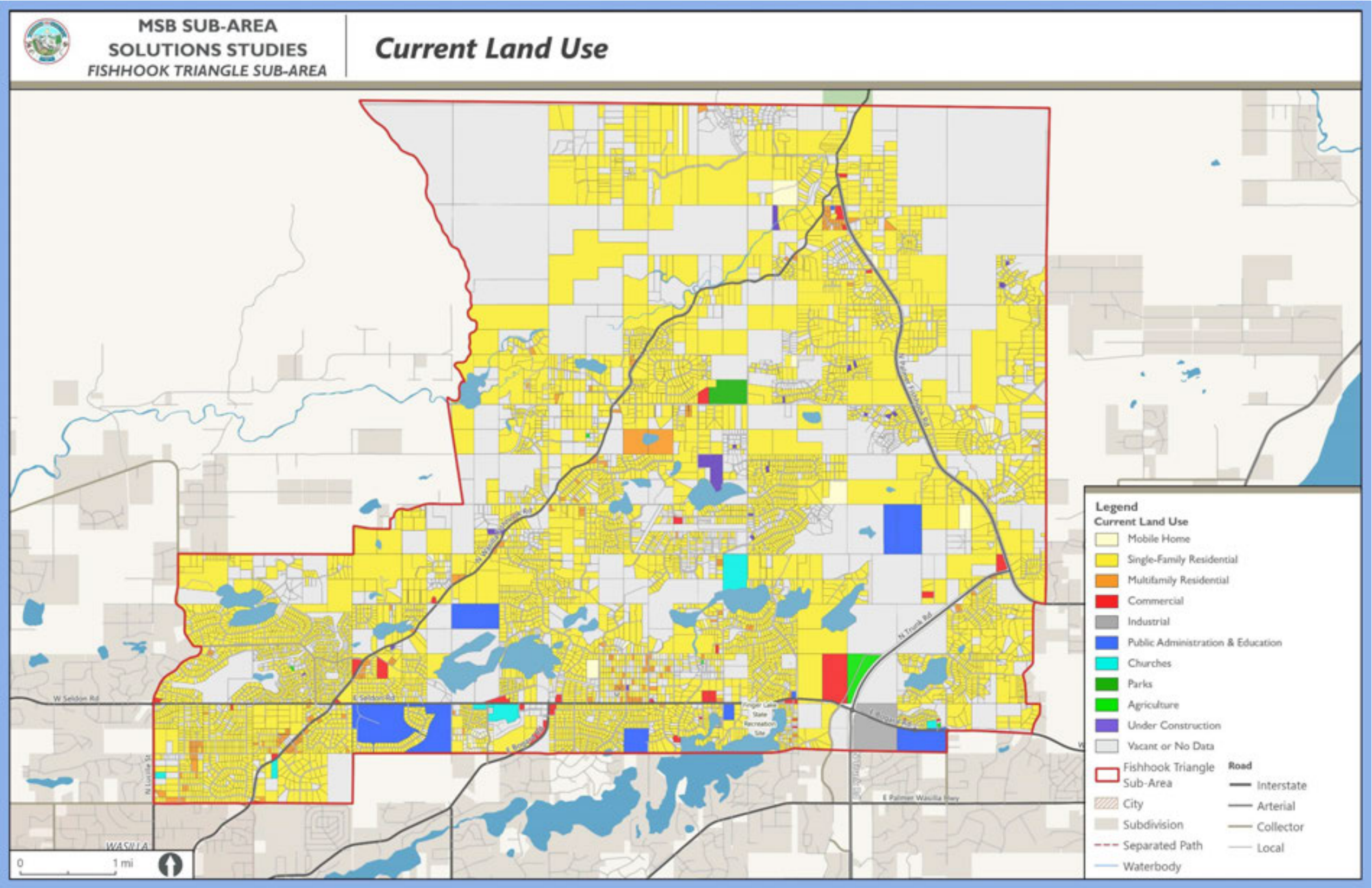
4.1 Residential

Large-lot, single-family residential comprises the majority of residential land use within the Fishhook Triangle Sub-Area (Figure 12). A few multi-family residential properties are located within the sub-area. These include detached fourplexes, in which four individual dwelling units are located on a single lot with shared well and septic systems. The major limitations to higher density or mixed-use development within this sub-area are the lack of connections to municipal water and sewer systems. Residential developments are limited to a minimum of 1 acre in size to accommodate the required 100-foot separation distance between on-site well and septic systems. The use of a community water system with on-site septic allows 0.5-acre developments. Multi-family residential units require larger septic tanks. All well and septic systems must meet Alaska Department of Conservation (ADEC) regulations with respect to separation distance between well and septic system, and septic system tank and drain field size requirements.

4.2 Commercial

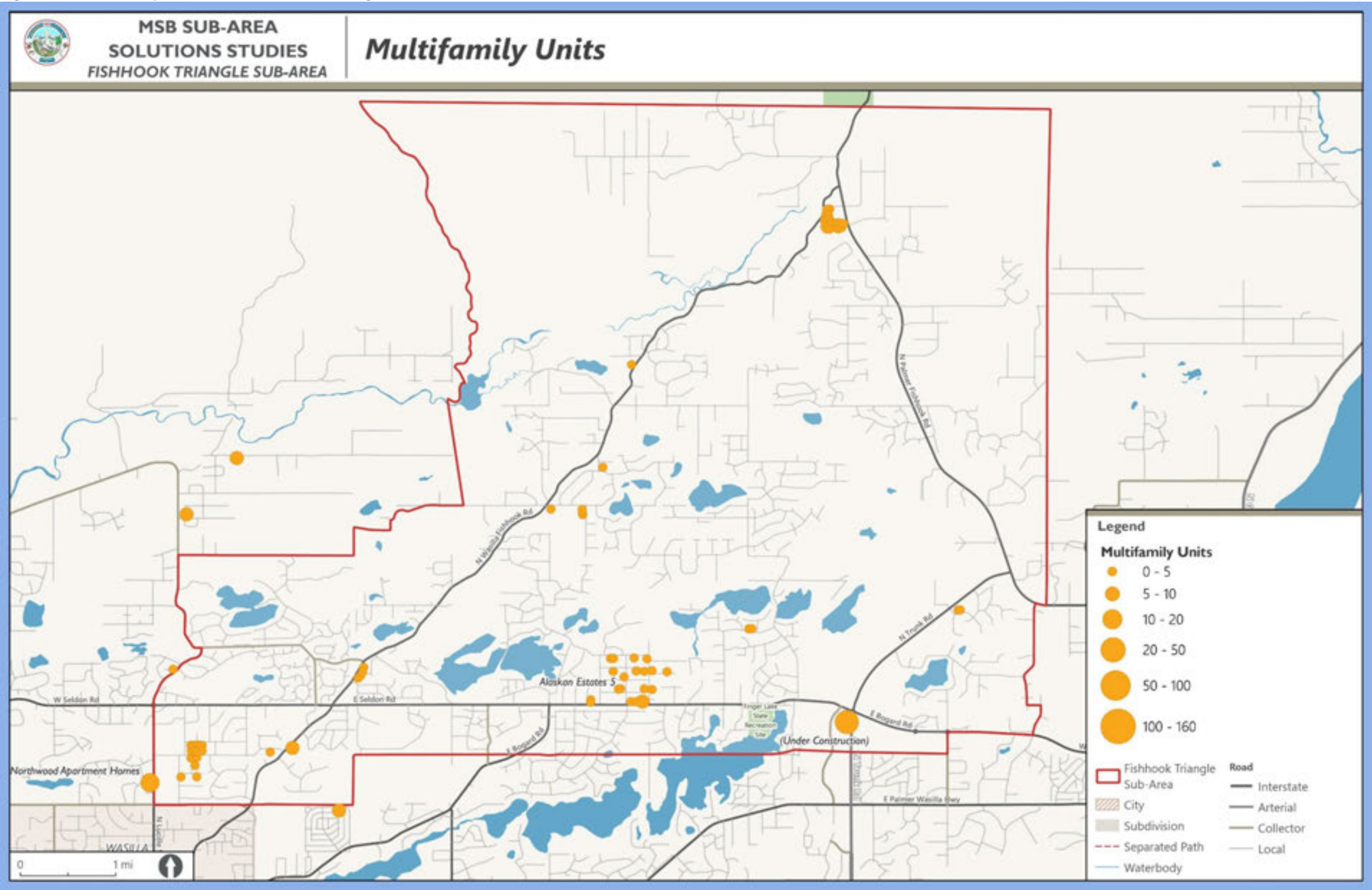
Limited commercial development (mostly retail, office, and hospitality) occur within the sub-area (Figure 13). Major intersections have gas stations and convenience stores. The Wolf Lake Residential Airpark and the Shaw Tri-Lake Subdivision and Airport have commercial, fixed-base operations that provide aircraft services. Both airports provide wheel-to-float change-over services, hangar rentals, and aircraft maintenance. Air taxi services are located at Wolf Lake Airpark.

Figure 11. Current Land Use in the Fishhook Triangle Sub-Area, 2022



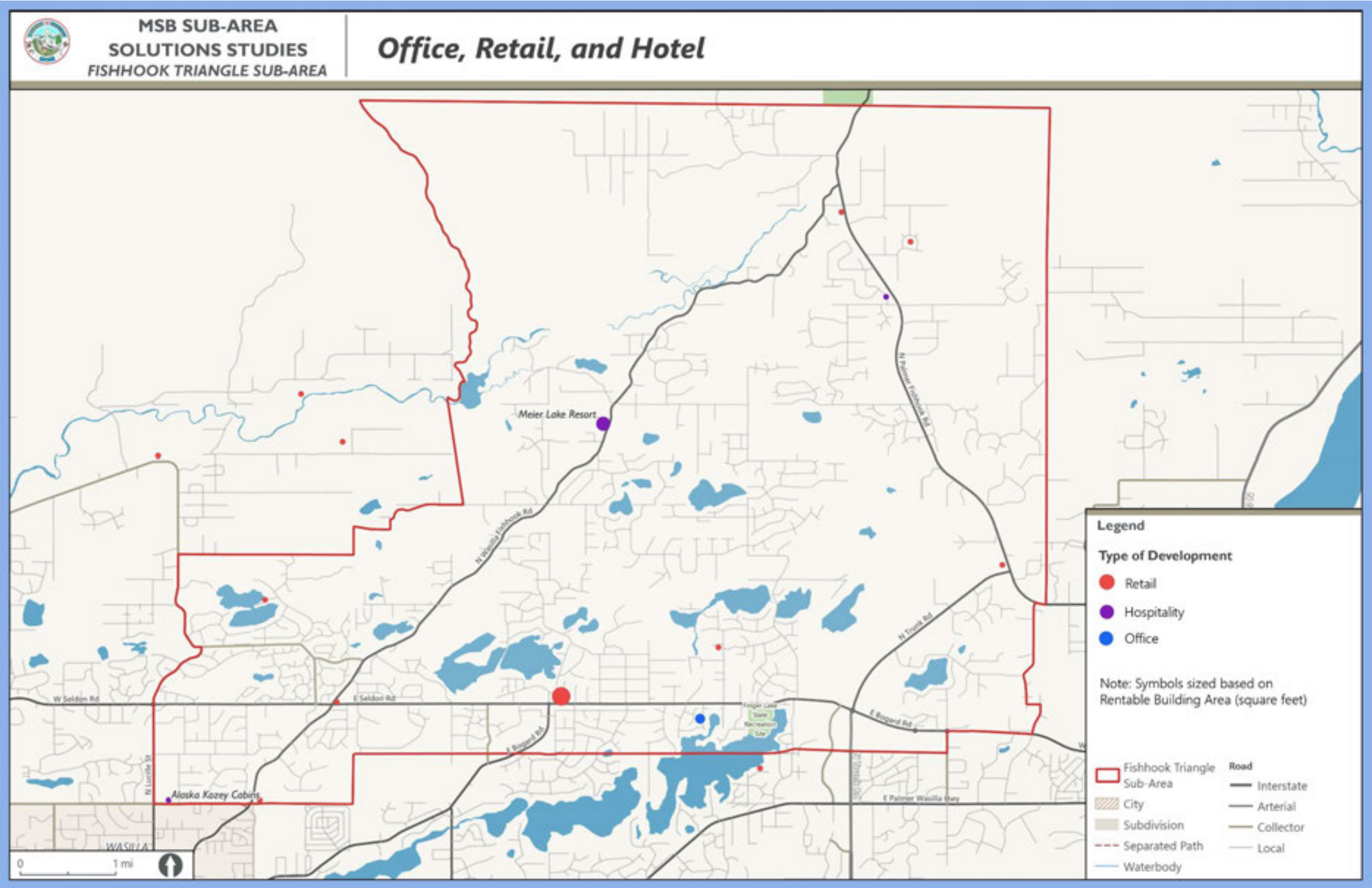
Source: MSB Assessor Data, 2022

Figure 12. Multifamily Units in the Fishhook Triangle Sub-Area, 2022



Source: Costar, Leland Consulting Group, 2022

Figure 13. Office, Retail, and Hotel Development in the Fishhook Triangle Sub-Area, 2022



Source: Costar, Leland Consulting Group, 2022

4.3 Industrial

Gravel extraction is the main industrial activity in the sub-area. As of October 2022, gravel operations are located at:

- Southeastern corner of the Trunk Road/Bogard Road roundabout
- West of Palmer-Fishhook Road near the end of Cunningham Road in the area of the Alaska Operating Engineers
- South of East Alpine Drive off Palmer-Fishhook Road
- South of Tex-Al Drive near East Alpine Meadow Drive
- East of Palmer-Fishhook Road near Esther Drive
- Northeastern corner of Bogard Road and North Greentree Street

4.4 Parks and Open Space

The Fishhook Triangle has few parks within its boundaries. The Finger Lake State Wayside and Alaska State Parks and Outdoor Recreation's Matanuska-Susitna Region Office is located west of Engstrom Road. The Alcantra Athletic Complex and Trail System, located near Larson Elementary School off Seldon Road, provides soccer and softball fields, a frisbee golf course, and a paved trail system. The Fishhook Triangle is the gateway to the nearby Government Peak Recreation Area, Hatcher Pass, Skeetawk Downhill Ski Area, and the state-managed Matanuska Valley State Moose Range. The proximity to these recreation facilities combined with the recent Trunk Road realignment and expansion project make the Fishhook Triangle Sub-Area a very desirable and convenient location to live.

4.5 Agriculture

Several farms are within the Fishhook Triangle Sub-Area, mostly west of Trunk Road and along Palmer-Fishhook Road. The recent closure of the Havemeister Dairy, the MSB's last milk-processing operation, marks the end of commercial dairy farming in the MSB¹⁸. Other agricultural activities in this sub-area include small livestock, specialty crop, and hay production.

¹⁸ Some small herd share dairy operations, in which individuals buy a share of a herd and in return receive a portion of the raw milk that is produced, may occur in the sub-area. Share herd dairy are not considered commercial agriculture activity since only herd owners have access to the product.

4.6 Community Facilities

Government, education, and medical facilities located in or near the Fishhook Triangle Sub-Area include (see Figure 14):

1. Elementary schools include Finger Lake Elementary School, located on East Eek Drive, west of North Earl Drive and south of Bogard Road; Larson Elementary School, located on Larson Elementary School Drive, south of East Seldon Road; and Shaw Elementary School, located on East Paradise Lane, off Wasilla Fishhook Road.
2. Middle schools include Colony Middle School, located on Bogard Road between 49th State Street and Trunk Road; and Teeland Middle School, located on North Seward Meridian Parkway, off East Seldon Road.
3. High schools include Colony High School, located adjacent to Colony Middle School on Bogard Road; and Mat-Su Career and Tech High School, located just south of Teeland Middle School on the Seward Meridian Parkway.
4. Fronteras Spanish Immersion Charter School is located south of the Mat-Su Career and Tech High School, on the eastern side of the Seward Meridian Parkway.
5. Fire stations include the Central Mat-Su Fire Station, located at the corner of Bogard and Engstrom Roads; and Greater Palmer Fire Station 3-5, located on Turner Road, near the apex of the Fishhook Triangle.
6. The Alaska State Troopers Mat-Su Detachment, headquartered in the City of Palmer, serve the Fishhook Triangle.
7. The Finger Lake State Wayside is located on Finger Lake, off Bogard Road.
8. The Alcantra Athletic Complex and Trail System is located off Seldon Road, adjacent to Larson Elementary School.
9. The Matanuska Valley State Moose Range is accessed off the end of Wendt Road.
10. Neklason Lake Alaska Fish and Game Public Access is located at the end of East Breezewood Road in the Shorewood Subdivision.



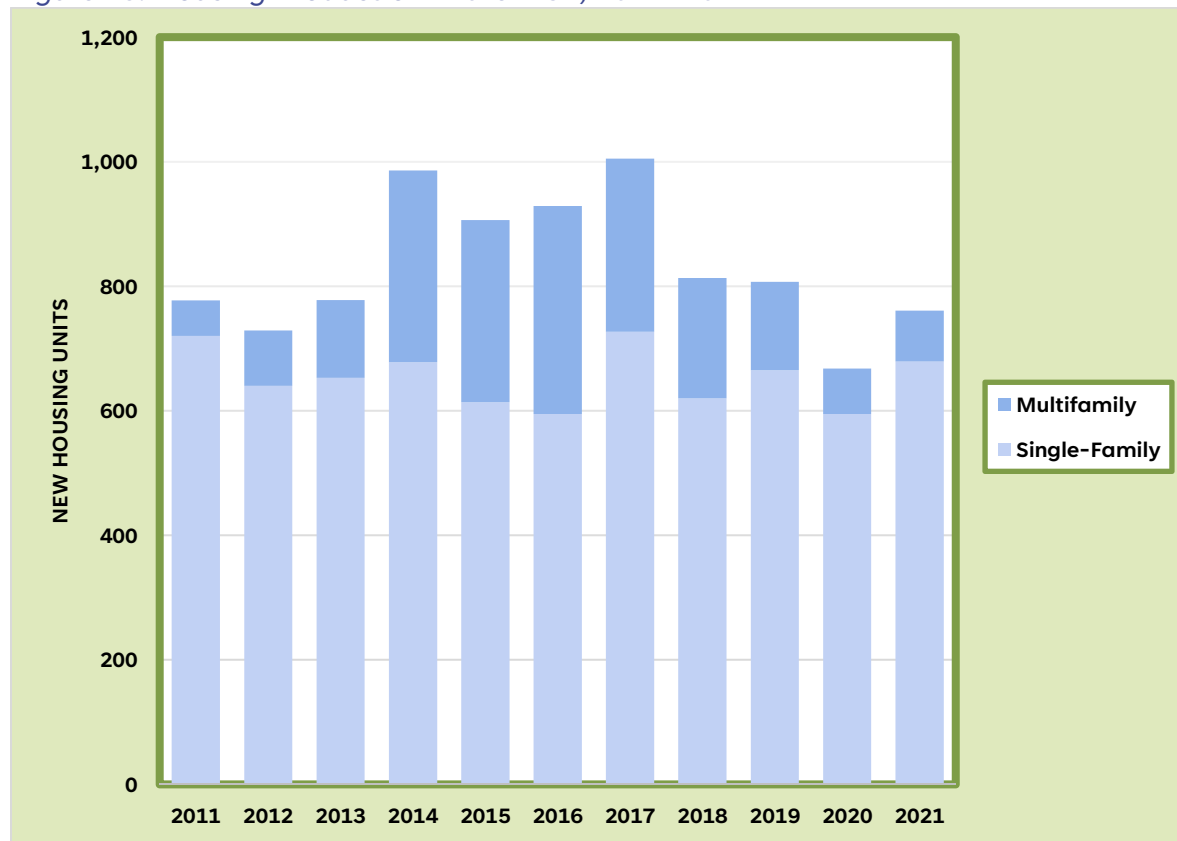
The MSB School District has an open enrollment policy, meaning a school can accept students who reside outside the school boundary if there is space available. As a result, more students are driven to school. However, many of the school facilities were not designed to accommodate this increase in student drop offs. This has led to increased congestion surrounding many school roads during morning drop-off and afternoon pick-up times. This situation has been worsened by the recent school bus driver shortage.

5 Future Land Use

5.1 Housing Growth

The MSB has seen a large amount of housing development over the last decade to serve the influx of new residents, as shown in Figure 15. Although most of the development has been single-family homes on large lots, some multifamily construction has occurred as well, primarily duplexes, fourplexes, and some apartment complexes.

Figure 15. Housing Production in the MSB, 2011–2021

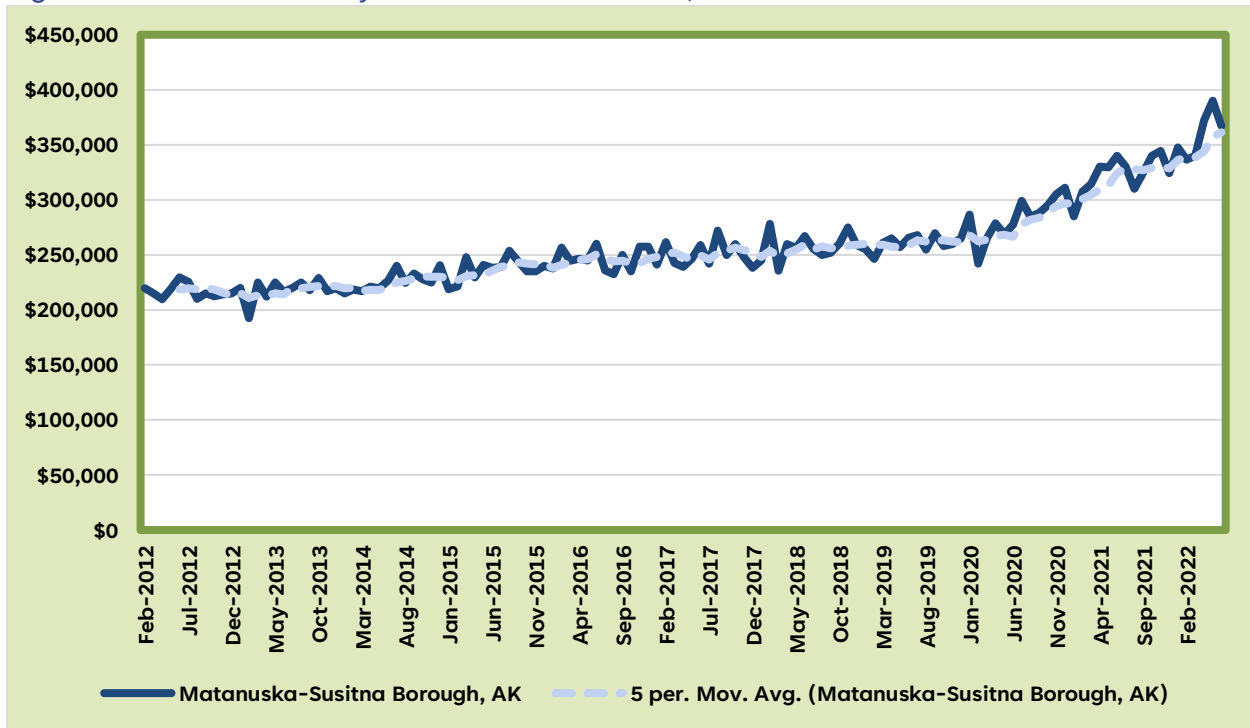


Source: DOL&WD, Department of Labor Research and Analysis, *Alaska New Housing Units*, 2022, <https://live.laborstats.alaska.gov/housing/new.html>

Even with this significant amount of housing production, there has been increasing pressure on the MSB's housing market. Housing prices have been rising consistently since 2012, and the rate of increase has been larger since the onset of the COVID-19 pandemic in 2020, as shown in Figure 16. Despite these increases, the DOL&WD reports that housing affordability in the MSB has remained relatively consistent since 2019, based on the Alaska Affordability Index, a ratio of household income to housing costs used to track housing affordability in the state.¹⁹

¹⁹ Kreiger, Rob, Housing market tightens further, *Alaska Economic Trends*, June 2022

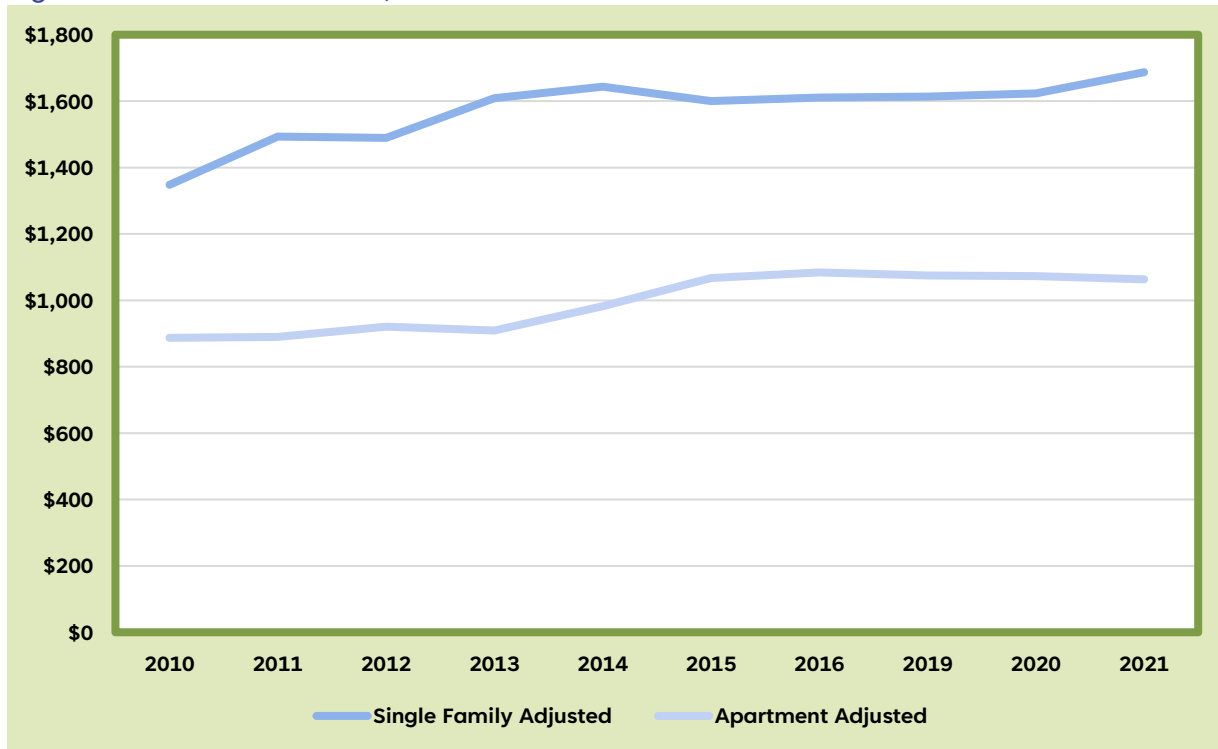
Figure 16. Median Monthly Sales Price in the MSB, 2012–2022



Source: Redfin Monthly Downloadable Housing Market Data, 2022, <https://www.redfin.com/news/data-center/>

The DOL&WD reports that rents in the MSB have remained relatively consistent since 2015; however, rents for single-family homes have increased recently, as shown in Figure 17.

Figure 17. Rents in the MSB, 2010–2021



Source: DOL&WD, Department of Labor Research and Analysis, *Alaska Rental Costs and Vacancy Rates, All Units, Selected Areas, 2010–2021, 2022*, <https://live.laborstats.alaska.gov/housing/rentall.html>

Note: Rents have been adjusted for utility costs.



The rapidly escalating housing costs seen nationally in recent years have been more muted in the MSB, but recent increases in housing costs and community concerns heard during interviews by the Study project team in July 2022 suggest increasing pressure on the housing market in the MSB. *Alaska Economic Trends* reports that “Anchorage wages were 32 percent higher than Mat-Su in 2021 while Mat-Su’s average home price was 18 percent lower.”²⁰ This creates strong market pressure for Anchorage workers to move to the MSB, where they can buy larger homes on more land than they can in Anchorage, but still be within a reasonable commuting distance. As long as this dynamic remains, demand for housing in the MSB will remain high, and a sustained level of housing production will be required to meet the needs of the population without a significant increase in housing cost. If housing costs increase significantly in the coming decades, this may deter potential new residents drawn to the lower costs of living in the MSB. The MSB is also attractive to families who work remotely in the oil, mining, and fishing industries as well as those who enjoy the MSB’s quality of life.

²⁰ Kreiger, Rob, Housing market tightens further, *Alaska Economic Trends*, June 2022

5.2 Retail, Industrial, and Office Space

Even before the COVID-19 pandemic, online shopping caused significant declines in brick and mortar retail nationally and in Alaska, with the loss of approximately 2,000 jobs statewide between 2015 and 2019. The pandemic accelerated this trend nationally and statewide, with a 7.3 percent decrease in retail jobs in Alaska from 2019 to 2020. However, the MSB was an outlier, adding 187 retail jobs in 2020 due to the growing population throughout 2020, the lack of store closures, and the propensity for MSB residents to spend more retail dollars closer to home since fewer were commuting to Anchorage.²¹ With increasing population and the potential to work from home, more retail development seems likely in the coming years in the MSB. CoStar, a national provider of commercial real estate data, reports that retail vacancies have dropped, and rents have increased in the MSB between 2021 and 2022.²² Interviews with developers, realtors, and public officials by the Study project team in July 2022 confirmed recent and planned retail developments in the MSB, particularly in small strip centers with good visibility and convenient access to major roadways.

Warehousing, which has seen significant increases since the onset of the COVID-19 pandemic statewide and nationally, is a strong sector. CoStar reports that the majority of industrial buildings in the MSB are warehouses, and demand for warehouse space has been relatively high in 2021 and 2022.²³

In addition to warehousing, gravel mining is a common industrial use throughout the MSB. The Matanuska Electrical Association (MEA) reports that gravel pits are one of the region's largest users of electricity.²⁴ Many of these gravel pits are converted into development sites when exhausted and transition to retail or residential uses over time.

The future of office development has been thrown into question following the rise of remote work during the COVID-19 pandemic. Many MSB residents commuted to Anchorage prior to the pandemic, and the opportunity to reduce commute time through long-term hybrid or remote work presents a unique opportunity for the region. The future of office use and remote work is multifaceted. Even as more employees shift to permanent hybrid arrangements, a demand for flexible office space remains as companies and employees negotiate the optimal balance between in-person collaboration and flexibility.²⁵ Conversations with stakeholders by the Study project team in July 2022 confirmed a variety of views on the future of hybrid work, but one theme that

²¹ Fried, Neal, Retail faces a trio of pressures, *Alaska Economic Trends*, April 2021

²² Costar, *Mat-Su Business Region Retail Submarket Report*, August 2022

²³ Costar, *Mat-Su Business Region Industrial Submarket Report*, August 2022

²⁴ Personal communication with John Sinclair, Matanuska Electric Corporation, July 2022

²⁵ Cushman & Wakefield, *Office of the Future Revisited*, 2022

emerged was the desirability of Anchorage businesses employing large numbers of MSB residents to open small, flexible, satellite offices in the MSB to facilitate hybrid work without long commutes.

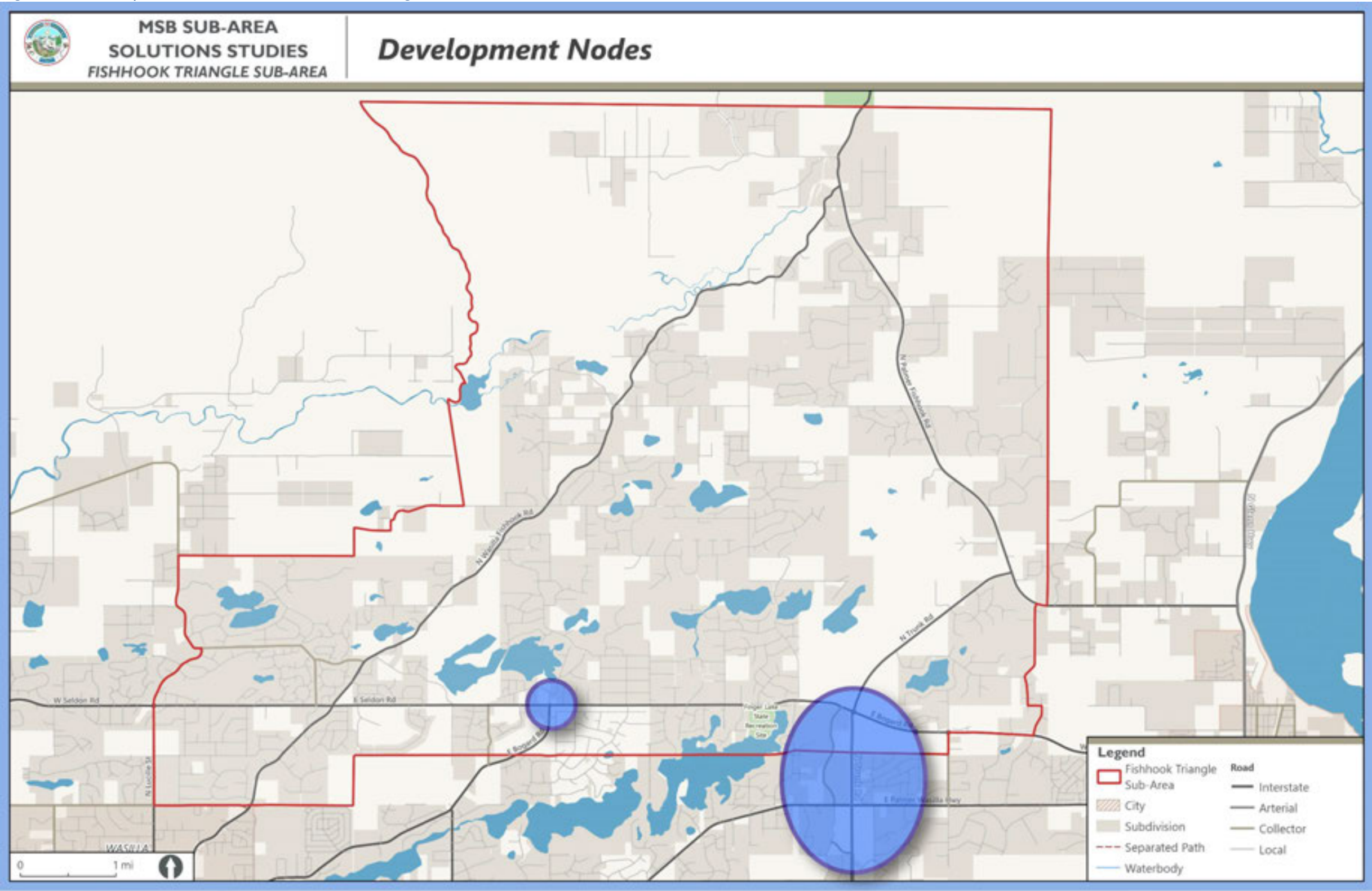
5.3 Development Nodes

Within the MSB, current and likely future developments are clustered in a number of important intersection areas (i.e., nodes; see Figure 18). Within the Fishhook Triangle Sub-Area, one major development node is emerging along Trunk Road, from Bogard Road and extending south to the intersection of the Palmer-Wasilla Highway, partially outside the sub-area. A local developer is building 80 subsidized, affordable apartments on the southwestern corner of Bogard and Trunk Roads, which will occur in two phases of ten fourplexes each with communal areas. This housing would be targeted at residents earning 30 to 60 percent of the area median income. Market rate and affordable senior units will also be within the development as well as a gas station.

The large gravel pit on the southeastern corner of Trunk and Bogard Roads is nearly fully expended and was identified in stakeholder interviews as another potential development location in the coming decade. Overall, the area between the intersections of Trunk Road at the Palmer-Wasilla Highway and Bogard Road is considerably less developed than other high-traffic intersections in the MSB. It represents an opportunity for concentrated commercial and residential development, particularly considering its central location on commuting routes to Anchorage from many other parts of the MSB.

Another potential development node identified by stakeholders is the of Seldon Road/Bogard Road intersection. The southeastern side of this intersection has a small store, and the northeastern side has a number of retail and commercial uses as well as an electrical substation. The northwestern corner is currently undeveloped, and the southwestern corner is a gravel pit. Given the increasing road improvements being made to the Seldon-Bogard Road Corridor, increasing population in the Fishhook Triangle, and proximity of several schools, this intersection could be an attractive place for neighborhood-level commercial development in the future.

Figure 18. Development Nodes in the Fishhook Triangle Sub-Area



Source: Leland Consulting Group, 2022

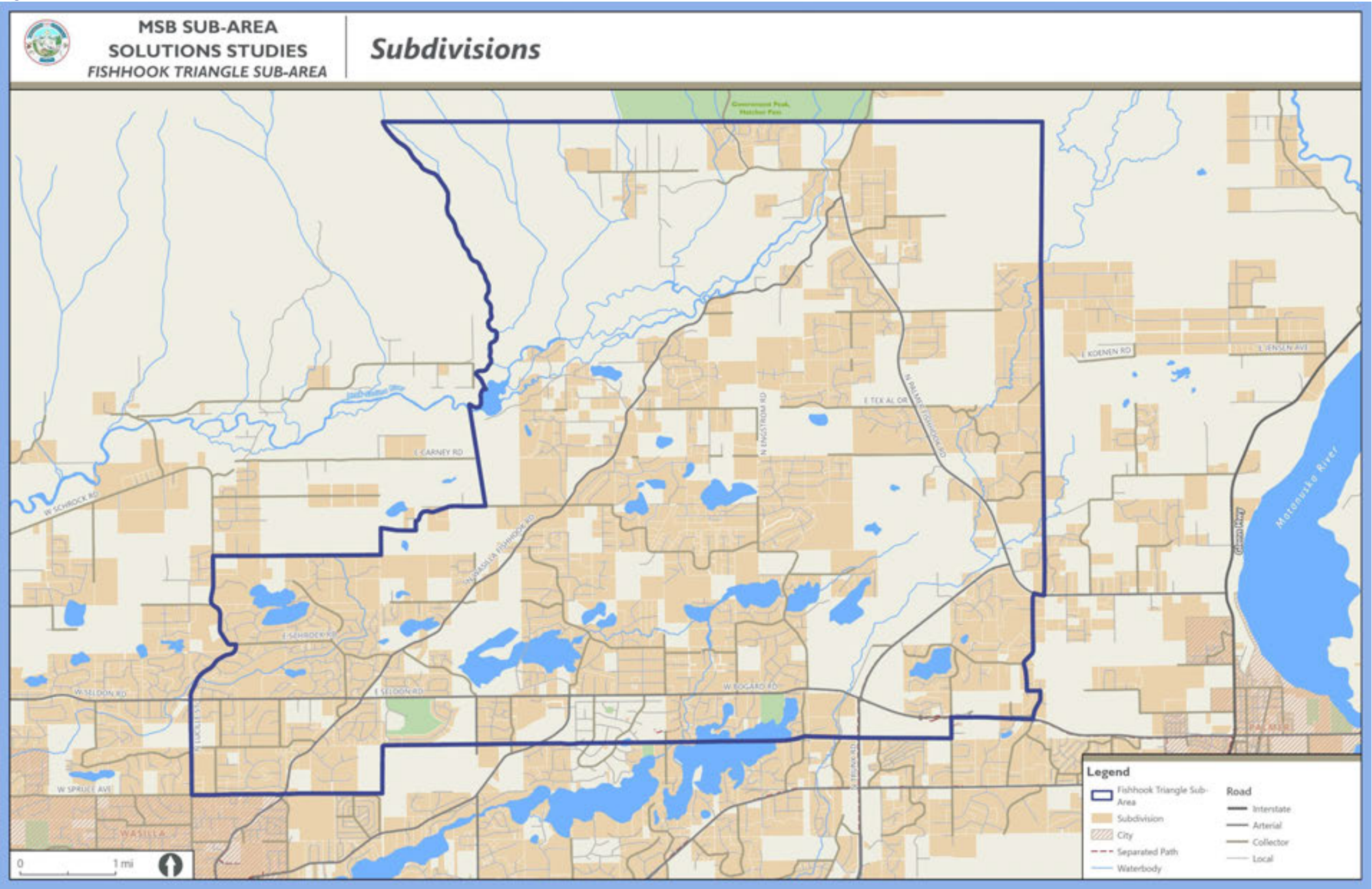
6 Subdivisions

A subdivision refers to a tract of land that has been divided into lots. The subdivisions in the Fishhook Triangle Sub-Area are shown in Figure 19. This process is governed by the MSB Title 43 Subdivision Code. For additional information about the code, please see Appendix A.



Subdivision access and inter-connectivity are concerns. Many subdivisions have only one access point, which hinders evacuations or public safety responses during an emergency. Adjacent subdivisions often are not connected by local or collector roads, requiring people exiting their subdivision to use an arterial to travel a short distant or many miles to visit an adjacent subdivision. Developing a more complete collector road network will improve connectivity and enhance the overall road system.

Figure 19. Subdivisions



7 Property Value

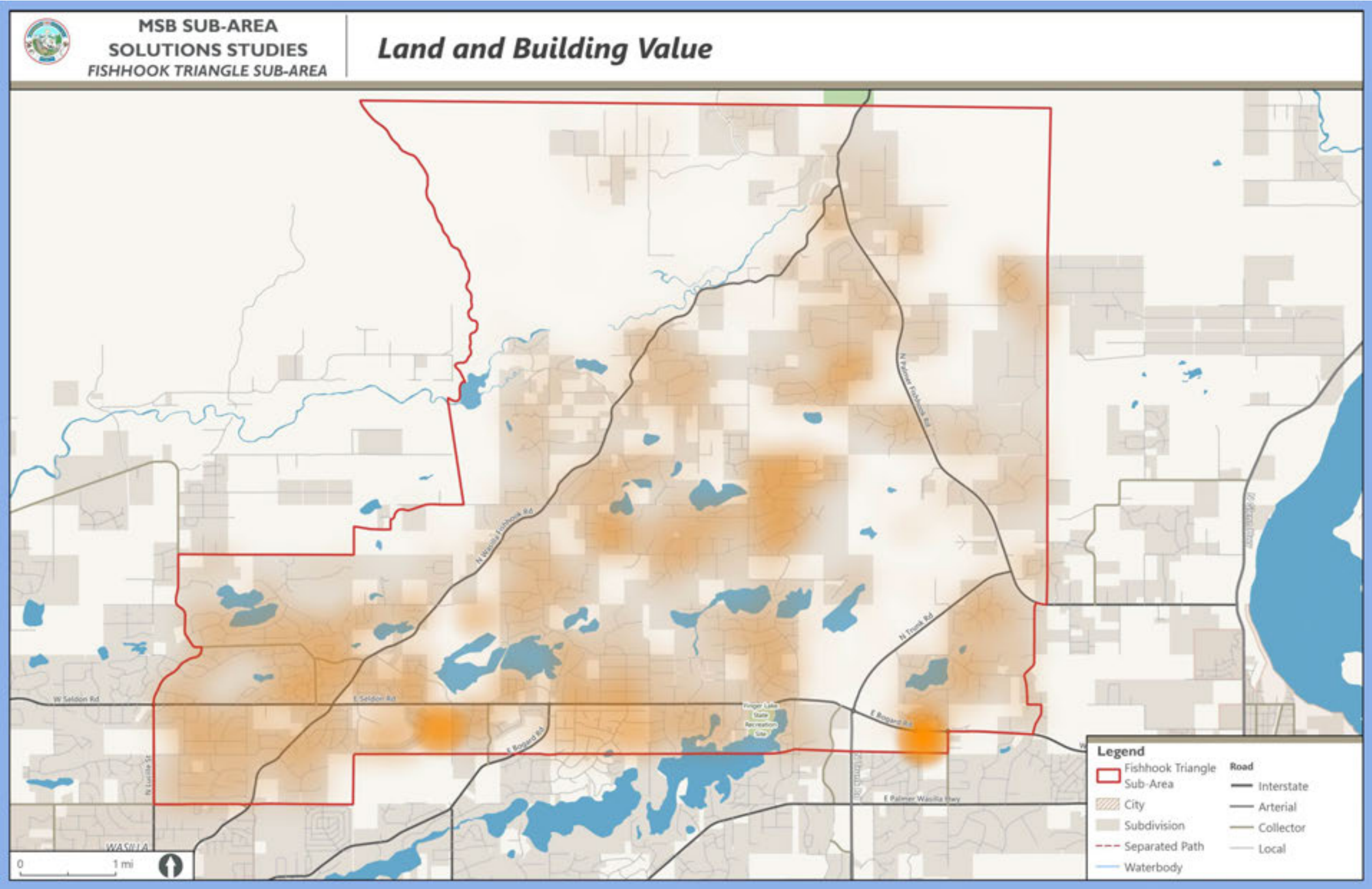
Combined land and building (improvement) value as determined by the MSB Assessor are shown in Figure 20. The highest value land and buildings are in the southeastern corner of the sub-area at Bogard Road and 49th State Street, including Colony Middle and High Schools, a church, and several other commercial uses. Teeland Middle School and Mat-Su Career and Tech High School, off Bogard Road and the Seward Meridian Parkway, also show a high value property. The various subdivisions within the Fishhook Triangle have varying property and building values, with a higher value cluster in the center of the sub-area.

7.1 Redevelopment Potential

To identify parcels with redevelopment potential, the ratio of land value to building value was calculated (see Figure 21). This ratio helps paint a picture of areas where it would potentially make financial sense to redevelop. A low ratio, below 1.0, (shown in Figure 21 in shades of brown) indicates the building is worth less than the underlying land. In this situation, the parcel is considered underutilized, since the value of the land can be maximized by a more valuable building; it is financially feasible to replace the low-value building with a higher-value use given the underlying value of the land. On the other hand, ratios above 1.0, shown in Figure 21 in shades of green, indicate it would be unlikely that a developer would choose to replace the building, given its higher value when compared to the underlying land.

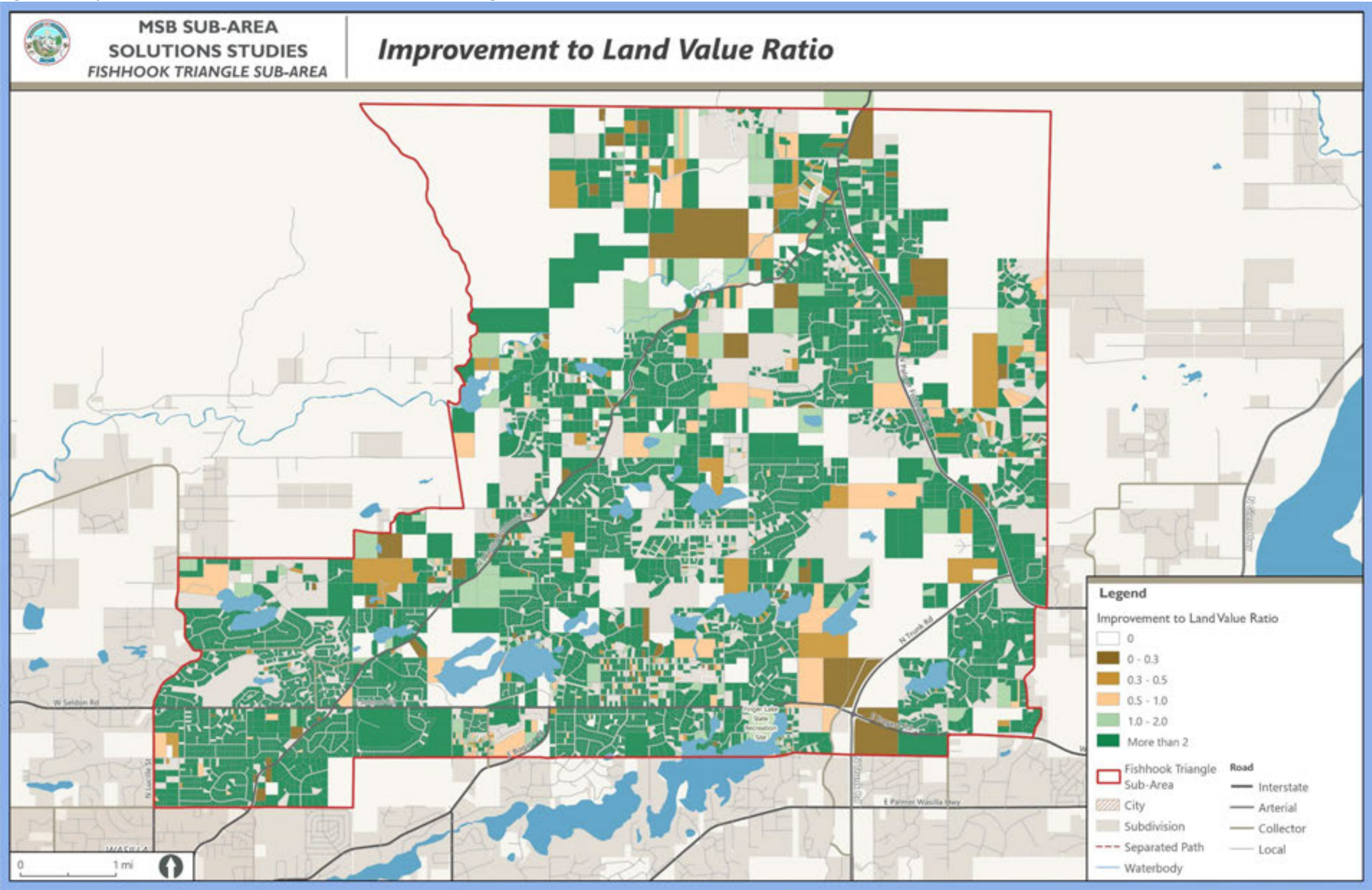
This analysis shows that the majority of parcels in the Fishhook Triangle Sub-Area are not likely to be redeveloped into more intensive uses. A number of undeveloped large parcels within the northern and eastern sections of the sub-area may develop into subdivisions and are represented by various shades of brown in Figure 21. Notably, a cluster of underutilized parcels occur in the southeastern corner, at the Bogard Road and Trunk Road roundabout. The parcel on the southeastern corner is currently a gravel pit but has the potential for significant redevelopment once the gravel supply has been exhausted, particularly considering the mixed-use development currently occurring on the southwestern corner of that intersection. Additionally, the parcels on the northeastern corner of that roundabout may also redevelop in the future as the area of Trunk Road between Bogard Road and the Palmer-Wasilla Highway is emerging as an important development node in the MSB. Finally, some underutilized land occurs in the extreme north of the sub-area, which has development potential due to the increasing tourism and recreational uses in the Hatcher Pass area.

Figure 20. Land and Building Value in Fishhook Triangle Sub-Area, 2022



Source: MSB Assessor Data, 2022

Figure 21. Improvement to Land Value Ratio in the Fishhook Triangle Sub-Area



Source: MSB Assessor Data, 2022; Leland Consulting Group, 2022

8 Land Ownership

8.1 Private and Public Lands

The majority of property within the Fishhook Triangle Sub-Area is privately owned, with the exception of schools, a public safety building, and recreation areas. Large areas of public lands occur in the northeastern corner of the sub-area, where the state-managed Matanuska Valley State Moose Range is located, and in the northwestern corner.

9 Zoning

9.1 MSB Zoning

Properties outside a city fall under MSB jurisdiction and must comply with the land use requirements in MSB Title 17 Zoning (see Appendix A for more detail). Title 17 establishes permit requirements for development to ensure that structures meet setback requirements from rights-of-way, easements, and property lines. It establishes what uses and activities require Conditional Use Permits prior to initiation. It also identifies a limited number of activities that require administrative permits.

The MSB conducts zoning through SpUDs, which restricts land use within its boundary. The types of SpUDs include:

- Large-Lot, Single-Family Residential Land Use District
- Single-Family Residential Land Use District
- Residential Land Use District
- Interim Materials District
- Special Land Use District
- Overlay District

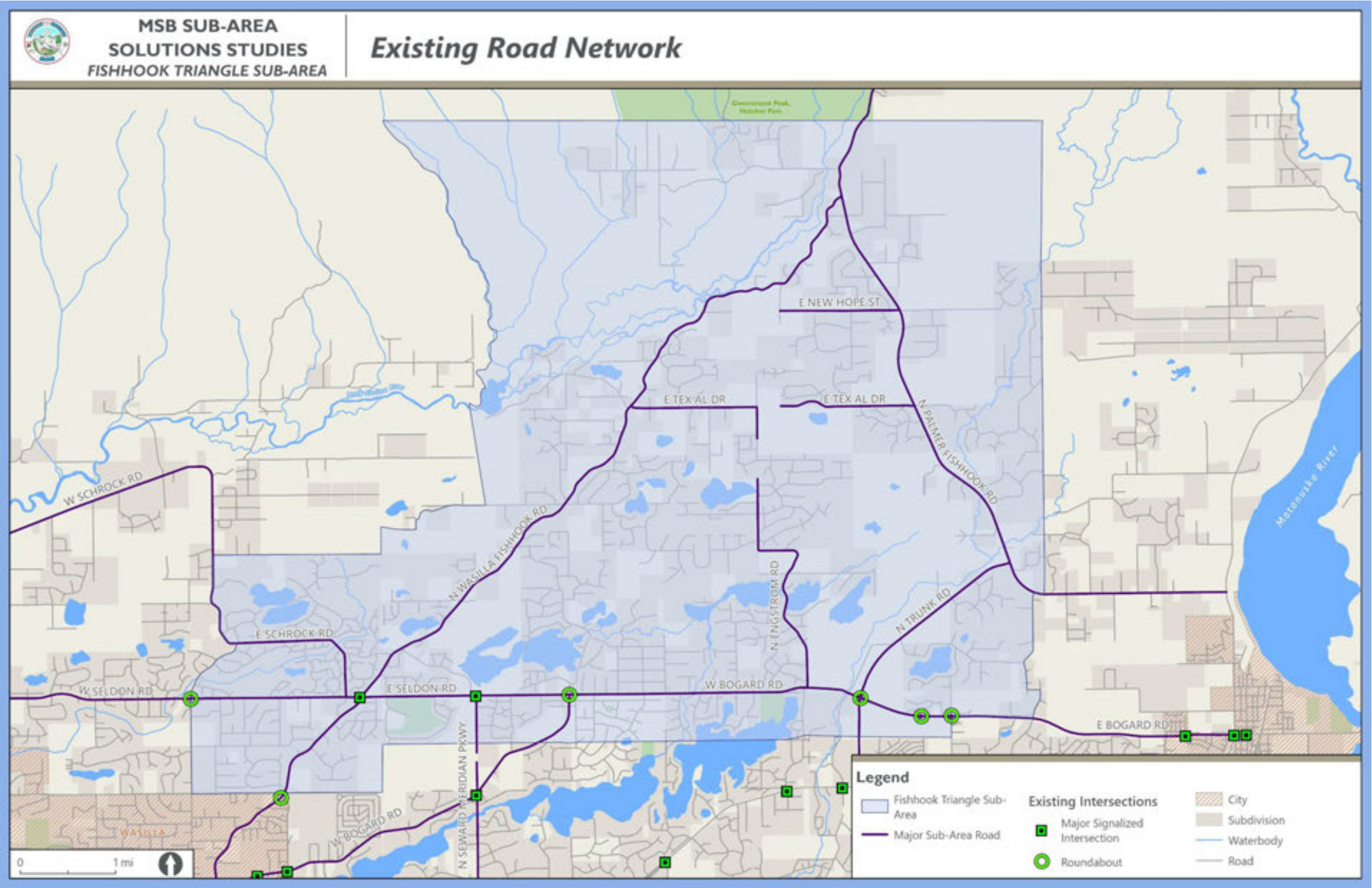
A map showing the SpUDs in the Fishhook Triangle Sub-Area is available at <https://msb.maps.arcgis.com/apps/webappviewer/index.html?id=4cd76b7861f348e68afd5cc934524a5f>.

10 Transportation System

10.1 Existing Road Network

The Fishhook Triangle Sub-Area road network is shown on Figure 22. It is composed of state- and MSB-owned roads. State roads form the approximate boundary of the Fishhook Triangle, while MSB roads are located within and outside the Fishhook Triangle Sub-Area.

Figure 22. Existing Road Network



10.1.1 Major State-Owned and Maintained Roadways

10.1.1.1 Bogard-Seldon Corridor Overview

The Bogard-Seldon Road Corridor is an important east-west alternative to the Parks and Palmer-Wasilla Highways. The MSB recently extended Bogard Road east from 49th State Street to the Glenn Highway in Palmer and extended Seldon Road west from Church Road to Beverly Lake Road. The MSB is working to complete the western extension of Seldon Road to Pittman Road, which has been funded for construction in 2023. The center of this corridor experiences high traffic volumes and is currently under-designed to function effectively as an arterial. To function as a true arterial corridor, older segments should be upgraded to modern arterial standards, with access management controls in place to improve safety, maintain roadway function, and protect public investments.

Bogard Road – Trunk Road to Seldon Road

This 3-mile section of Bogard Road is a two-lane road with 4- to 6-foot shoulders and no pedestrian facilities and is classified as a minor arterial²⁶. Traffic volumes on this segment average between 8,500 and 9,500 vehicles per day. This road was constructed pre-statehood and paved in the early 1980s. A roundabout was constructed at the Bogard Road/Seldon Road intersection to provide an interim solution to traffic congestion and delays at this intersection. This segment serves many large subdivisions that are not connected to other major roadways, has sight distance issues, and has many conflict points caused by direct access driveways and offset road



The Bogard-Seldon Road Corridor has limited options to use annual U.S. Department of Transportation formula funds allocated to the Alaska Department of Transportation and Public Facilities (DOT&PF). Like the other two legs of the Fishhook Triangle, the Bogard-Seldon Road Corridor is only eligible for Community Transportation Program (CTP) funds through DOT&PF's Statewide Transportation Improvement Program (STIP). CTP projects are currently limited to \$15 million of federal formula funds per project. This requires that projects along this corridor must identify other funding sources such as State General Funds or MSB Road Bond Funding to piece together sufficient dollars to fund the high costs related to upgrading these segments. The Bogard-Seldon Road Corridor will no longer be eligible for CTP funds once the Metropolitan Planning Organization (MPO) is formed.

²⁶ DOT&PF, Statewide Functional Classification GIS Map, No Date, <https://dot.alaska.gov/stwdplng/fclass/fclassmaps.shtml>

intersections. These conflict points contribute to the reduced capacity and the ability of the road to move traffic effectively.

The Engstrom Road/Bogard Road/Green Forest Drive intersection is a major choke point with significant delays entering and exiting Bogard Road. This is caused by sight distant issues, off-set intersections, high peak hour traffic volumes on Bogard and Engstrom Roads, and the lack of connections of upper Engstrom Road to either Trunk Road or Palmer Fishhook Road. This lack of connectivity results in traffic from the many large subdivisions off Engstrom Road being funneled to the Engstrom Road/Bogard Road intersection. DOT&PF is designing a roundabout at this intersection to help improve traffic flow, with construction anticipated in 2023.

Seldon Road – Bogard Road to Schrock Road

This section of Seldon Road has two lanes, 8-foot-wide shoulders, no pedestrian facilities, and is classified as a minor arterial²⁷. This 2.33-mile section was constructed in the 1980s using state funds and is owned by DOT&PF. Traffic on this section averages between

5,900 and 6,700 vehicles per day. This corridor segment has fewer conflict points than the previous segment, allowing it to function better. There is a roundabout at the Seldon

Road/ Bogard Road

intersection to address traffic delays and a traffic signal at the Seward Meridian Parkway to facilitate access to three nearby schools. The Seldon Road/Wasilla-Fishhook Road intersection was signalized by DOT&PF



This corridor segment is reaching its capacity as a two-lane facility. Its narrow right-of-way, large number of utility relocations, and the high number of conflict points make upgrading this corridor segment to four lanes very expensive. Preliminary estimates, depending on the final scope of the project, place upgrade costs at a minimum of \$50 million, depending on project scope.



The Seward-Meridian Parkway upgrade and extension from the Palmer-Wasilla Highway to Seldon Road is in the final stages of design and right-of-way acquisition, with construction planned for 2023 (pending right-of-way certification). The Seward-Meridian Parkway will connect Seldon Road to Bogard Road and the Palmer-Wasilla and Parks Highways. Traffic patterns are likely to shift on Seldon Road, funneling both east- and westbound traffic to the Seward-Meridian Parkway to access the Parks Highway.

²⁷ DOT&PF, Statewide Functional Classification GIS Map, No Date, <https://dot.alaska.gov/stwdplng/fclass/fclassmaps.shtml>

as part of the Wasilla-Fishhook – Nelson Road to Seldon Road Reconstruction project.

The Seward-Meridian Parkway upgrade and extension from the Palmer Wasilla Highway to Seldon Road is in the final stages of design and right-of-way acquisition, with construction planned for 2023 (pending right-of-way certification). The Seward-Meridian Parkway will connect Seldon Road to Bogard Road and the Palmer-Wasilla and Parks Highways. Traffic patterns are likely to shift on Seldon Road, funneling both east- and westbound traffic to the Seward-Meridian Parkway to access the Parks Highway.

10.1.1.2 Palmer Fishhook Road

Palmer-Fishhook Road within the sub-area begins at Snow Goose Road and extends approximately 5 miles north to Wasilla Fishhook Road and is classified a major collector²⁸. It is a two-lane, paved road with limited shoulders and no pedestrian facilities. Average daily traffic ranges between 3,000 and 5,000 vehicles per day. Good sight distance occurs along most of the roadway, and intersecting roads and driveways are generally well spaced. The lack of subdivision connectivity in many cases forces drivers to enter Palmer-Fishhook Road to access neighboring subdivisions. Better connectivity will improve travel times and reduce the need to use Palmer-Fishhook Road for local trips. The MSB has a 2021 Road Bond Project to construct a non-motorized trail along Palmer-Fishhook Road from Trunk Road to Wasilla-Fishhook Road. The DOT&PF is designing a roundabout at the Trunk Road/Palmer-Fishhook Road intersection through its Highway Safety Improvement Program (HSIP), with construction anticipated in 2024–2025.

10.1.1.3 Wasilla-Fishhook Road

Wasilla-Fishhook Road was originally built to support mining operations in the Hatcher Pass area. The Seldon Road to Palmer-Fishhook Road segment is approximately 7 miles long and is a narrow, windy, two-lane, paved roadway with limited shoulders, no pedestrian facilities, narrow right-of-way, and utilities. This segment has areas with poor sight distance as well as several intersecting roads and driveways. However, with comparatively low traffic daily traffic volumes between 1,500 and 4,250 vehicles per day, it is classified as a major collector²⁹. This segment has been resurfaced and has no planned improvements scheduled at this time.

Wasilla-Fishhook Road between Spruce and Seldon Roads was realigned and upgraded by DOT&PF in the early 2000s, including a separated, non-motorized trail along its eastern side. This two-lane, paved section has shoulder, improved sight distance, and

²⁸ DOT&PF, Statewide Functional Classification GIS Map, No Date, <https://dot.alaska.gov/stwdplng/fclass/fclassmaps.shtml>

²⁹ DOT&PF, Statewide Functional Classification GIS Map, No Date, <https://dot.alaska.gov/stwdplng/fclass/fclassmaps.shtml>

turn pockets at key intersections. The upgrade project addressed some, but not all, direct access driveways, and there are limited number of intersecting local roads. Average annual daily traffic on this segment is 6,440, and it is classified as a minor arterial³⁰. DOT&PF is designing a roundabout at the Spruce Road/Wasilla-Fishhook Road intersection, with construction anticipated in 2024–2025.

10.1.1.4 Trunk Road

Trunk Road from Katherine Street to Palmer Fishhook Road is in the sub-area. Trunk Road north to Bogard Road is four-lane minor arterial, and a two-lane major collector³¹ north of Bogard Road. Average daily traffic on the four-lane segment is 7,800 vehicles per day, dropping to 6,100 vehicles per day north of the Bogard Road roundabout. Trunk Road has a separated, non-motorized trail on its western side along its entire length. It is a limited access facility with few intersecting roads and driveways. Trunk Road functions well because of the limited number of conflict points, which also improves its safety. DOT&PF is designing a roundabout at the Trunk Road/Palmer-Fishhook Road intersection, with construction anticipated in 2024–2025.

10.1.1.5 Schrock Road

Schrock Road is a paved, two-lane, minor collector road³² that extends north from Seldon Road, meanders west then north near its intersection with Lucille Street, then traverses west again until intersecting with Church Road. It travels beyond Church Road and provides access to the northern side of the Little Susitna River. It has an average annual daily traffic of 1,530 vehicles per day. It accesses primarily single-family residential homes located on 1-acre lots. It also accesses larger parcels toward the sub-area's northern boundary.

10.1.1.6 Existing Signals and Roundabouts

Five roundabouts are within the sub-area (see Figure 22):

- Bogard Road/49th State Street
- Bogard Road/North Silver Creek Drive at Colony Middle and High School's entrance
- Bogard Road/Trunk Road
- Bogard Road/Seldon Road
- Bogard Road/Lucille Street

³⁰ DOT&PF, Statewide Functional Classification GIS Map, No Date, <https://dot.alaska.gov/stwdplng/fclass/fclassmaps.shtml>

³¹ DOT&PF, Statewide Functional Classification GIS Map, No Date, <https://dot.alaska.gov/stwdplng/fclass/fclassmaps.shtml>

³² DOT&PF, Statewide Functional Classification GIS Map, No Date, <https://dot.alaska.gov/stwdplng/fclass/fclassmaps.shtml>

The traffic signals are located on Seldon Road at the Seward-Meridian Parkway and Wasilla-Fishhook Road intersections.

10.1.2 MSB Roads

The majority of MSB roads within the Fishhook Triangle Sub-Area are located in Bogard Road Service Area (RSA-25), South Colony Road Service Area (RSA-16), and Gold Trail Road Service Area (RSA-28). Property owners are taxed to fund Road Service Area (RSA) activities. MSB roadways are primarily local subdivision roads.

The lack of east-west and north-south connections greatly limits the ability of residents to effectively circulate within the sub-area. The lack of connectivity hinders emergency response times, increases travel time, causes safety issues, and affects air quality. The upcoming projects, including improvements to Tex-Al Drive, Engstrom Road connections to Trunk or Palmer-Fishhook Roads, and a Trunk Road connector at Katherine Drive, will all improve connectivity. Funded turn lanes at Shaw Elementary and a Palmer-Fishhook Separated Pedestrian Trail will address needed safety improvements. The Edgerton Park Road-Mountain Trails Drive Upgrade and Pathway will provide improved access to the Government Peak trail system.

Local roads have been paved using RSA revenues or by neighborhoods forming a local Improvement district.

Developers of new subdivisions often pave their subdivision roads to attract buyers and then transfer road ownership to the MSB and maintenance to the local RSA.



The Draft OS&HP identified several other important roadway connections within the Fishhook Triangle Sub-Area. Funding is limited, while the needs are many, and priorities need to be established. All means available need to be used to create a connected road system. Platting decisions, subdivision approvals, and local and collector road construction by developers need to focus on creating a connected roadway system.

10.1.2.1 Bogard-Seldon Road Corridor

The MSB owns two sections of the Bogard-Seldon Road Corridor within the Fishhook Triangle Sub-Area.

North Arabian Lane to Trunk Road Roundabout

The first section extends from North Arabian Lane west to the Trunk Road roundabout. This 1.8-mile section of Bogard Road is part of Bogard East Extension project that extended Bogard Road east from 49th State Street to the Glenn Highway in Palmer. This recently constructed roadway is designed to arterial standards and has wide shoulders; a pedestrian pathway/sidewalks along its entire length; sufficient right-of-way for future expansion to four lanes; and established limited access points, allowing it to function well as a minor arterial roadway. It has six intersecting roads and four driveways, resulting in very few conflict points. It accesses Colony Middle and High Schools. Traffic volume is 6,190 per day.



Large parcels of farmland and undeveloped property occur north of the corridor between Hemmer Road and 49th State Street. If these lands are subdivided into residential lots, there will be significant pressure to allow more access to the corridor. Access decisions need to be well thought out to avoid losing the corridor's ability to safely function as an arterial roadway. The corridor is not currently protected by an Access Management Plan. Any new subdivisions should be designed to provide interior connections to collector roads, limiting direct access to established intersections. Direct driveway access should be avoided.

Seldon Road between Schrock Road and Lucille Street:

The MSB owns the 1.60-mile segment of Seldon Road between Schrock Road and Lucille Street. This segment was paved in the early 1990s to provide a connection from Wasilla-Fishhook Road and Lucille Street. Between Schrock and Snow Goose Roads, the road is narrow but has a relatively flat grade with four intersecting streets and several intersection driveways. The section from Snow Goose Road to Lochcarron Drive drops off steeply between these roads to a low swampy area before gaining elevation again. It has drainage



This segment is not built to arterial nor collector standards, has several intersecting roads and direct access private driveways, no shoulders, narrow right-of-way, utilities, and terrain and grade issues. It carries 2,690 vehicles per day, which is a significantly lower amount compared to its adjoining segments. This corridor segment requires upgrade to collector or arterial standards to allow the entire Bogard-Seldon Road Corridor to function as a true east-west cross-borough collector/arterial.

issues at its low point. Intersecting roads and driveways may be impacted if the road elevation is raised. It has relatively good grade between Lochcarron Drive and Lucille Street, where a portion of it was upgraded with shoulders as part of the roundabout project. The MSB replaced the two-way stop intersection with a roundabout at the Seldon Road/Lucille Street intersection to address difficulties vehicles had entering intersection from Seldon Road.

10.1.2.2 Engstrom Road

Engstrom Road intersects Bogard Road from the north, approximately 0.5 mile west of the Trunk Road roundabout. Engstrom Road dead ends at East Aspen Ridge Drive, approximately 2.5 road miles from Bogard Road. It is classified as a minor collector³³ and serves several large, residential subdivisions, including Shorewood, Wolf Lake, and Aspen Ridge. Currently, the majority of traffic from these subdivisions uses Engstrom Road to access Bogard Road. The Bogard Road/Engstrom Road intersection is offset to the Green Forest Drive intersection, creating a conflict point. A sight distant issue occurs to the east on Bogard Road, adding to the difficulty in making a left turn onto Bogard Road to access Trunk Road. This causes traffic to back up at the Bogard Road/Engstrom Road intersection. DOT&PF is designing a roundabout at these intersections to address many of these concerns. The MSB has funding to construct a northern connection from Engstrom Road to either Palmer-Fishhook Road or Trunk Road. Improving connectivity to these

³³ DOT&PF, Statewide Functional Classification GIS Map, No Date, <https://dot.alaska.gov/stwdplng/fclass/fclassmaps.shtml>

roads would provide residents located at the northern end of Engstrom Road more direct access to the arterial network, and would relieve the congestion and safety issues at the Bogard Road/Engstrom Road intersection.

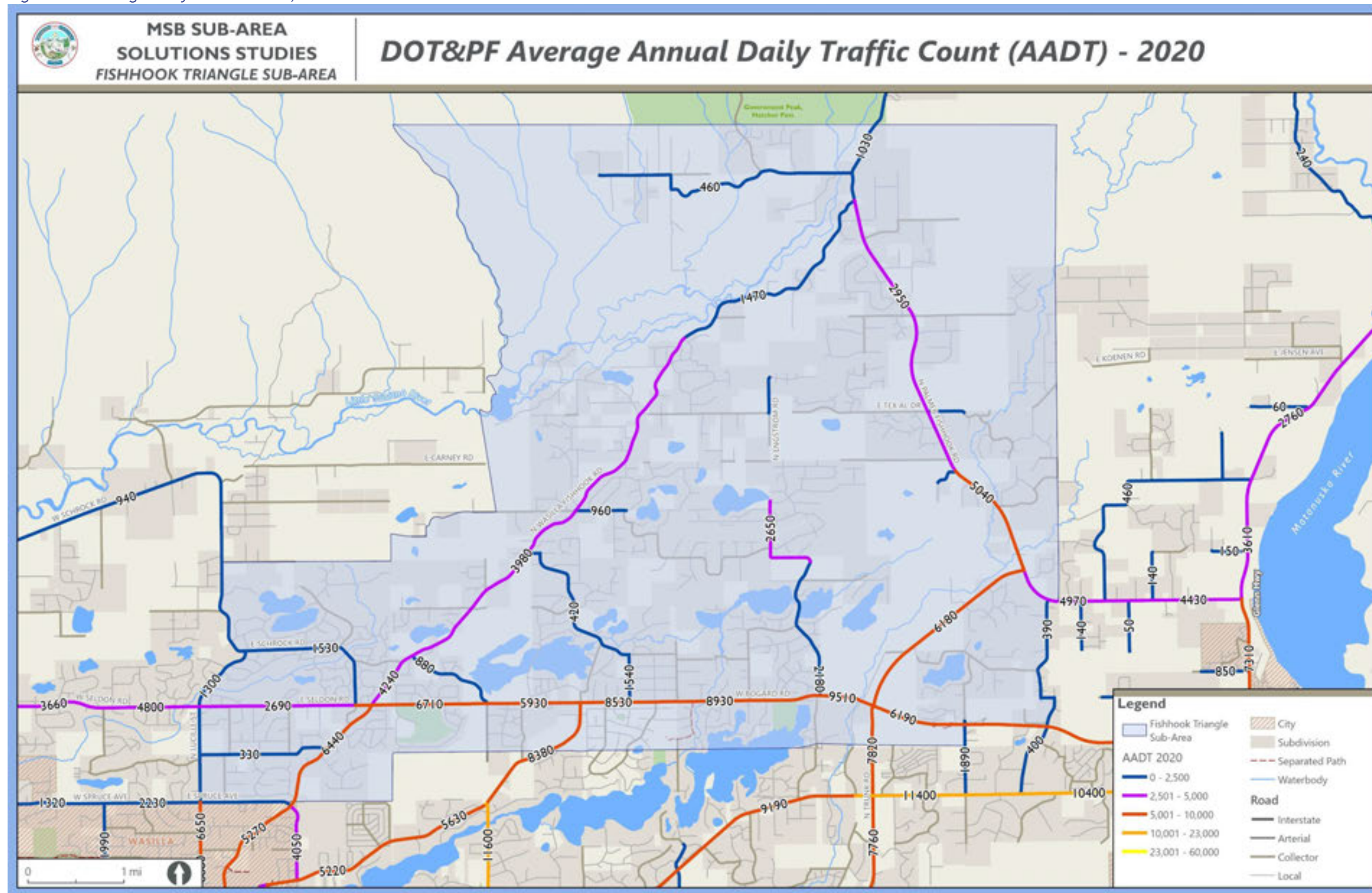
10.1.2.3 Seward-Meridian Parkway

The Seward-Meridian Parkway extends south from its signalized intersection with Seldon Road, providing access to Teeland Middle School, Mat-Su Career and Tech High School, and Fronteras Spanish Immersion Charter School. It does not currently provide a through connection south to Bogard Road. The MSB and DOT&PF have been working to complete the Seward-Meridian Parkway Upgrade project, which will provide an arterial connection from Seldon Road to Bogard Road, the Palmer-Wasilla Highway, and ultimately the Parks Highway. This project is anticipated to begin construction in summer 2023 if final right-of-way can be acquired and certified. This connection from Seldon Road to the Parks Highway will be a significant change to the traffic patterns for a large portion of the Fishhook Triangle. Drivers will no longer have to access the Parks Highway via Wasilla-Fishhook Road and Main Street, bypassing downtown Wasilla. Additionally, drivers from this central area of the Fishhook Triangle will no longer have to drive to Trunk Road to access the Parks Highway. This connection may reduce traffic on the heavily traveled section of the corridor between the Seldon Road/Bogard Road roundabout and Trunk Road. It would increase pressure on the Seward-Meridian/Parks Highway interchange.

10.2 Traffic Volumes

As shown in Figure 23, 2020 daily traffic volumes on Fishhook Triangle Sub-Area arterials and collectors vary, with the Bogard-Seldon Road Corridor carrying the most traffic. Traffic volumes are one indication of a roadway's function and capacity. Two-lane roads generally carry less traffic than four-lane roads. The number of conflict points affect the ability to move traffic safely and efficiently. Examples of well-functioning, two-lane roads include the Bogard East Road between 49th State Street, and the Glenn Highway and Trunk Road between Bogard and Palmer-Fishhook Roads. These roads were designed with wide shoulders, pedestrian facilities, and limited access points to reduce conflicts. Bogard Road between Trunk and Seldon Roads is an example of a poorly functioning road in that it has limited shoulders, no pedestrian facilities, and several conflict points. Access management, road design, and sound land use decisions all aid in improving a roadway's ability to carry traffic.

Figure 23. Average Daily Traffic Count, 2020



Source: DOT&PF, 2022

10.3 Crashes

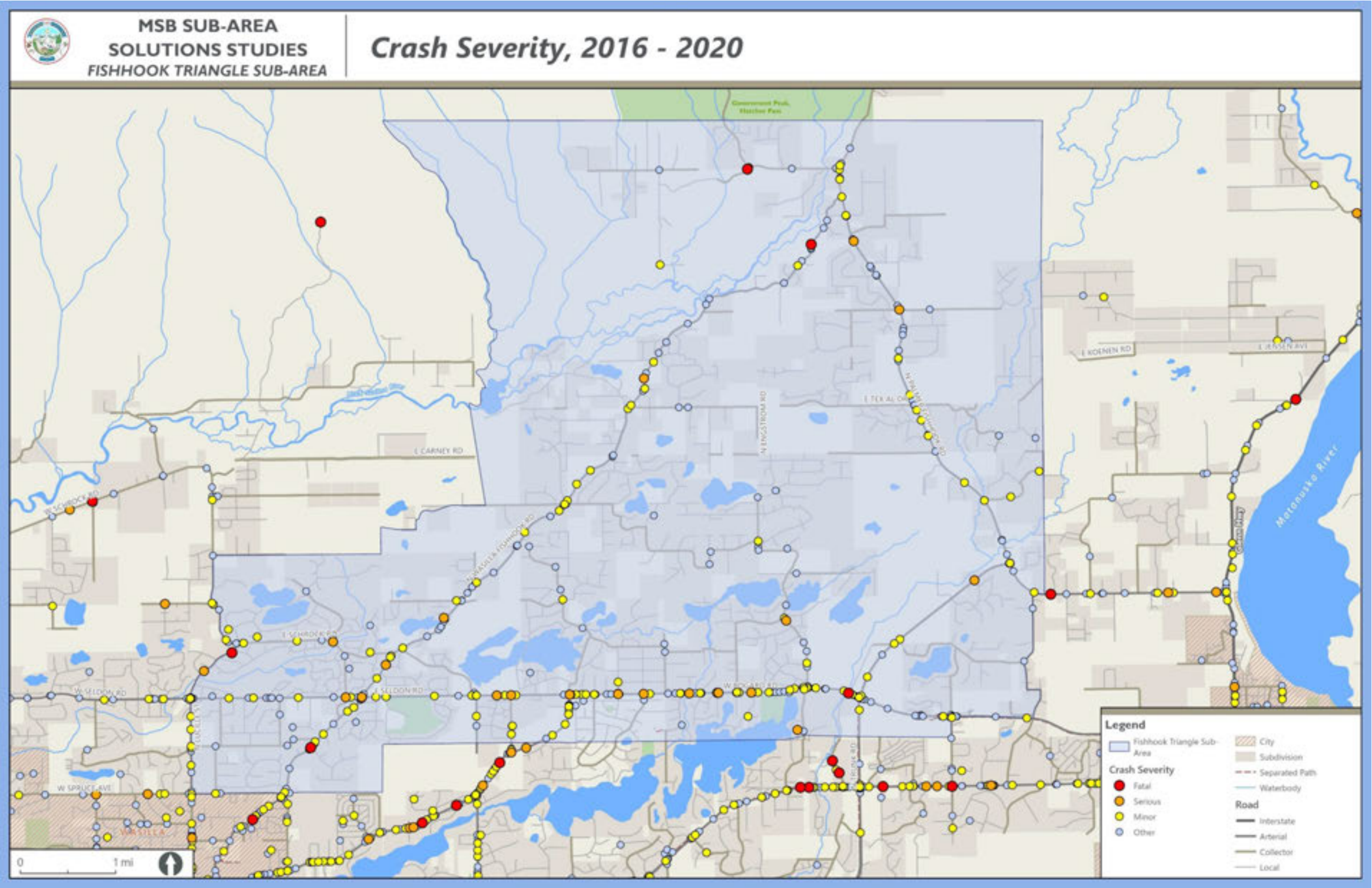
The 2016–2020 crash data³⁴ for the Fishhook Triangle Sub-Area is summarized in Table 1 and shown on Figure 24. Between 2016 and 2020, a total of 600 crashes have occurred in the sub-area. It is interesting to note that there are higher concentration of accidents on road segments with more conflict points compared to road segments with fewer conflict points.

Table 1. Fishhook Triangle Sub-Area Crash Severity Summary Table, 2016–2020

Year	Fishhook Triangle Sub-Area Crash Severity				Total Number of Crashes
	Fatal	Serious Injury	Minor Injury	Other	
2016	2	7	36	90	135
2017	0	2	36	74	112
2018	1	4	31	71	107
2019	1	4	39	73	117
2020	1	7	42	79	129

³⁴ Crash data was provided by DOT&PF based on Alaska Department of Motor Vehicle reports and is the best-known information available to DOT&PF Central Region as of August 2022.

Figure 24. Known Crashes in Fishhook Triangle Sub-Area, 2016–2020



10.4 Transit³⁵

Valley Transit is a non-profit organization that provides transit service in the MSB. They offer a fixed route between the MSB and Anchorage as well as demand-response service within the MSB.

Chickaloon Area Transit System, operated by the Chickaloon Native Village, offers demand and response services within the Glenn Highway area between the Palmer area and Chickaloon community, at Mile 70 of the Glenn Highway.

Mat-Su Senior Services also offers transportation in the Matanuska-Susitna Valley and Anchorage area to eligible individuals. As of October 2022, rides are limited to medical needs only.³⁶

10.5 Non-Motorized

Trunk Road, Bogard Road from Arabian Lane to Trunk Road, and Wasilla-Fishhook Road from Spruce Street to Seldon Road have separated pathways and other pedestrian improvements.

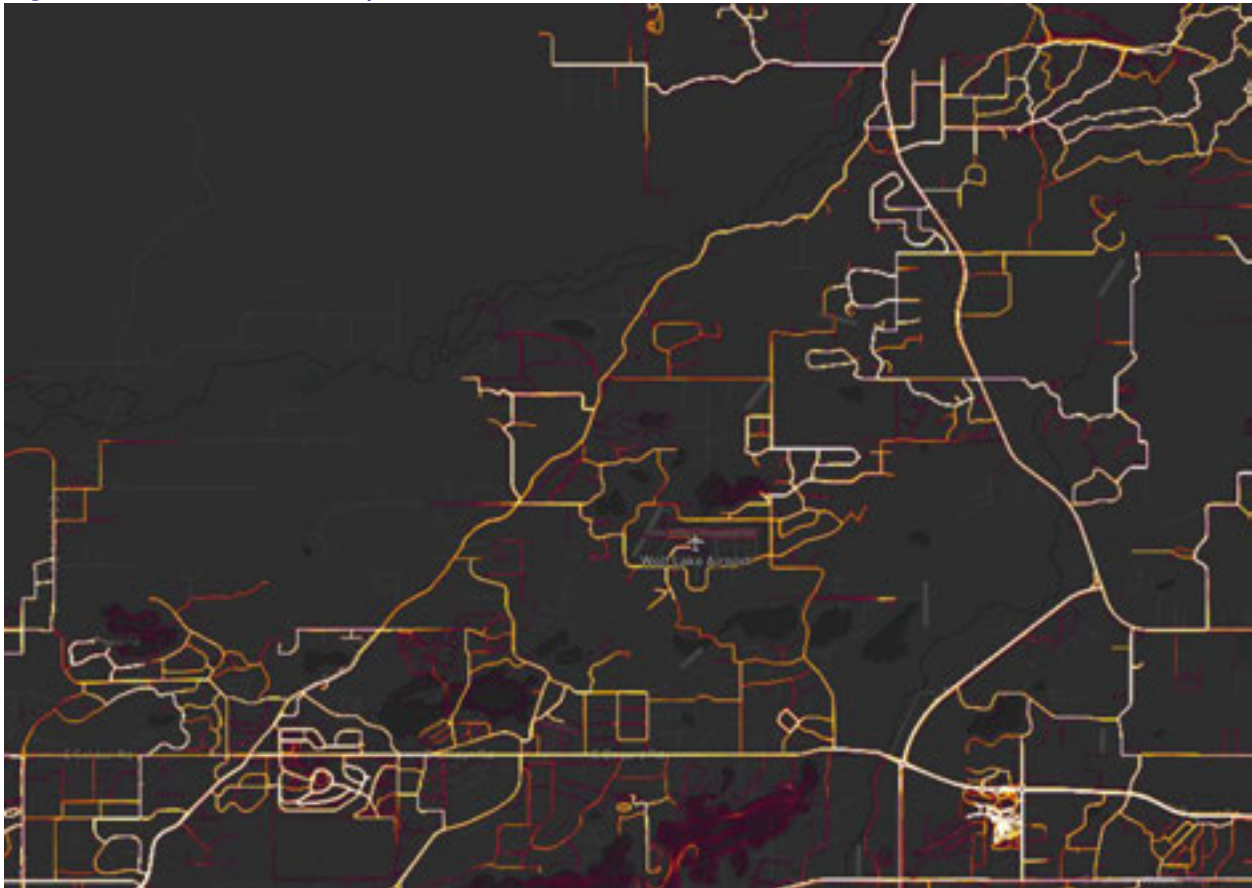
Strava is a fitness-tracking and social media app designed to allow users to track their fitness activities. Strava produces heat maps that show the most active areas for Strava users over the past year. These heat maps reflect aggregated, public activities that were recorded by Strava (see Figure 25). Lighter colors indicate more users than darker colors on the map. As the heat maps report only Strava users, they underestimate non-motorized use in the sub-area; however, the maps can provide a general estimate of where people are walking and biking compared to other areas.

In September 2023, the MSB adopted a Bike and Pedestrian Plan that will identify and prioritize needed non-motorized infrastructure throughout the MSB.

³⁵ Transit service in the MSB is likely to change in the future when the MPO is formed. The MPO is likely to take over transit service because of the way transit is funded.

³⁶ Mat-Su Senior Services, <https://www.matsuseniors.com/transportation>

Figure 25. Strava Heat Map



Source: Strava, 2022, <https://www.strava.com/heatmap#12.23/-149.29745/61.64700/hot/all>

10.6 Aviation

The MSB has the highest concentration of public and private airports in the United States. No public airports are within the Fishhook Triangle Sub-Area. Two private airparks are within the sub-area: the Wolf Lake Airport and the Shaw Tri-Lakes Airport. These airparks are associated with residential subdivisions and accommodate wheeled, float, and ski aircraft. Additionally, several private airstrips are within the sub-area.

10.7 Rail

One railroad operates within the MSB. The Alaska Railroad is owned by the State of Alaska and operates as a state-owned corporation. It provides regular freight and passenger services between Seward and Fairbanks. No rail lines occur within the Fishhook Triangle Sub-Area. The train station closest to the sub-area is the historic depot in Wasilla.

10.8 Planned Improvements

10.8.1 Alaska Statewide Transportation Improvement Program

The *Alaska Statewide Transportation Improvement Program (STIP)*³⁷ is the state’s 4-year program for transportation system preservation and development. The STIP must include all surface transportation improvements for which partial or full federal funding is anticipated and that are expected to occur during the STIP’s 4-year duration. The 2020–2023 STIP projects in the Fishhook Triangle Sub-Area are listed in Table 2.

Table 2. STIP Projects in the Fishhook Triangle Sub-Area

Project	Cost Estimate	Functional Classification	Status	Description
Seward-Meridian Parkway Improvements	FFY 2022 \$50,200,000	Minor Arterial	Construction and utilities	This is the final phase of the Seward-Meridian Parkway project and consists of upgrading the Seward-Meridian Parkway to four lanes with a center turn lane, adding a pathway from the Palmer-Wasilla Highway to Bogard Road, and extending the Seward-Meridian Parkway to connect with Seldon Road, including upgrading 0.6-mile of the existing road serving Teeland Middle School, Mat-Su Career and Tech High School, and Fronteras K-8 School. The project also includes installation of a signal at the intersection with Seldon Road.

Source: DOT&PF, 2022, <https://dot.alaska.gov/stwdplng/cip/stip/>

Notes: FFY = Federal Fiscal Year; completed STIP projects are not listed in this table.

10.8.2 2021 MSB Transportation Infrastructure Package

The MSB funds many of its road improvement projects using road bonds. The roads in the Fishhook Triangle Sub-Area that are included in the MSB’s 2021 Transportation Infrastructure Package are listed in Table 3.

³⁷ DOT&PF, Alaska Statewide Transportation Improvement Program, 2022, <https://dot.alaska.gov/stwdplng/cip/stip/>

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Table 3. 2021 MSB Road Bond Projects in the Fishhook Triangle Sub-Area

Project	Cost Estimate	Functional Classification	Status	Description
Trunk Road Connector/Katherine Drive	\$2,530,000	Minor Collector	Design	Design and construct a collector road from Stringfield Road to Trunk Road and Trunk Road to Manhattan Way, providing access to a new school site and the large Midtown Estates Subdivision
Tex-Al Drive Extension, Upgrade and Pathway	\$6,325,000	Minor Arterial	Design	Connect east and west segment of Tex-Al Drive; upgrade remaining portion of the corridor to include a pedestrian pathway
Lucille Street and Pathway Upgrade	\$4,900,000	Major Collector	Design	Upgrade Lucille Street and pathway from Spruce Street to Seldon Road and provide a turn lane for Tanaina Elementary School
Seward-Meridian Parkway-Tambert Traffic Signal	\$1,500,000	Minor Arterial	Design	Provide safe crossing of the Seward-Meridian Parkway for students attending three schools as well as for pedestrians living to the east
Palmer-Fishhook Road Separated Pathway	\$4,500,000	Minor Arterial	Design	Provide a safe pedestrian/bicycle facility in this fast-growing area of the MSB from the Glenn Highway to Little Susitna River Bridge, linking to the heavily used Trunk Road pathway
Engstrom Road to Trunk Road Corridor	\$2,500,000	Minor Collector	Design	Design and construct a road connection between North Engstrom Road and Trunk Road to relieve pressure at the Bogard Road/Engstrom Road intersection
MSB School District Shaw Elementary Turn-Lane	\$500,000	Minor Arterial	Design	Add left lane on the southbound lane of Wasilla-Fishhook Road for safer access to Shaw Elementary
MSB School District 2018 Pedestrian Projects	\$2,300,000	—	Design	Safe Routes to Schools Implementation: Larson Elementary and Colony Middle School

Source: MSB Ordinance Serial Number 21-076, adopted August 17, 2021

10.9 Plans and Studies

10.9.1 MSB 2035 Long Range Transportation Plan 2017

The MSB's 2035 LRTP update³⁸ is a fiscally constrained policy document that established transportation goals and objectives to guide the MSB's multi-modal transportation system, including road, bike and pedestrian, trail, transit, aviation, and port improvements through 2035. It established the following goals:

- Goal One: Improve Transportation and Land Use Connection
- Goal Two: Provide Transportation Choices
- Goal Three: Improve Connectivity
- Goal Four: Improve Mobility
- Goal Five: Make Transportation Safer
- Goal Six: Support Economic Vitality
- Goal Seven: Enhance Environmental Quality

Table 4 lists the LRTP-recommended roadway projects within the Fishhook Triangle Sub-Area.

Table 4. LRTP-recommended Roadway Projects within the Fishhook Triangle Sub-Area

Project Name	Project Status
Engstrom Road Congestion Relief: Assess various alternatives to relieve congestion on Engstrom Road at Bogard Road intersection, and provide connection to Trunk Road and/or Palmer Fishhook Road	State is designing a roundabout at the Engstrom Road, Bogard Road, and Green Forest Drive intersections; MSB is conducting an analysis of the best Trunk Road and Palmer-Fishhook Road connections
Engstrom North Extension to Tex-Al Drive	Project is under development
Tex-Al Drive Upgrade and Extension	Included in MSB 2021 Road Bond Projects
Bogard Road Between Seldon and Trunk Roads: Widen to four lanes to accommodate increased traffic and provide pedestrian facilities	No activity
Seward Meridian Parkway: Reconstruct between Palmer-Wasilla Highway and Bogard Road to four-lane arterial with pedestrian facilities; extend to Seldon Road as a two-lane arterial with pedestrian facilities	Funded for construction in 2023 pending certification of right-of-way
Seldon Road Upgrade – Wasilla-Fishhook Road to Snow Goose Road: Reconstruct to minor arterial standards	No activity
Seldon Road Upgrade – Snow Goose Road to Lucille Street: Reconstruct to minor arterial standards	No activity

Source: MSB, 2035 Long Range Transportation Plan, December 2017, <https://matsugov.us/docs/general/13985/Combined-Document.pdf>

³⁸ MSB, 2035 Long Range Transportation Plan, December 2017, <https://matsugov.us/docs/general/13985/Combined-Document.pdf>

The LRTP identified the following non-infrastructure strategies to complement roadway improvements:

- Create a transportation partnership with other transportation providers, including the DOT&PF, cities, and Tribes.
- Create safety education school and adult education programs with the Highway Safety Office, public safety agencies, and cities to promote defensive driving as well as pedestrian and bike safety.
- Promote a well-functioning and connected collector road network in part by updating platting regulations and the MSB *Subdivision Construction Manual*³⁹ to preserve corridors and the construction of collector roads.
- Establish an Asset Management Program to preserve the roadway system condition and its performance. This includes developing a system to manage and monitor driveway and roadway access to major collectors and arterials to improve safety, preserve functionality, and protect the public's investment in the roadway system.

Other non-infrastructure codes and policies are contained in Appendix A.

10.9.2 Coordinated Human Services Transportation Plan

The *MSB Coordinated Human Services Transportation Plan 2018–2022*⁴⁰ coordinates transit agencies and other transportation providers to better meet the needs of older adults, people with disabilities, and low-income households. It is required to access specific funding programs offered through the Federal Transit Administration.

The plan assessed transportation needs in the MSB by combining information about densities of the older adult population, households below the poverty line, and zero-vehicle households to create an overview of which transit needs are greatest. The results are presented in Figure 26. The southern portion of the sub-area has a relatively high need, while the northern portion has some of the lowest needs in the MSB.

³⁹ MSB, *Subdivision Construction Manual*, 2020, <https://matsugov.us/49-documents/21522-2020-subdivision-construction-manual>

⁴⁰ MSB and Mat-Su Health Foundation, *MSB Coordinated Human Services Transportation Plan 2018–2022*, 2018, https://dot.alaska.gov/stwdplng/transit/pub/Coorplan-MSB_2018.pdf

Figure 26. Transportation Needs Index

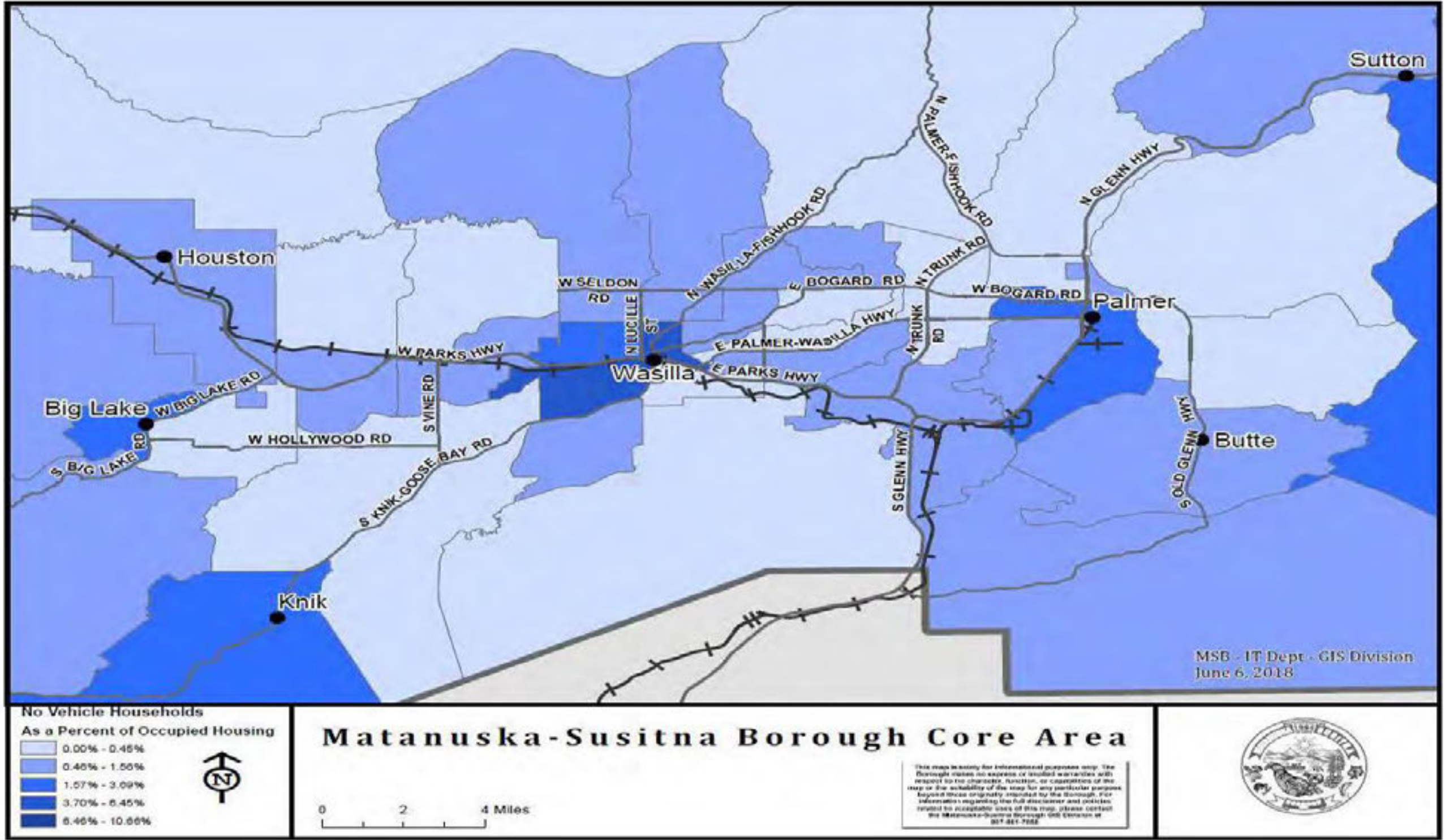


Figure 13: MSB Core Area No Vehicle Households

Source: MSB and Mat-Su Health Foundation, MSB Coordinated Public Services Transportation Plan 2018–2022, 2018, https://dot.alaska.gov/stwdplng/transit/pub/Coorplan-MSB_2018.pdf

The plan identified several ways to improve coordination and services, including:

- Centralize mobility management services
- Reduce operations costs while maintaining service levels
- Determine the appropriate combination of transit services
- Generate new revenue
- Improve information access and quality
- Improve the Medicaid approval process for providers and recipients
- Improve service availability
- Improve marketing

For additional information, please see the *MSB Coordinated Public Services Transportation Plan 2018–2022*⁴¹.

10.9.3 Draft MSB 2022 Official Streets and Highway Plan

The MSB is updating its OS&HP⁴². The OS&HP is a planning tool for the MSB to identify and reserve future road corridors and identify future road network improvements to help provide transportation infrastructure to support residential, commercial, institutional, and industrial developments. The OS&HP is not fiscally constrained and does not establish project priorities. The goal is to establish a hierarchical road network where local roads connect to collector roads, which in turn connect to arterial roads that ultimately connect to the Interstate Highway System. A well-connected road network improves safety, reduces travel time, improves emergency response times, provides safe evacuation routes, and reduces carbon emissions.



The OS&HP and the platting process need to work in tandem to reserve and protect collector and arterial corridors as part of subdivision development.

The draft OS&HP identifies where current roadway connectivity deficiencies exist or where future arterial and collector roadways are needed to create a viable and safe road network to serve the residents of the MSB. This draft study specifically recognizes the lack of connectivity within this sub-



The lack of road connectivity is a major issue. New local, collector, and arterial road connections are needed to improve traffic flow and safety

⁴¹ MSB and Mat-Su Health Foundation, *MSB Coordinated Human Services Transportation Plan 2018–2022*, 2018, https://dot.alaska.gov/stwdplng/transit/pub/Coorplan-MSB_2018.pdf.

⁴² MSB, Official Streets and Highway Plan website, 2022, <https://oshp-msb.hub.arcgis.com/>; MSB, *Official Streets and Highway Plan, Technical Report and Implementation Plan*, Draft, May 2022

area as a major issue and makes several recommendations for collector, arterial, and local road connections to improve traffic flow and safety. Improving connectivity will reduce congestion at key intersections, such as Engstrom and Bogard Roads, by providing alternate routes to access the sub-area's collector and arterial network. These new roadway connections are illustrated by dashed lines in Figure 27.

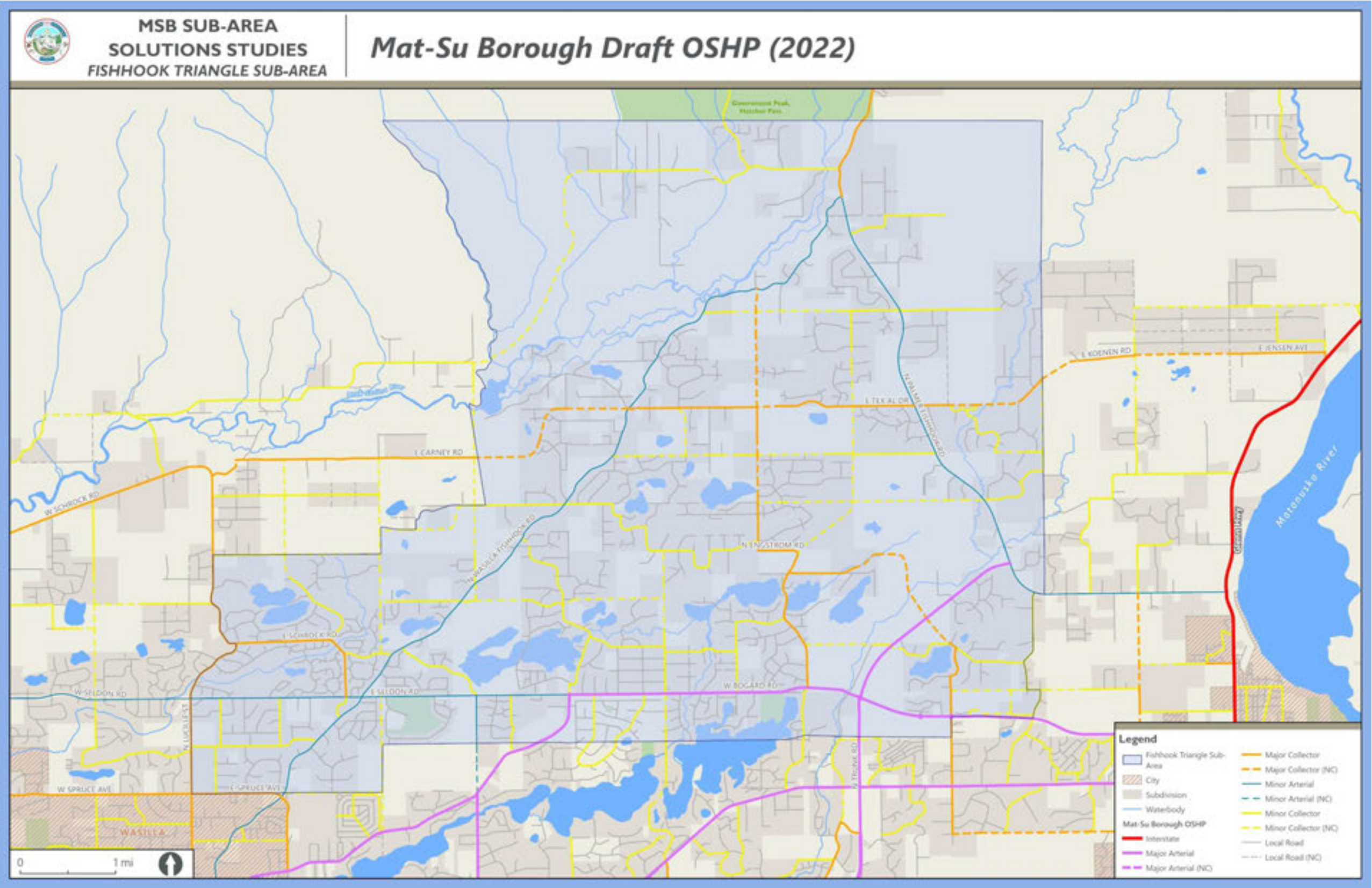
10.10 Safe Route to School Plans

The purpose of the Safe Routes to Schools Program is to improve safety and mobility for children and enable them to walk and bike to school. The *Matanuska Susitna Borough Safe Routes to School Walk Zone Inventory and Recommendations*⁴³ made recommendations for the four elementary and two middle schools within the Fishhook Triangle Sub-Area. It did not make recommendations for either Colony or Mat-Su Career and Tech High Schools; however, it can be assumed that similar recommendations made for Colony and Teeland Middle Schools are applicable due to their proximity. Recommendations generally addressed:

1. Improved circulation and parking related to student drop-off and pick-up areas
2. Separated pedestrian trails along roadways accessing schools
3. Improved lighting, both interior to the school and along roadways and pathways

⁴³ PDC Inc. Engineers, *Matanuska Susitna Borough Safe Routes to School Walk Zone Inventory and Recommendations*, December 2014, https://matsugov.us/docs/general/16869/msb-srts_final-inventoryrecommendations_final_14y12m02d_smaller.pdf

Figure 27. Draft OS&HP Projects



11 Utilities

11.1 Water and Sewer

No municipal water or sewer systems are located in the Fishhook Triangle Sub-Area that would allow higher density developments. Currently, no plans exist to extend water and sewer utilities to this sub-area.



Access to water and sewer determines density and are key to higher density development. Developers can opt to provide community water with on-site septic that allows single-family residential development on 20,000-square-foot (0.5-acre) lots. Multifamily developments require larger septic systems and well capacity. In lieu of being able to connect to a water and sewer utility or community water systems, single-family residential homes are limited to 40,000-square-foot (1-acre) lots to achieve minimum separation distances between individual well and septic systems.

11.2 Other Utilities

Other utilities provide more than sufficient service to existing developments in the sub-area and have the capacity to accommodate continued existing development patterns or a change to higher density development. Solid waste disposal is through the MSB-owned and operated central landfill. The landfill has adequate space to accommodate additional development in the MSB. MEA has indicated the need to consider additional sub-station infrastructure within the northern portion of the Fishhook Triangle Sub-Area due to its rapid population growth. Utility providers are summarized in Table 5.

Table 5. Utility Providers in the Fishhook Triangle Sub-Area

Utility	Provider
Electric	Matanuska Electric Association
Natural Gas	ENSTAR
Telecommunications	A variety of providers, including Matanuska Telephone Association, GCI, AT&T, Verizon, etc.
Internet and Broadband	A variety of providers
Solid Waste	Matanuska-Susitna Borough Central Landfill
Water and Sewer	City of Palmer (limited)
Storm Water System	City of Palmer (limited)

12 Economy

12.1 Plans and Studies

12.1.1 2010 MSB Economic Development Strategic Plan

In 2010, the MSB engaged TIP Strategies, Inc. to develop an economic development strategic plan to help position the MSB for long-term economic vitality. The 2010 MSB *Economic Development Strategic Plan's*⁴⁴ vision statement is that “The Mat-Su Borough is the premier destination for quality development and jobs in Alaska,” which is supported by five main goals:

1. Position the MSB for sustainable economic growth and vitality
2. Build capacity to conduct economic development within the MSB
3. Expand the MSB’s economic development infrastructure
4. Attract, retain, and engage talent
5. Raise awareness of economic development opportunities

The plan identified seven priority strategies with varying degrees of specificity. The top strategy was to establish a university-medical district within the MSB to attract high-level jobs and facilities. 12.3Major Employers

Other goals of the 2010 plan included building greater awareness of the MSB as a destination for new investment among Anchorage employers; establishing an MSB-wide economic development partnership; facilitating communication between business, workforce training, and educational communities; investing in tourism infrastructure and marketing; developing multi-modal transportation infrastructure at Port MacKenzie; and updating the MSB planning code.

12.1.2 Fiscal Year 2023–2028 Borough Strategic Plan

The recently released *Matanuska-Susitna Borough Strategic Plan*⁴⁵ contains a variety of goals around economic growth and diversification. One of the three focus areas within the plan is to implement the vision of the MSB as “the greatest community in Alaska to live, work, and play.”⁴⁶ The economic goals include protecting affordable housing, developing a regionally driven economic development planning process, promoting an apprenticeship program, developing future port prospects, supporting development of Hatcher Pass tourism opportunities, and hosting the 2024 Arctic Winter Games.

⁴⁴ TIP Strategies, Inc., *Matanuska-Susitna Borough, Alaska, Economic Development Strategic Plan*, April 22, 2010, <https://matsugov.us/plans/economic-development-strategic-plan>

⁴⁵ MSB, *Matanuska-Susitna Borough Strategic Plan*, February 15, 2022, <https://portmackenzie.org/docs/general/22341/FY-2023-2028-Strategic-Plan-FINAL.PDF>

⁴⁶ MSB, *Matanuska-Susitna Borough Strategic Plan*, February 15, 2022, <https://portmackenzie.org/docs/general/22341/FY-2023-2028-Strategic-Plan-FINAL.PDF>

12.2 Existing Economic Conditions and Trends

The MSB has traditionally been seen as a “bedroom community” of Anchorage, with between 30 to 35 percent of its residents commuting to Anchorage for employment. Table 6 shows the commuting patterns to and from Anchorage for MSB residents. Approximately 60 percent of MSB residents both live and work in the borough, and approximately 30 percent of MSB residents commute to Anchorage for work. Conversely, only a small number of Anchorage residents commute to the MSB for work (approximately 4 percent of all MSB employees).

Table 6. MSB and Anchorage Commuting Patterns, 2015 and 2019

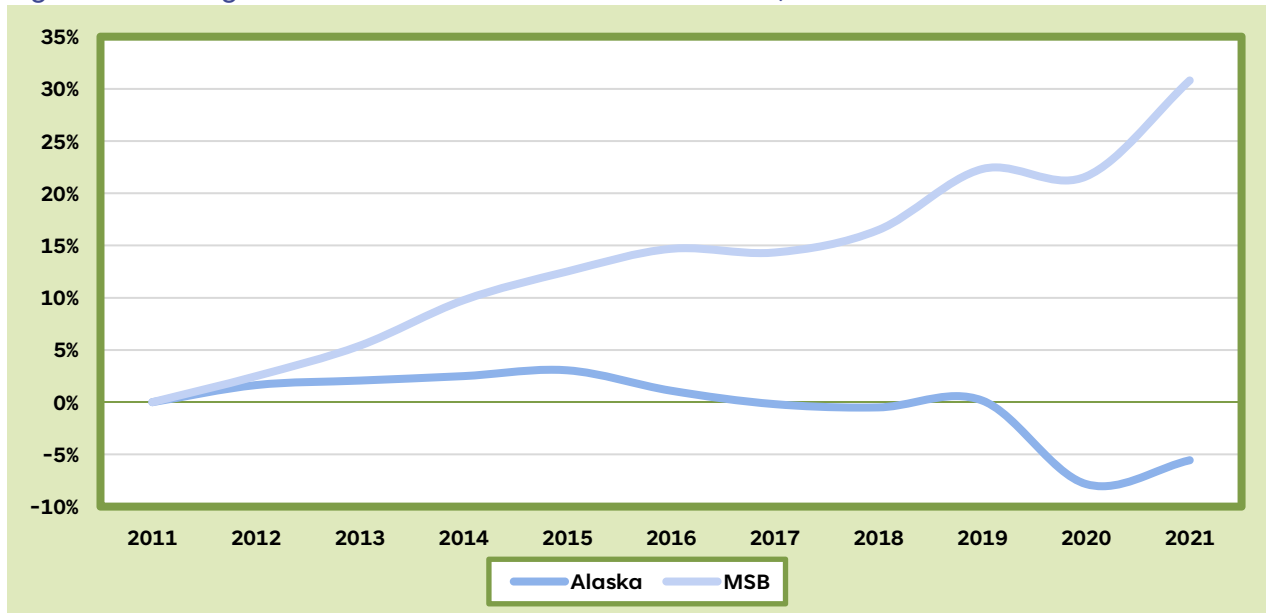
Commuting Direction	2015	2019	% Change
Live in Anchorage, Work in MSB	2,045	2,288	12
Live and Work in MSB	23,558	25,237	7
Live in MSB, Work in Anchorage	12,720	12,819	1

Source: DOL&WD data provided by Neal Fried, State Economist, 2022

As the MSB’s population has grown, the number of jobs in the MSB itself has increased, defying all statewide economic trends, including the Alaska recession of 2017–2019. As shown in Figure 28, the number of jobs statewide was relatively stagnant between 2011 and the onset of the COVID-19 pandemic in 2020. By contrast, the MSB added jobs every year except 2017, at the onset of Alaska’s recession, and even the dip in jobs caused by the COVID-19 pandemic was relatively minimal. As of 2021, the MSB had more than 30 percent more jobs than a decade prior. This suggests that the MSB is rapidly maturing from a bedroom community to developing more substantial economic activity. Wages in the MSB increased 13 percent from 2010 to 2020, in line with statewide trends, to an average of \$48,420 in 2020. The job sectors that have seen the most growth, shown below in Figure 30, vary in average wages. Healthcare and construction jobs are higher-earning, paying between \$65,000 and \$80,000, whereas retail and food service jobs are less lucrative, with salaries in the \$25,000–\$30,000 range.⁴⁷

⁴⁷ Fried, Neil, Average wages grew over decade, *Alaska Economic Trends*, March 2022

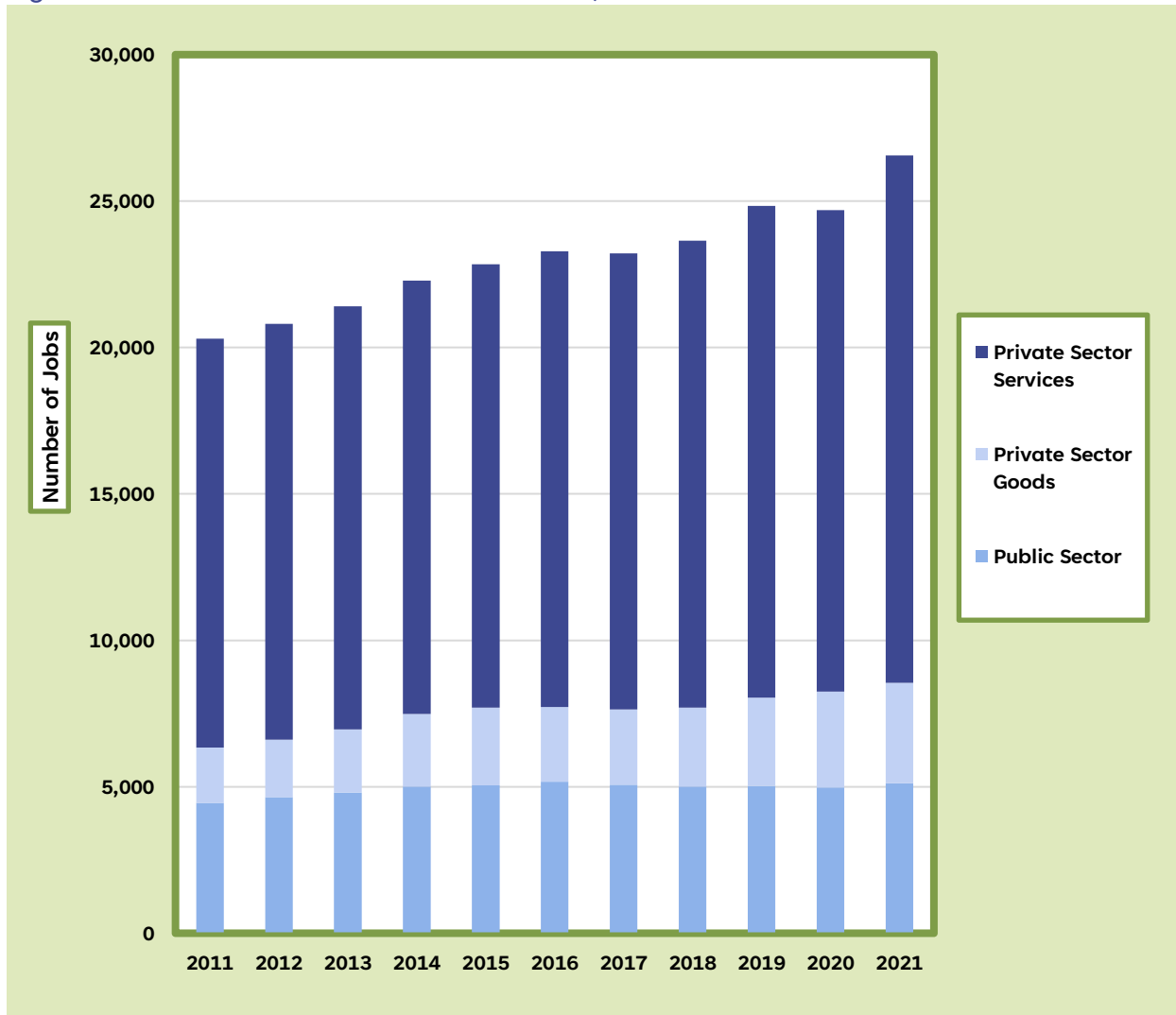
Figure 28. Change in Number of Jobs in MSB and Alaska, 2011–2021



Source: DOL&WD, *Quarterly Census of Employment and Wages*, 2011–2021, 2022,
<https://live.laborstats.alaska.gov/qcew/index.html>

The DOL&WD reports that approximately 5,000 jobs in the MSB are public sector jobs, approximately half of which are in local government and the remainder in state and federal governments. The number of public sector jobs has not appreciably changed in the past decade, but the number of private sector jobs has substantially increased, particularly in service-oriented jobs, as shown in Figure 29. As of 2021, there were 18,003 service jobs (retail, health care, management, knowledge industries, etc.), 3,426 goods-producing jobs (manufacturing, agriculture, mining, etc.), and 5,127 public jobs in the MSB.

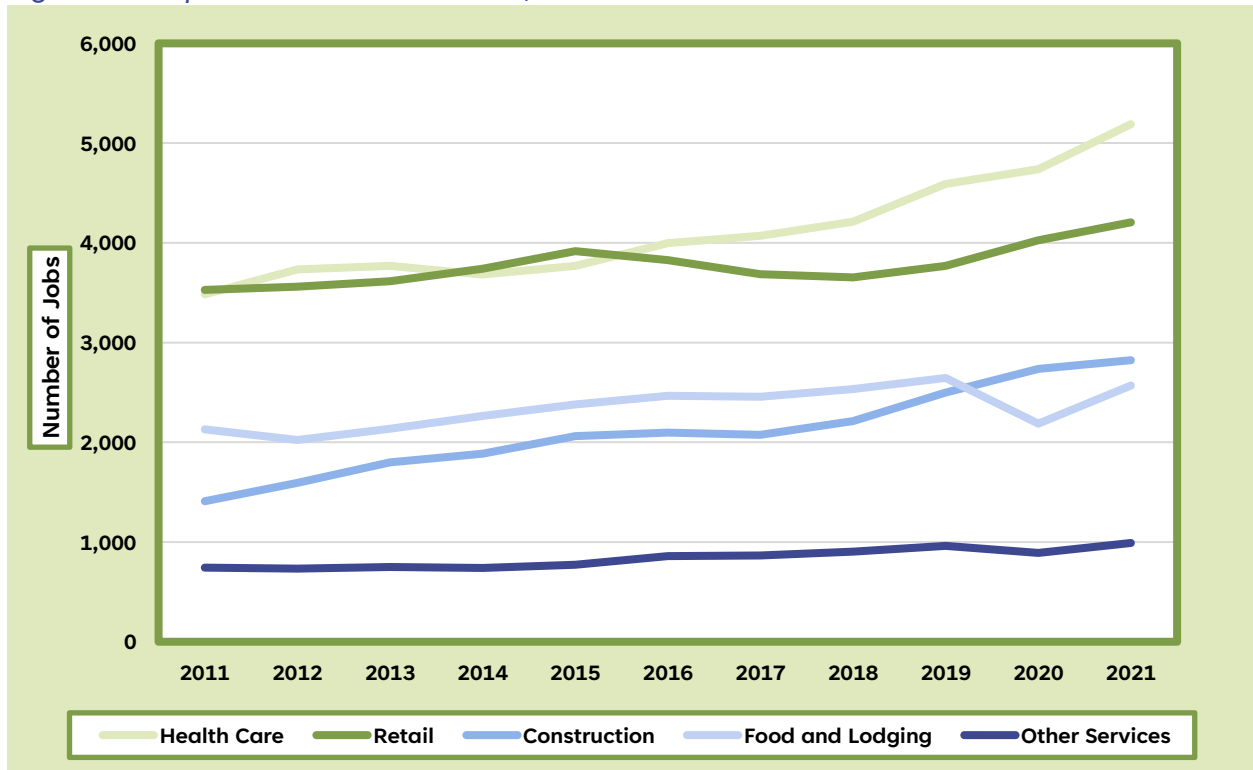
Figure 29. Public and Private Jobs in the MSB, 2011–2021



Source: DOL&WD, Quarterly Census of Employment and Wages, 2011–2021, 2022, <https://live.laborstats.alaska.gov/qcew/index.html>

Figure 30 shows the top five job sectors in the MSB and their change over time. The health care and construction industries have seen the greatest growth in the past decade, with a 49 percent increase in health care jobs and a doubling in the number of construction jobs from 2011 to 2021. This reflects the explosive housing growth in the region. The food and lodging industries took an unsurprising hit from the COVID-19 pandemic but have since rebounded significantly as tourism has returned to the MSB. Retail jobs have also been relatively steady, despite the serious setbacks for the industry over the past decade due to both e-commerce and the COVID-19 pandemic.

Figure 30. Top Job Sectors in the MSB, 2011–2021



Source: DOL&WD, Quarterly Census of Employment and Wages, 2011–2021, 2022,
<https://live.laborstats.alaska.gov/qcew/index.html>

The growth of health care employment in the MSB parallels the rise of the industry as the leading sector statewide and one of the leading economic drivers nationally. Other major industries in Alaska that have seen notable growth in recent decades are also reflected in the MSB, such as restaurants and tourism-related jobs.⁴⁸ From the perspective of the economic future of MSB residents, these are promising trends. Health care jobs in Alaska pay more than in any other state, as of 2018, with an average salary of \$98,020.⁴⁹ Notwithstanding a future disruption, tourism in Alaska looks to remain a strong sector, and community members interviewed by the Study project team specifically spoke about new recreational and tourism opportunities opening up in the Hatcher Pass area. The MSB was recently awarded a grant for the construction of the new Mat-Su Gateway Visitor Center, which should help increase tourism and tourism-related employment.

⁴⁸ Fried, Neal, Industry winners and losers, *Alaska Economic Trends*, February 2019

⁴⁹ Zaguirre, Aiko, How healthcare wages in Alaska rank, *Alaska Economic Trends*, December 2018

12.3 Major Employers

The Fishhook Triangle Sub-Area is primarily a residential area with a few commercial and retail areas along the Bogard-Seldon Road Corridor and along the Fishhook Roads providing some local employment. Several automobile repair and recreational vehicle services occur within the sub-area, as well as churches and two self-storage businesses. Most residents work outside the sub-area.

Schools are a major employer in the sub-area. Larson Elementary, Teeland Middle, Mat-Su Career and Tech High, and Fronteras Charter Schools are located along Seldon Road. Shaw Elementary School is located just east of Wasilla-Fishhook Road on Paradise Drive. Finger Lake Elementary School is located south of Bogard Road east of its intersection with Seldon Road, and Colony Middle and High Schools are in the extreme southeastern part of the sub-area. The MSB School District is the borough's largest public employer, with more than 2,000 employees across all its schools.⁵⁰

A number of convenience stores and small markets are within the sub-area, including Turners Corner, the Valley Country Store, and the Fishhook Foodmart. One medical office is within the sub-area, the Alaska Brain Center on Bogard Road south of its intersection with Seldon Road.

13 Environmental

This section summarizes the existing environmental conditions and resources in the Fishhook Triangle Sub-Area. Understanding the existing environmental conditions and cultural resources are important for several reasons: they help determine which improvements may be challenging or more expensive to construct, which level of environmental documentation is needed, where additional agency coordination may be needed, and where there are opportunities for avoidance and mitigation.

13.1 Cultural Resources

A July 2022 review of the Alaska Heritage Resources Survey database indicated 42 cultural resources located within the Fishhook Triangle Sub-Area. Of these, four are eligible for listing in the National Register of Historic Places. The remaining sites are either not eligible, unevaluated, or an evaluation is pending. Several laws and regulations, such as regulations implementing Section 106 of the National Historic Preservation Act⁵¹, govern the process to be followed if a cultural resource may be impacted as the result of a federal undertaking. Potential impacts to cultural resources should be considered as

⁵⁰ MSB School District, About Us, 2022, <https://www.matsuk12.us/domain/3379>

⁵¹ 36 Code of Federal Regulations Part 800

part of the project development process because it may increase the project cost and schedule.

13.2 Wetlands

Figure 31 shows the location of wetlands identified within the Fishhook Triangle Sub-Area based on the MSB wetlands GIS data. Generally, the sub-area has very few wetland areas. Development within or near wetlands must comply with all local, state, and federal permit requirements.

13.3 Floodplains

Floodplains are land areas of low-lying ground adjacent to a waterbody that are subject to inundation by floodwaters during times of heavy rain, snowmelt, or high tides (for coastal areas). They can act as reservoirs that temporarily store water, slowing down their speed and reducing the impact of erosion downstream. They typically are important habitats for fish, birds, and wildlife. Managing development or encroachments to floodplains reduces the impacts of flooding on the built environment, sustains healthy ecosystems, and supports local economic and recreation opportunities.

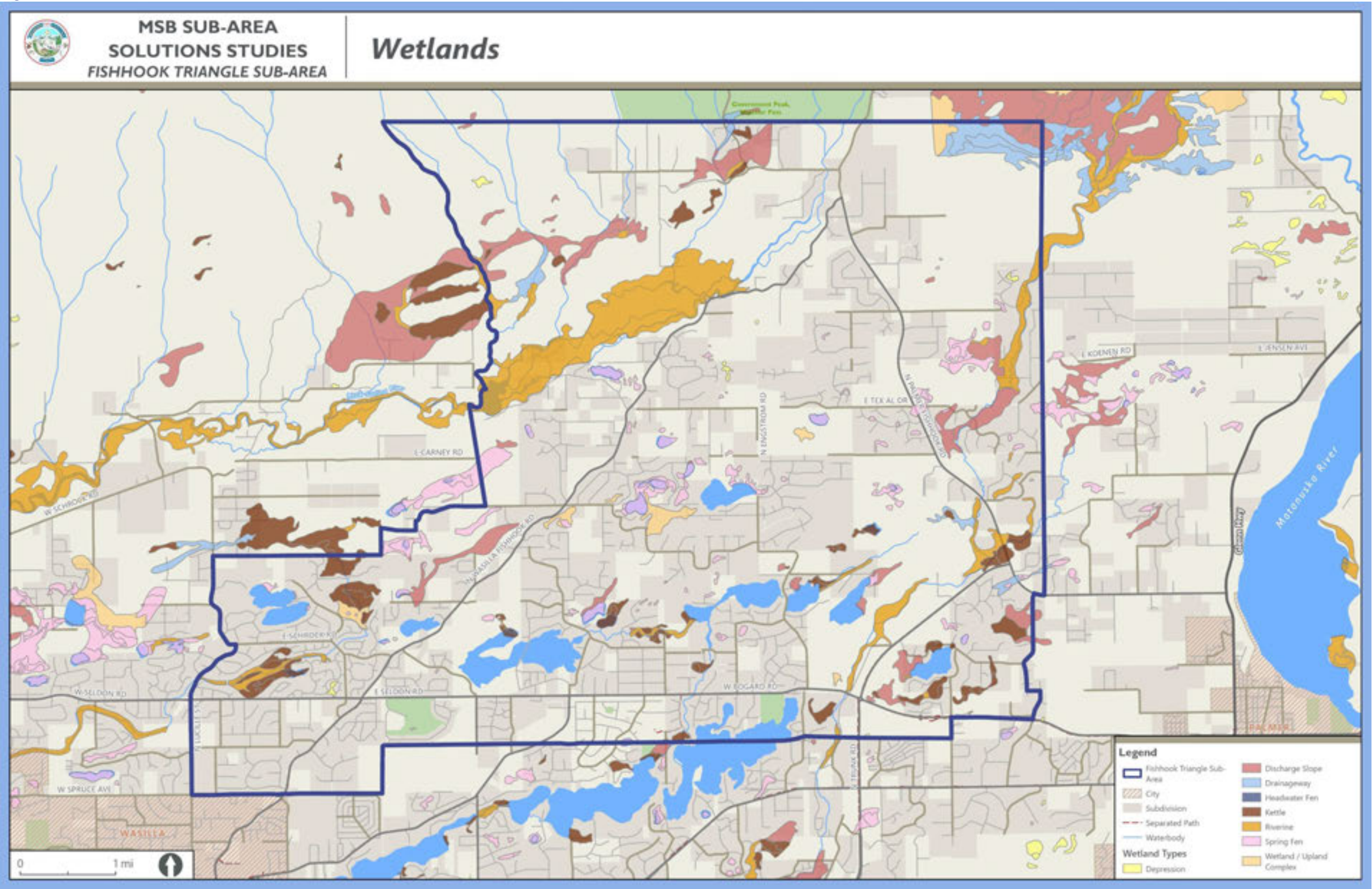
In the Fishhook Triangle Sub-Area, mapped floodplains occur along Wasilla Creek and the Little Susitna River (see Figure 32). Construction within the floodplains needs to comply with appropriate floodplain regulations.

13.4 Contaminated Sites

A September 2022 review of the ADEC Contaminated Sites Database⁵² indicated there is one known active contaminated site in the Fishhook Triangle Sub-Area. Multiple sites have been previously cleaned up (see Figure 33).

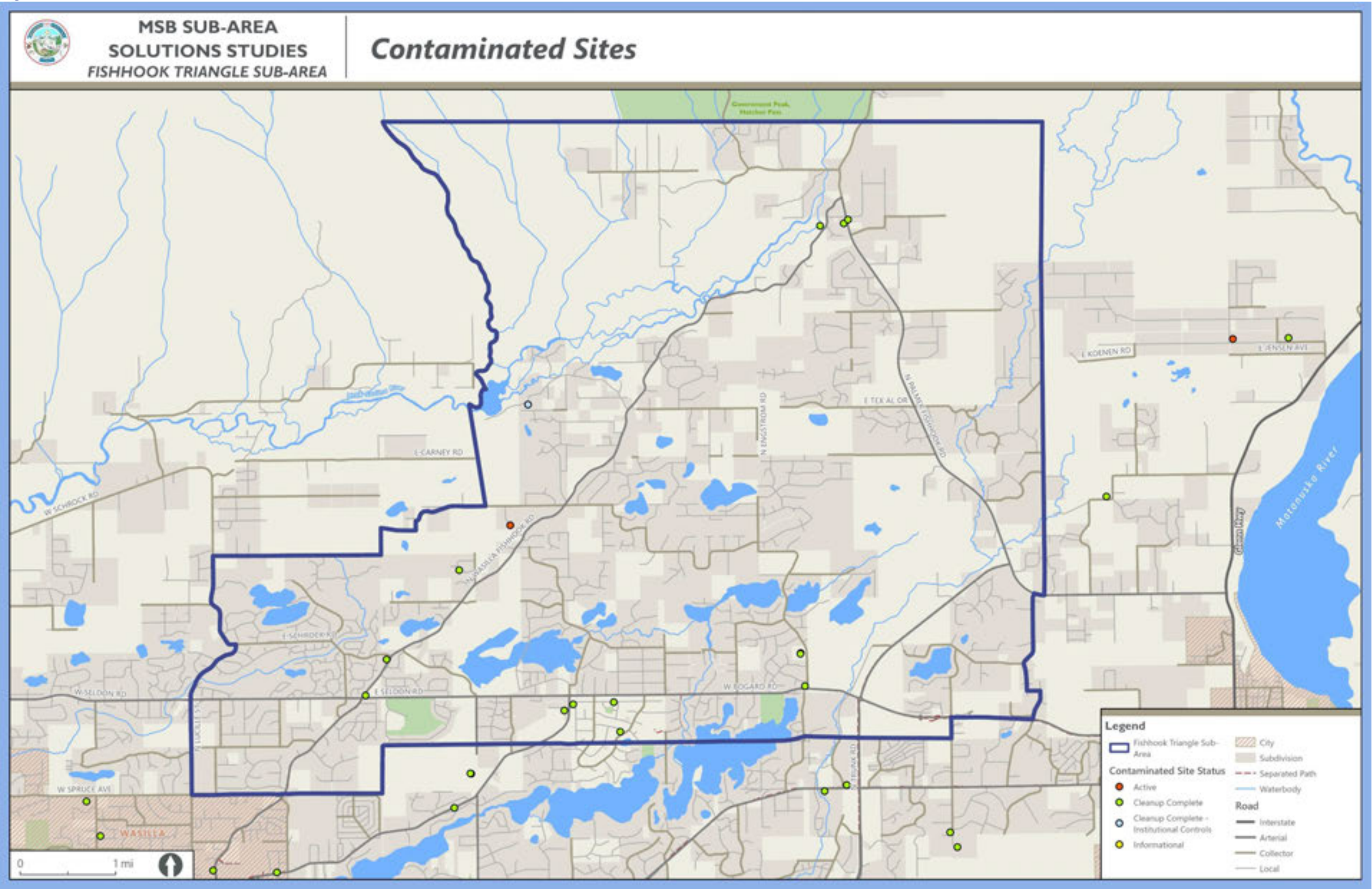
⁵² ADEC, Contaminated Sites, 2022, <https://dec.alaska.gov/spar/csp.aspx>

Figure 31. Wetlands



Source: MSB GIS, 2022

Figure 33. Contaminated Sites



Source: ADEC, Contaminated Sites, 2022, <https://dec.alaska.gov/spar/csp.aspx>

Appendix A Existing Non-Infrastructure Policy and Codes

A.1 Subdivision Construction Manual

The Matanuska Susitna Borough (MSB) Assembly approved the updated *Subdivision Construction Manual* (SCM)⁵³ by adopting ordinance Serial Number 20-15 that amended MSB 43.05.015(b)(3) to replace the SCM in Borough Code. The SCM provides design standards to developers for the design and construction of roads whose ownership will be transferred to the MSB for long-term maintenance, repair, and upgrade. It is important that all roads constructed by developers meet appropriate standards prior to the transfer of ownership to the MSB.

The SCM goals are to:

1. Establish standards for the design and construction of transportation networks throughout the MSB
2. Provide information and guidelines for the design, construction, and upgrade of roads, drainage facilities, and utilities within rights-of-way
3. Develop and maintain a safer and more efficient transportation system
4. Minimize operation and maintenance efforts

Issue: The SCM establishes standards for subdivision road construction. The annual average daily traffic levels for a local road in the SCM is much higher than national standards. As a result, some roads are being built as local roads when the traffic volume may warrant a collector road.

A.2 Title 43 Subdivisions (see MSB Code⁵⁴ for all code requirements contained in this Title)

MSB Code Title 43 Subdivisions regulates the development of subdivisions within the MSB. This Title identifies subdivision design standards and the responsibilities of property owners, developers, and the MSB. These regulations establish the Platting Board and defines members responsibilities. It addresses plat approval, abbreviated plats, and vacations; existing plat status and validation; reconsideration and appeals; and subdivision agreements.

Issue: Platting decisions historically have defined land use within the MSB without assessing impacts to the existing and future road networks.

⁵³ MSB, *Subdivision Construction Manual*, 2020, <https://matsugov.us/49-documents/21522-2020-subdivision-construction-manual>

⁵⁴ MSB Code, Title 43, <https://www.codepublishing.com/AK/MatanuskaSusitnaBorough/#!/MatanuskaSusitnaBorough43/MatanuskaSusitnaBorough4305.html#43.05.015>

Most of the property within the Fishhook Triangle Sub-Area is in the unincorporated area of the MSB. These lands comprise a portion of what is known as the Core Area of the MSB, where the majority of the MSB's population is located. The *Core Area Comprehensive Plan*⁵⁵ established planning goals and objectives within the Core Area. These goals and objectives are implemented in part by MSB Code Section 17.61 Core Area, with certain developments or activities requiring a Conditional Use Permit and/or a Traffic Impact Analysis with Mitigation prior to project initiation.

A.3 Applicable MSB Development Codes

Additionally, all areawide code requirements are applicable within the Fishhook Triangle Sub-Area, including the following Titles that address residential, commercial, institutional, and industrial development:

- **MSB Code Title 8 Health and Welfare**⁵⁶: Title 8 identifies health and safety standards related to construction by formally adopting the International Mechanical Code, International Building Code, Uniform Plumbing Code, National Electrical Code, International Fire Code, and International Fuel and Gas Code for all construction within the MSB. It also establishes standards for sewer and septic systems, including sizing and separation from wells and water bodies. Sewer and septic systems must meet Alaska Department of Environmental Conservation requirements.
- **MSB Code Title 11 Roads, Streets, Sidewalks and Trails**⁵⁷: Title 11 establishes standards for roads, streets, sidewalks, and trails. These standards are implemented through the MSB's *Subdivision Construction Manual*⁵⁸, which contains all relevant standards. This Title also defines encroachments and remedies. It establishes driveway standards and permits and states when Traffic Impact Analyses and Traffic Impact Mitigations are required.
- **Title 15 Planning**⁵⁹: Title 15 establishes the role and function of the MSB Planning Commission as an advisory body to the MSB Assembly with respect to proposed ordinances and plans and that serves in a quasi-judicial function related to the

⁵⁵ MSB, *Core Area Comprehensive Plan*, 2007 Update, <https://matsugov.us/docs/plans/14442/sandy-formatted-core-area-comp-plan1.pdf>

⁵⁶ MSB Code, Title 8, <https://www.codepublishing.com/AK/MatanuskaSusitnaBorough/#!/MatanuskaSusitnaBorough08/MatanuskaSusitnaBorough08.html>

⁵⁷ MSB Code, Title 11, <https://www.codepublishing.com/AK/MatanuskaSusitnaBorough/#!/MatanuskaSusitnaBorough11/MatanuskaSusitnaBorough11.html>

⁵⁸ MSB, *Subdivision Construction Manual*, 2020, <https://matsugov.us/49-documents/21522-2020-subdivision-construction-manual>

⁵⁹ MSB Code, Title 15, <https://www.codepublishing.com/AK/MatanuskaSusitnaBorough/#!/MatanuskaSusitnaBorough15/MatanuskaSusitnaBorough15.html>

approval or denial of Conditional Use Permits. This Title establishes MSB Assembly functions related to zoning, comprehensive planning, lake management plans, and amending state management plans affecting MSB lands. Chapter 15.30 establishes the Official Streets and Highway Plan as the official map that shows the location of present and future road construction projects throughout the MSB. This Title establishes the Board of Adjustment and Appeals as a process for residents to appeal decisions made by the MSB Administration, Boards, and Commissions.

- **Title 17 Zoning⁶⁰:** Title 17 establishes areawide and special use district zoning requirements throughout the MSB:
 - Establishes 13 Special Land Use Districts throughout the MSB that require additional development standards or limitations to address community or agency goals.
 - Requires conditional use permits for a variety of activities prior to their initiation, including a public process.
 - Establishes setbacks from lot lines, water courses, water bodies, rights-of-way, and screening easements.
 - Addresses flood damage prevention.
 - Provides regulations and permit requirements related to materials extraction and the establishment of Interim Material Districts.
 - Establishes standards for multifamily development and mobile home parks.
 - Provides a process to establish single-family and large-lot, single-family districts.
 - Regulates adult businesses, waste incinerators, nonconforming structures, racetracks, and tall structures.
 - Establishes conditional use permit requirements and noise, traffic, and hazardous materials standards within the Core Area of the MSB.
 - Establishes a public and permit process for the placement of essential service utilities within the MSB.
 - Establishes procedures to address variances.
 - Establishes fees.

The Cities of Palmer, Wasilla, and Houston as well as the Port MacKenzie Special Use District are often exempted from Title 17 regulations, and a thorough review of the regulations are needed to determine applicability.

⁶⁰ MSB Code, Title 17,
<https://www.codepublishing.com/AK/MatanuskaSusitnaBorough/#!/MatanuskaSusitnaBorough17/MatanuskaSusitnaBorough17.html>

Matanuska-Susitna Borough



**Community
GROWTH**
SOLUTIONS STUDY

Knik Goose Bay - Big Lake Existing Conditions Report

November 2022

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Appendix A Existing Non-Infrastructure Policy and Codes

Acronyms/Abbreviations

ACS	American Community Survey
ADEC	Alaska Department of Environmental Conservation
DOL&WD	Alaska Department of Labor and Workforce Development
DOT&PF	Alaska Department of Transportation and Public Facilities
FY	Fiscal Year
FFY	Federal Fiscal Year
GIS	Geographic Information System
HSIP	Highway Safety Improvement Project
LRTP	Long Range Transportation Plan
MHI	Median Household Income
MP	Milepost
MPO	Metropolitan Planning Organization
MSA	Metropolitan Statistical Area
MSB	Matanuska-Susitna Borough
OS&HP	Official Streets and Highway Plan
RSA	Road Service Area
SASS	Sub-Area Solutions Studies (original name for these studies. Renamed in September 2025 to 'Community Growth Solutions Study')
Study	Community Growth Solutions Study
SCM	Subdivision Construction Manual
SpUD	Special Use District
STIP	Statewide Transportation Improvement Program

1 Introduction

1.1 Project Overview

The Matanuska-Susitna Borough (MSB) Assembly adopted their 2023–2028 Strategic Plan to focus on three key areas:

1. Foster economic growth and diversification within the MSB,
2. Support the delivery of high-quality MSB services, and
3. Help manage growth throughout the MSB.



As part of the implementation of the Strategic Plan, the MSB is developing the Community Growth Solutions Study (hereafter, Study), with the goal of supporting a safe, robust transportation system that can be a catalyst for economic growth and prosperity in the MSB.

A functioning transportation system is more than just a road network. While new or expanded roads can provide short-term solutions to transportation problems, they are most effective when paired with non-infrastructure programs and policies to protect the roadway network over the long term.

This project's purpose is to identify infrastructure and non-infrastructure solutions to transportation needs that address the MSB's Strategic Plan focus areas. Combining infrastructure and non-infrastructure-based transportation solutions can result in better mobility, which can lower business costs, improve freight movement, and provide better employment opportunities. It can also improve quality of life as residents can get places faster using a variety of travel options, making the MSB an even more desirable place people want to live.

The project consists of the following four sub-areas:



1.2 Project Goals

The project's goals are to:

- Identify current and future transportation deficiencies
- Establish purpose and need for proposed solutions
- Prioritize the *Official Streets and Highway Plan* (OS&HP) corridor recommendations

- Promote comprehensive solutions to the MSB's growth-related transportation issues
- Demonstrate the linkage between transportation, land use, and economic development

1.3 Planning Process

The planning process used to develop the study for each sub-area is shown in Figure 1.

Figure 1. Planning Process



Throughout the planning process, the MSB will engage with the public, stakeholders, and partner agencies. This input will guide the development of the study and establish public understanding of the relationship between transportation improvements and their functionality and safety with land use policies, as well as how transportation and land use are important to economic development and investments.

1.4 Study Area

The Knik Goose Bay-Big Lake Sub-Area is located west of Wasilla and is roughly bounded by Vine Road to the east, the Parks Highway to the north, Big Lake Road and South Big Lake Road to the west, and Knik Goose Bay Road to the south (see Figure 2).

The sub-area is composed of portions of the Meadow Lakes, Big Lake, and Knik-Fairview Community Councils as well as the southern portion of the City of Houston. This sub-area is served by the Knik, Meadow Lakes, and Big Lake Road Service Areas (RSAs), with the City of Houston maintaining city-owned roads. The area includes many small lakes, the Lucille Creek and Fish Creek drainages, and several large wetlands. The sub-area is primarily residential, with commercial areas located along the Parks Highway; Big Lake Road, within the Big Lake Town Center; and Knik Goose Bay Road. The Alaska Department of Transportation and Public Facilities (DOT&PF) is preparing a Planning and Environmental Linkage study to locate a southern Parks Highway Alternative Corridor that, if built, will bisect a portion of this sub-area between Hollywood Road and the Parks Highway.

The lack of north-south and east-west connectivity within the sub-area creates an incomplete road network. This lack of connectivity increases local travel time, hampers emergency response, requires using arterials for local trips, and affects safety.

2 Demographics

This section provides a demographic summary to provide context for the existing conditions and anticipated changes in the Knik Goose Bay-Big Lake Sub-Area.

2.1 Population

Figure 3 shows the historical and projected future population of the MSB and Alaska. According to the Alaska Department of Labor and Workforce Development (DOL&WD)¹, the state and MSB grew rapidly from the 1970s through the 2000s. Around 2010, Alaska's population began to stabilize, growing only 3 percent between 2010 and 2022.

Much of Alaska's population growth and decline results from more significant in- and out-migration than in other states. Economic factors such as the volatility of the oil industry and recessions on national and state levels significantly impact the state's population. Readjustment of military personnel to bases in other states has also had notable impacts on Alaska's population.² The DOL&WD's most recent population forecast, published



Overall, the MSB is by far the fastest-growing area in Alaska, resulting in the need for new housing stock; potential increases in traffic congestion; and the need to consider future development patterns and nodes that affect the location, construction, and preservation of new collector and arterial corridors.

in 2021, assumes that slow growth in the state over the 2021 to 2050 horizon will result from an aging population, lower birth rates, and a net out-migration³ of between -0.7 and -0.2 percent.⁴ The rapid growth in the MSB is predicted to be offset by a net decrease in population in Anchorage, population decreases in other Southcentral communities and the Southeast region of the state, and stagnant population numbers in other regions.⁵

By contrast, the MSB population grew 22 percent over the same period. These trends are projected to continue, with the DOL&WD forecasting a 38 percent increase in population within the MSB by 2050, compared with only 4 percent statewide.⁶ The MSB is growing much faster than the Anchorage Metropolitan Statistical Area (MSA), of which the MSB is

¹ DOL&WD, Alaska Population Estimates, 2021, <https://live.laborstats.alaska.gov/pop/index.cfm>

² DOL&WD, Alaska Population Overview: 2019 Estimates, December 2020

³ Net out-migration refers to the difference between the number of people moving from an area compared to those moving to the area. Net outmigration means that more people are expected to move out of Alaska than into the state.

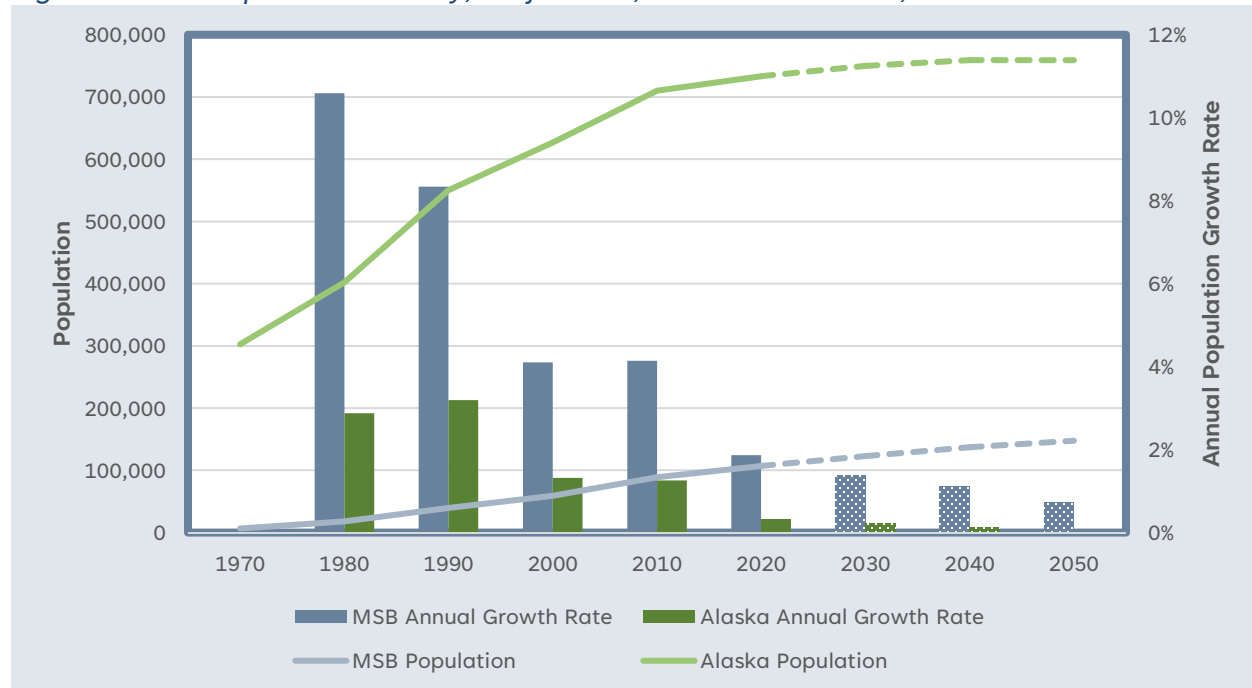
⁴ DOL&WD, Alaska Population Estimates, 2021, <https://live.laborstats.alaska.gov/pop/index.cfm>

⁵ DOL&WD, Alaska Population Projections: 2021 to 2050, June 2022

⁶ DOL&WD, Alaska Population Estimates, 2021, <https://live.laborstats.alaska.gov/pop/index.cfm>

a part; the Anchorage MSA is expected to see a 4 percent decrease in population by 2050. More than half of the MSB's new residents are in-migrants from within Alaska, mostly from Anchorage. The MSB is one of only two regions in Alaska that has experienced net positive in-migration in the past 20 years. Families with children are particularly prominent in the demographic breakdown of residents moving from Anchorage to the MSB. Overall, this migration from other areas of the state is the main reason for the MSB's recent and continuing population growth.⁷ The MSB Core Area is experiencing the majority of this growth.

Figure 3. MSB Population History, Projections, and Growth Rates, 1970–2050



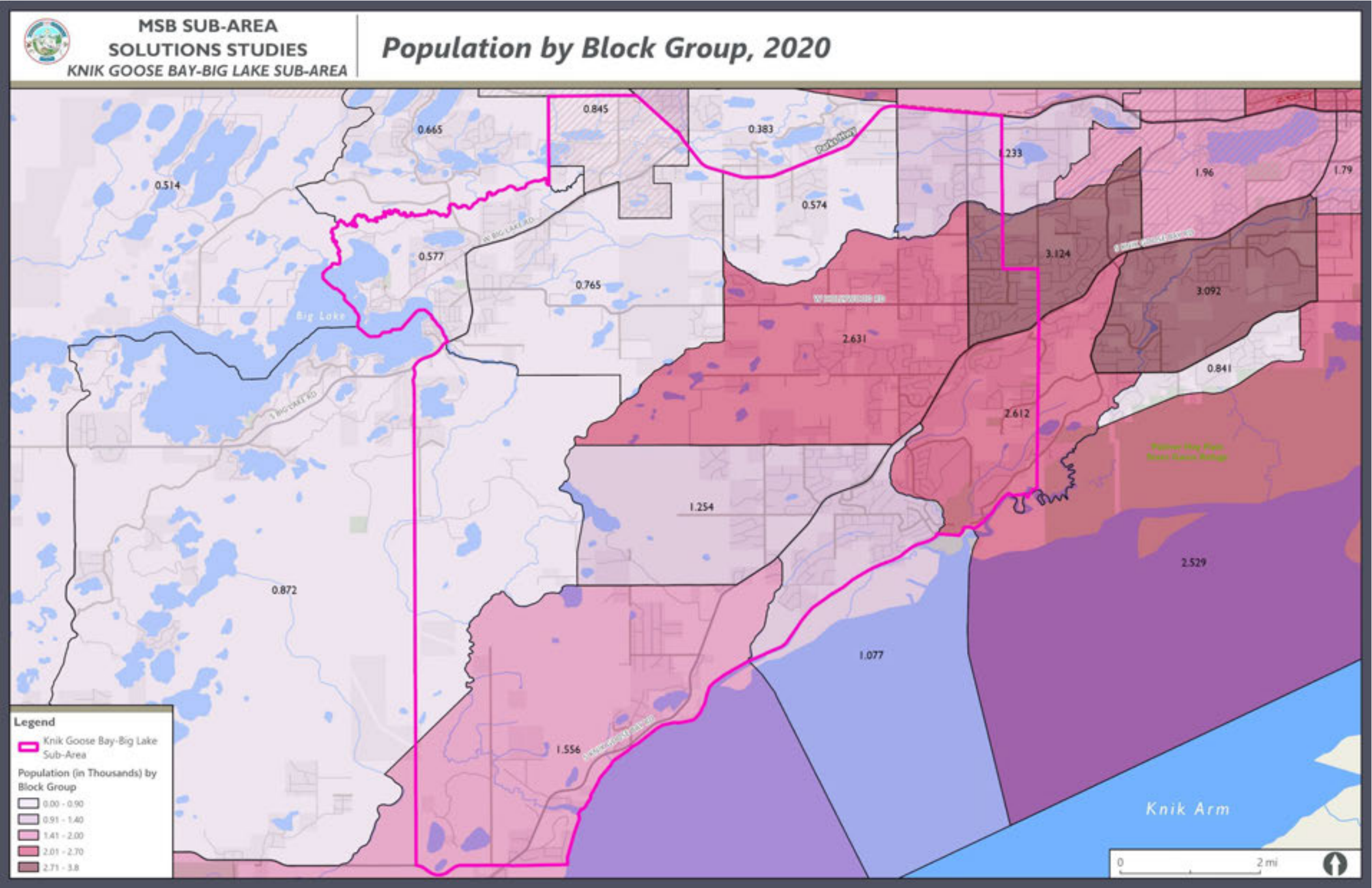
Source: DOL&WD, Alaska Population Estimates, 2021, <https://live.laborstats.alaska.gov/pop/index.cfm>

This rapid population increase affects many aspects of life in the MSB that are discussed throughout this report, including housing prices, residential and commercial development and real estate, traffic, transportation infrastructure and connectivity, school capacity, commuting patterns, and the regional economy.

In 2020, the Knik Goose Bay-Big Lake Sub-Area had a population of 12,051, which was approximately 11.2 percent of the MSB's total population.⁸ Figure 4 shows the population distribution within the sub-area.

⁸ American Community Survey, 5-year Estimates, 2020, via ESRI's ACS Population Summary, 2022

Figure 4. Population by Block Group, 2020



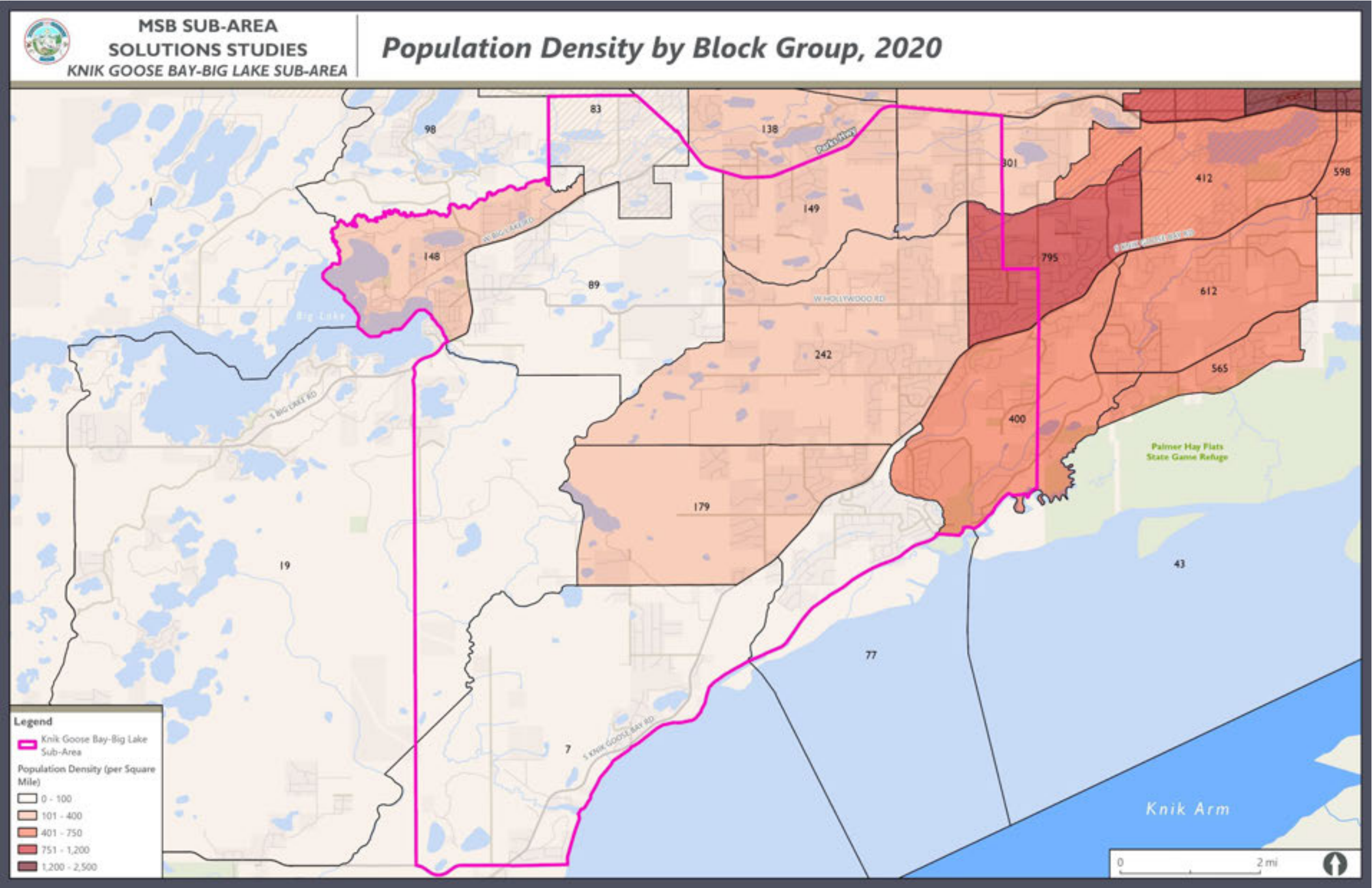
Source: American Community Survey, 2016–2020 5-year Estimates Summary

2.2 Population Density

The average population density in the Knik Goose Bay-Big Lake Sub-Area is 171 people per square mile⁹, which is below the U.S. Census definition of an urbanized area (1,000 people per square mile) and urban fringe areas (500 people per square mile). This is due, in part, to the large size of the sub-area, its rural nature, and the large quantity of undevelopable land. The population density in the sub-area is shown in Figure 5.

⁹ American Community Survey 5-year estimates, 2020, via ESRI's ACS Population Summary, 2022

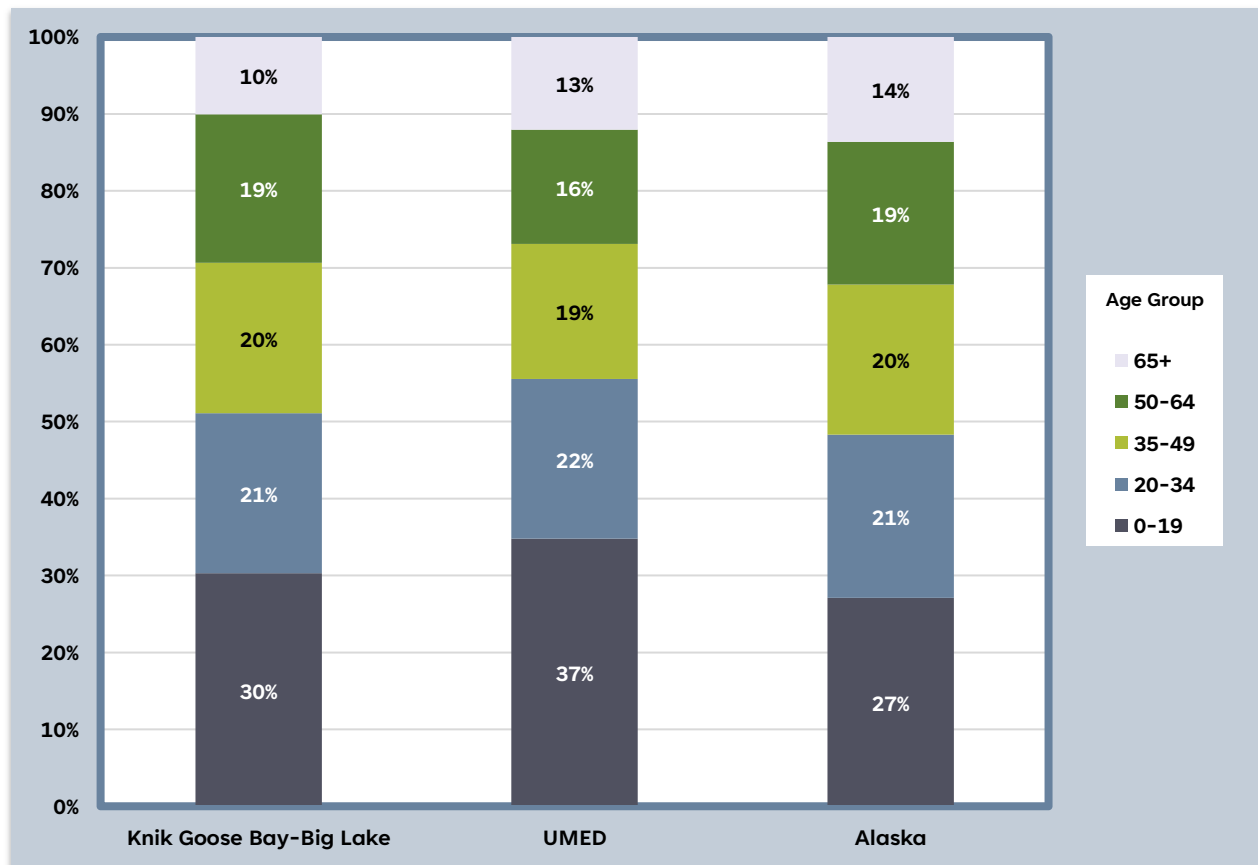
Figure 5. Population Density by Block Group, 2020



2.3 Age

As shown in Figure 6, Knik Goose Bay-Big Lake Sub-Area residents are similar in age to those in Alaska as a whole and are somewhat older than residents of the MSB. In particular, the sub-area has a larger share (19 percent) of residents between ages 50 and 64 compared with 16 percent in the MSB, and 30 percent of sub-area residents are under age 19, compared to 37 percent MSB-wide. This may reflect the sub-area's rural nature and the lack of schools compared with the other sub-areas studied in this project.

Figure 6. Age of Knik Goose Bay-Big Lake Sub-Area Residents with Regional Comparison, 2020



Source: American Community Survey, 2016–2020 5-year Estimates; DOL&WD, Alaska Population by Age and Sex, 2010, 2020 to 2021, 2021, <https://live.laborstats.alaska.gov/pop/estimates/data/AgeBySexAK.xls>

According to the 2020 American Community Survey¹⁰, the average household size within the Knik Goose Bay-Big Lake Sub-Area is 2.69 people per household. This is slightly less than the MSB, though similar to the statewide average of 2.7 people per household. Approximately 74 percent of the households in the Knik Goose Bay-Big Lake Sub-Area are

¹⁰ American Community Survey 5-year estimates, 2020, via ESRI's ACS Population Summary, 2022

family households¹¹, compared with 71 percent within the MSB overall and 65 percent statewide. In the Knik Goose Bay-Big Lake Sub-Area, 42 percent of households have children under 18, slightly higher than the 35 percent within the MSB and 34 percent statewide. This shows the continued demand for schools within the sub-area as well as considerations for road safety and connectivity, particularly for children who are too young to drive.

2.4 Race/Ethnicity

The Knik Goose Bay-Big Lake Sub-Area is similar in racial and ethnic composition to the MSB, though less diverse than reported statewide, as shown in Figure 7. The 2020 American Community Survey¹² reported that 80 percent of the sub-area's population identified as white, 8 percent as two or more races, 8 percent as Alaska Native or American Indian, 4 percent as Hispanic Origin, 2 percent as Asian, and 1 percent as Black or African American. MSB-wide, the 2020 American Community Survey¹³ reported that 79 percent of residents identified as white, 6 percent as Alaska Native or American Indian, and 8 percent as two or more races. Statewide, the 2020 American Community Survey¹⁴ reported that 60 percent of residents identified as white; 14 percent as Alaska Native or American Indian, approximately twice the share of the MSB population; and 7 percent as two or more races.

Figure 8 shows the geographic distribution of minority populations in the Knik Goose Bay-Big Lake Sub-Area. A considerably higher concentration of minority populations occurs in the southeastern part of the sub-area; overall, there is a large difference between census block groups, with a range from around 9 to nearly 30 percent.

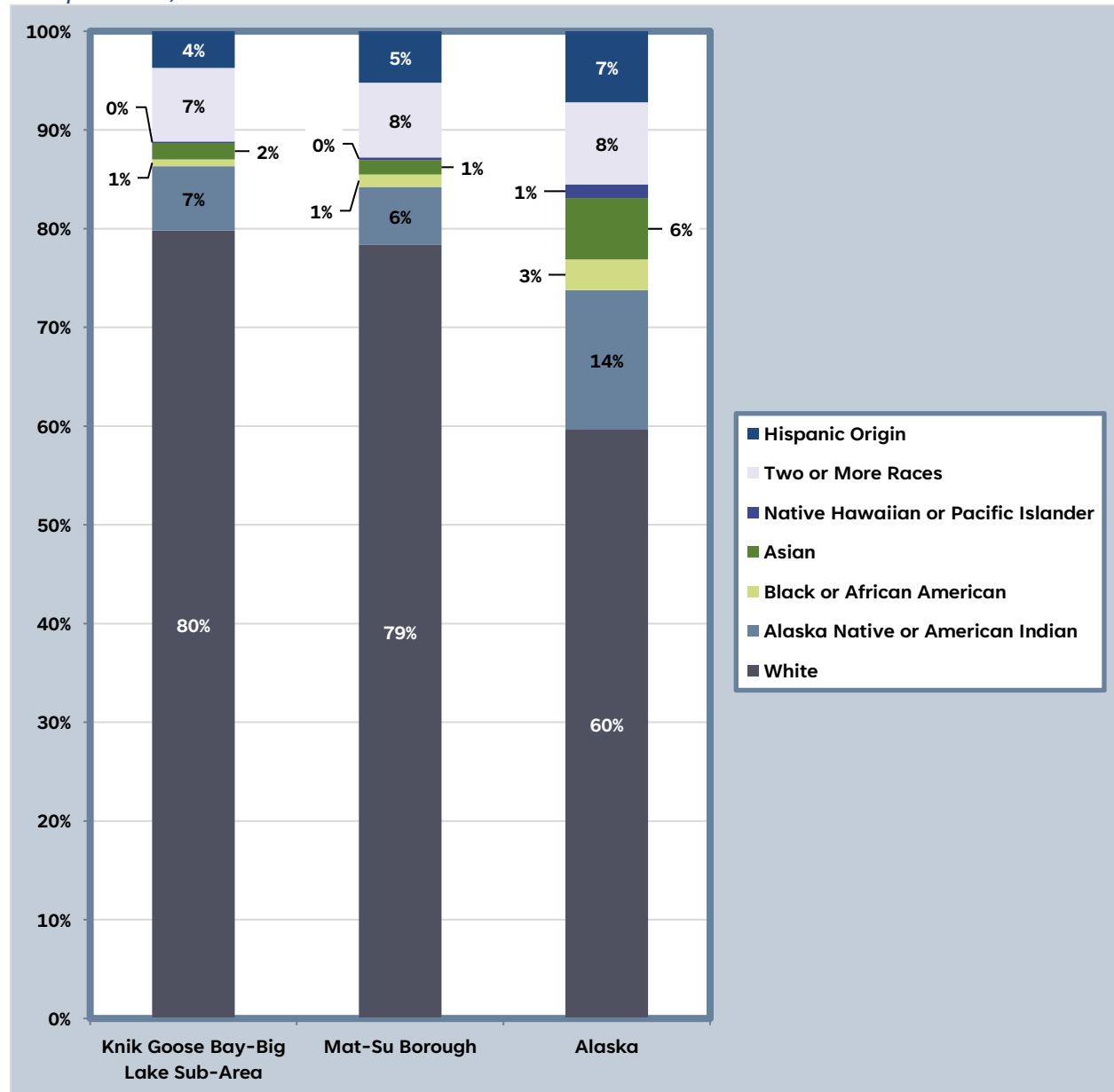
¹¹ A family household refers to a household that is composed of a family (i.e., a group of two or more people related by birth, marriage, or adoption and residing together). It includes any unrelated people who may be residing there.

¹² American Community Survey 5-year estimates, 2020, via ESRI's ACS Population Summary, 2022

¹³ American Community Survey 5-year estimates, 2020, via ESRI's ACS Population Summary, 2022

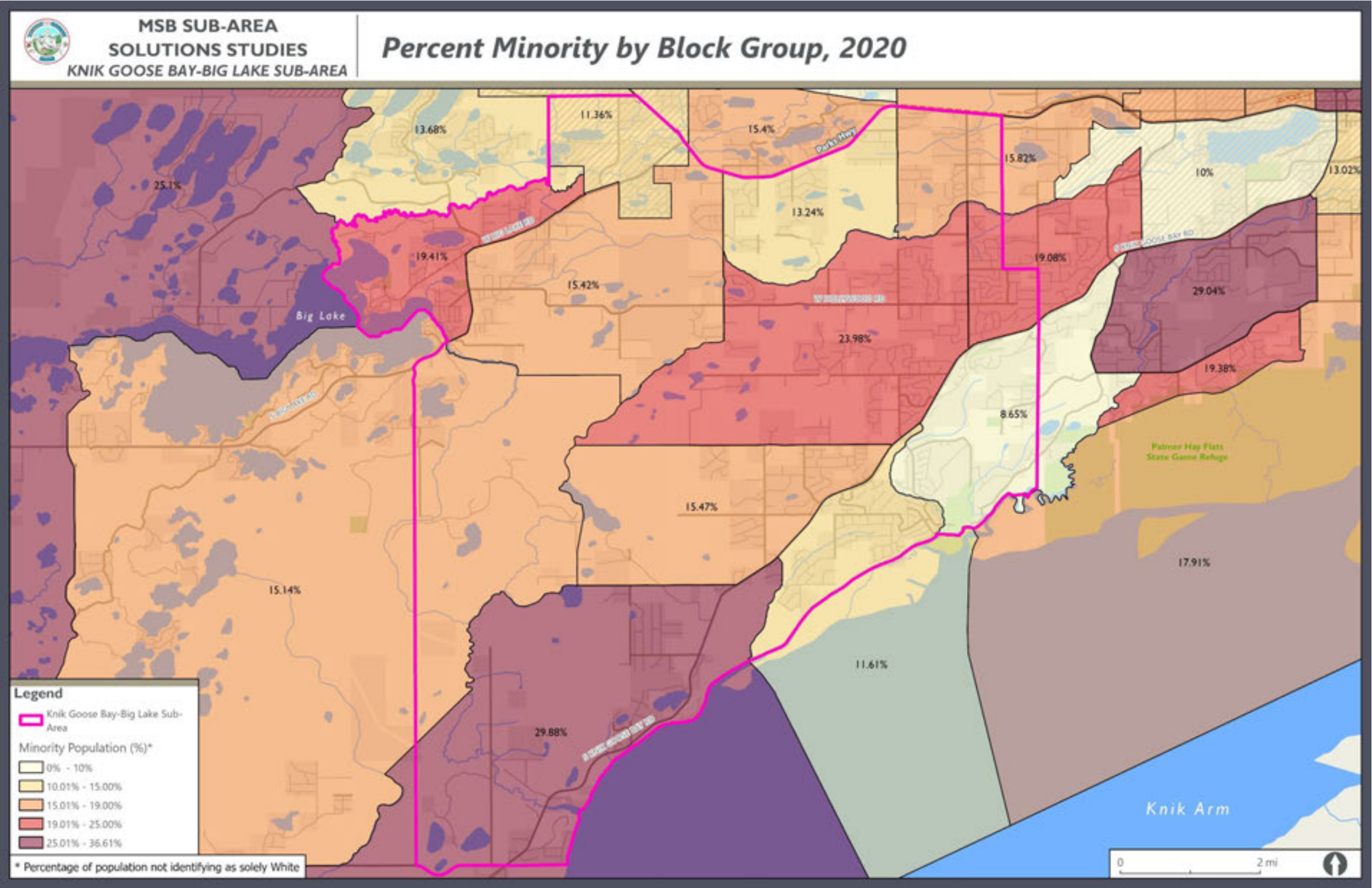
¹⁴ American Community Survey 5-year estimates, 2020, via ESRI's ACS Population Summary, 2022

Figure 7. Race and Ethnicity in the Knik Goose Bay-Big Lake Sub-Area with Regional Comparisons, 2020



Source: DOL&WD, Alaska Population by Race and Hispanic Origin, 2020 to 2021, 2021, <https://live.laborstats.alaska.gov/pop/estimates/data/RaceHispAK.xls>; American Community Survey 5-Year Estimates, 2020

Figure 8. Percent Minority, 2020

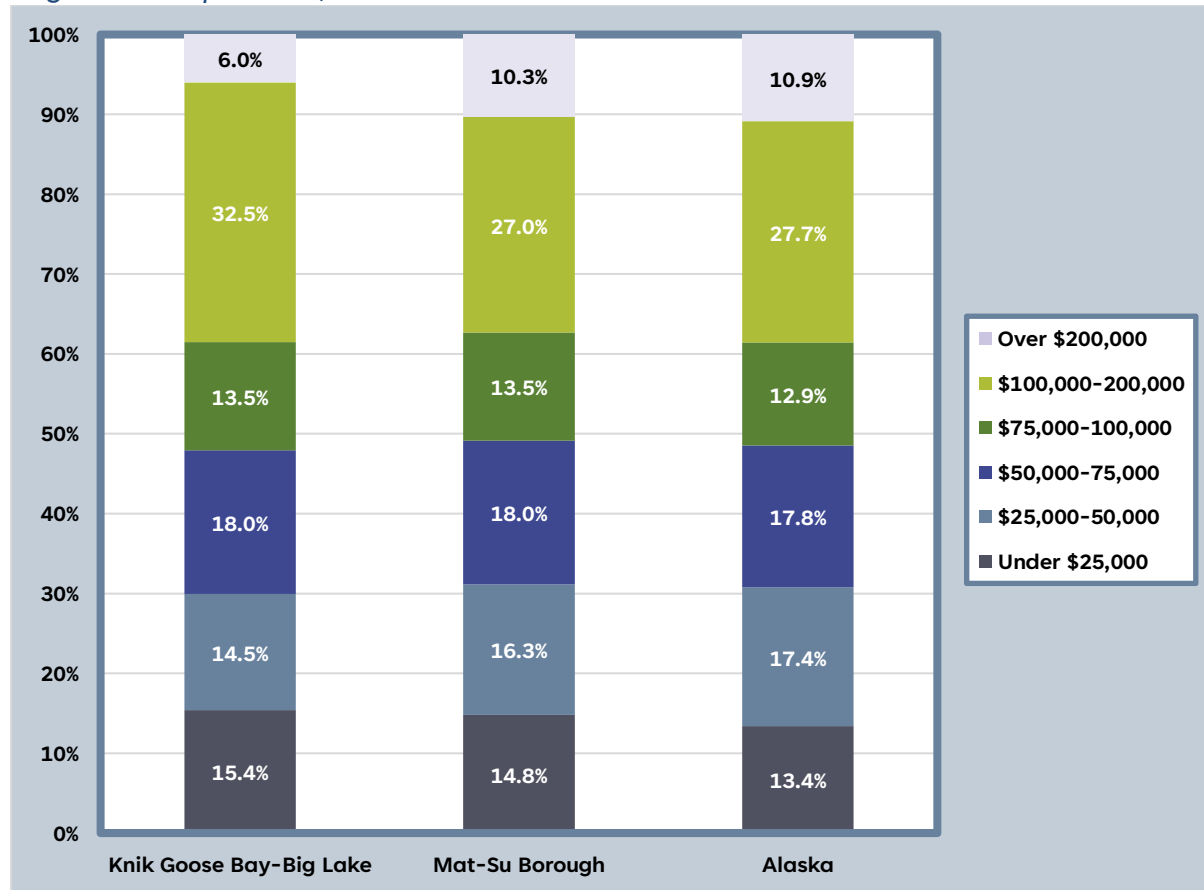


Source: American Community Survey, 2016–2020 5-year Estimates Summary

2.5 Median Household Income

In 2022, ESRI¹⁵ reports that the Knik Goose Bay-Big Lake Sub-Area has a Median Household Income (MHI) of \$77,990. This is similar to both the MSB's MHI of \$76,316 and the statewide MHI of \$77,141. When broken down by income bracket, as shown in Figure 9, households in the sub-area are relatively similar to MSB and state averages, with a slightly higher share of households earning between \$100,000 and \$200,000.

Figure 9. Household Income Distribution in the Knik Goose Bay-Big Lake Sub-Area with Regional Comparisons, 2022



Source: ESRI Market Profiles for Knik Goose Bay-Big Lake Sub-Area, MSB, State of Alaska, 2022

¹⁵ A leading provider of Geographic Information Systems (GIS) software and datasets, ESRI uses Census, U.S. Post Office, and other data to create population and economic estimates across the United States.

3 Land Use Plans

This section summarizes the land use plans that cover the Knik Goose Bay-Big Lake Sub-Area.

3.1 Boroughwide Comprehensive Plan

The *Matanuska-Susitna Borough Comprehensive Development Plan*¹⁶ provides general goals and policy recommendations to guide the MSB's future development in a manner that improves quality of life, public health, safety, and welfare. Implementation of the plan is done in many ways, including Title 17 Zoning Ordinances, which include the ability to establish Special Use Districts (SpUDs), subdivision regulations, capital improvement programs, specific ordinances, and general policy. The plan is updated whenever a community comprehensive plan, lake management plan, regional plan, asset plan, or other specialty plan is adopted by the MSB Assembly.

3.2 Big Lake Comprehensive Plan

The 2009 *Big Lake Community Council Area Comprehensive Plan Update*¹⁷ establishes multiple goals to address future development within the community. The Land Use, Open Space, Transportation, and Economic Goals reflect the community's desire to protect what makes Big Lake a desirable place to live while providing economic opportunities that create jobs that support and enhance the natural and recreation attributes of the Big Lake area. Main themes of the plan are to create a sense of place by establishing a vibrant, walkable Town Center; establish a dedicated trail system; develop a safe and efficient road system; provide road access to isolated subdivisions; improve the Big Lake Airport; build local capacity; market Big Lake; and protect Big Lake for future generations.

3.3 City of Houston Comprehensive Plan

The 2017 *City of Houston Comprehensive Plan*¹⁸ provided a framework to guide future growth and development. The plan recommended 11 land use districts to be implemented by the City of Houston's Title 10 Land Use Regulations. It identified several transportation objectives relating to local road connectivity, collector network development, access management, and Parks Highway importance. It also supported industrial development related to gravel operations and the completion of the Port MacKenzie Rail Extension

¹⁶ MSB, *Matanuska-Susitna Borough Comprehensive Development Plan*, <https://matsugov.us/plans/borough-wide-comprehensive-plan>

¹⁷ MSB and Agnew::Beck Consulting, *Big Lake Community Council Area Comprehensive Plan Update*, August 2009, <https://matsugov.us/plans/big-lake-comprehensive-plan>

¹⁸ MSB, *City of Houston Comprehensive Plan*, February 2017, [https://www.houstonak.com/vertical/sites/%7B31F8C92D-033A-4BBC-ADE0-01A4F0F270C3%7D/uploads/City_of_Houston_Comprehensive_Plan_Final_Web\(1\).pdf](https://www.houstonak.com/vertical/sites/%7B31F8C92D-033A-4BBC-ADE0-01A4F0F270C3%7D/uploads/City_of_Houston_Comprehensive_Plan_Final_Web(1).pdf)

project as an important economic generator. Within the Knik Goose Bay-Big Lake Sub-Area, it created a commercial district around the Parks Highway/Big Lake Road intersection, recognizing the regional importance of this location as a commercial center.

3.4 Knik Fairview Comprehensive Plan

The 1997 *Knik-Fairview Comprehensive Plan*¹⁹ represents a vision of the community's desire to foster economic development, improve transportation, manage land use, and provide community services. The plan sought to:

1. Encourage orderly growth and development;
2. Maintain low-density residential settlement patterns;
3. Recognize the importance of a dog mushing region in the south Knik area;
4. Maintain high-quality air and water;
5. Recognize the importance of the Palmer Hay Flats State Game Refuge as an educational facility and to fish and wildlife resources;
6. Develop of a safe and efficient transportation network for vehicular and pedestrian traffic;
7. Establish more access connecting the area to the main transportation corridors;
8. Protect and preserve historic and recreational trails; and
9. Provide for a high level of service in the areas of public health, safety, general welfare, education, cultural facilities, recreation, and utilities.

3.5 Meadow Lakes Community Comprehensive Plan

The 2005 *Meadow Lakes Comprehensive Plan*²⁰ goals represented the community's vision to:

1. Maintain its rural character,
2. Establish a pedestrian-friendly environment,
3. Create a mixed-use town center,
4. Concentrate and screen commercial developments along the Parks Highway,
5. Maintain green space,
6. Establish land use districts, and
7. Retain and improve its trail system.

¹⁹ MSB, *Knik-Fairview Comprehensive Plan*, May 1997, <https://matsugov.us/plans/knik-fairview-comprehensive-plan>

²⁰ MSB, Agnew::Beck Consulting, LLC, and Land Design North, *Meadow Lakes Comprehensive Plan*, October 2005, <https://matsugov.us/plans/meadow-lakes-comprehensive-plan>

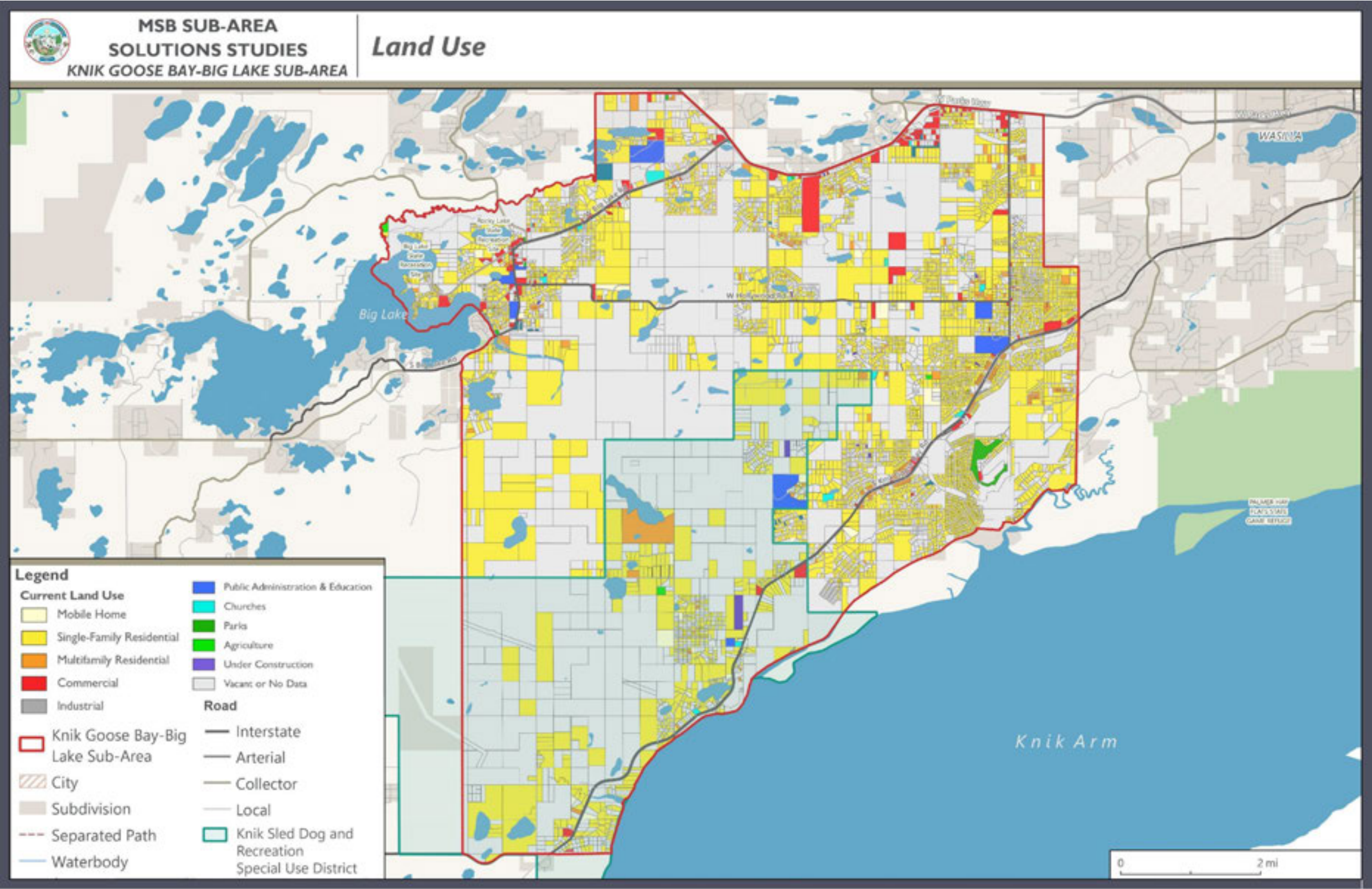
4 Existing Land Use

Single family residential is the primary land use within the Knik Goose Bay-Big Lake Sub-Area. Multifamily residential units are concentrated along Knik Goose Bay Road, but additional units occur at various locations throughout the sub-area (note, the Girl Scouts camp bordering Three Mile Lake is identified as a large multifamily area). Commercial development occurs along the Parks Highway, Knik Goose Bay Road, Vine Road, Big Lake Road, and in Big Lake's Town Center. Major industrial gravel operations occur on the northern side of the Parks Highway. Agricultural activities are limited to a few small-scale operations scattered within the sub-area. Open space is primarily composed of large wetlands areas, with small State Park facilities providing access to Big Lake, Rocky Lake, and MSB's Fish Creek Park as well as a nature trail located at the Big Lake Library and Community Center. MSB Code Title Chapter 17.20 established the Knik Sled Dog and Recreation Special Land Use District along the southern end of Knik Goose Bay Road.

Figure 10 shows the current land use within the sub-area.

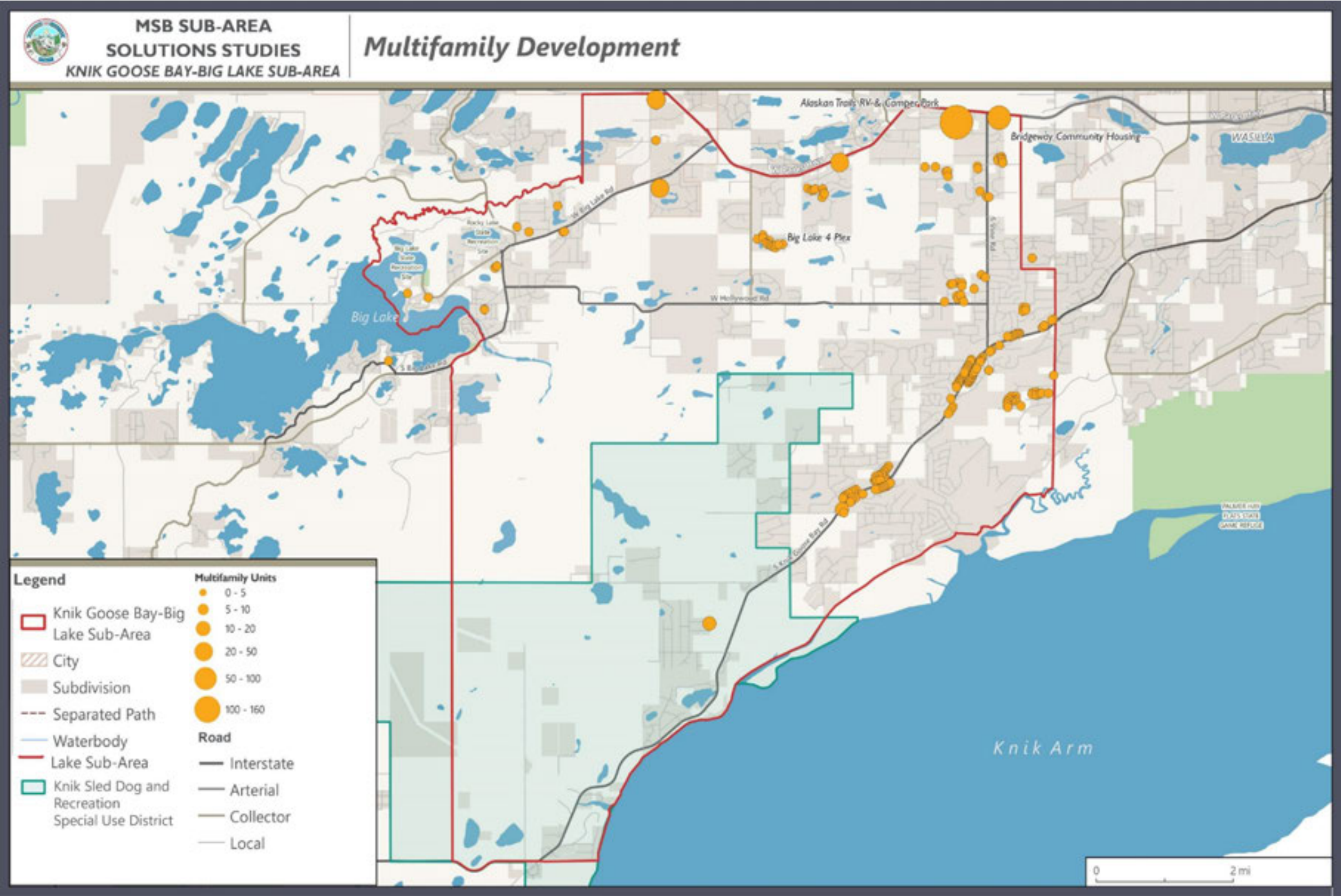
Figure 11, Figure 12, and Figure 13 show the location of multifamily residential; office, retail, and hospitality; and community facilities, respectively.

Figure 10. Current Land Use within the Knik Goose Bay-Big Lake Sub-Area, 2022



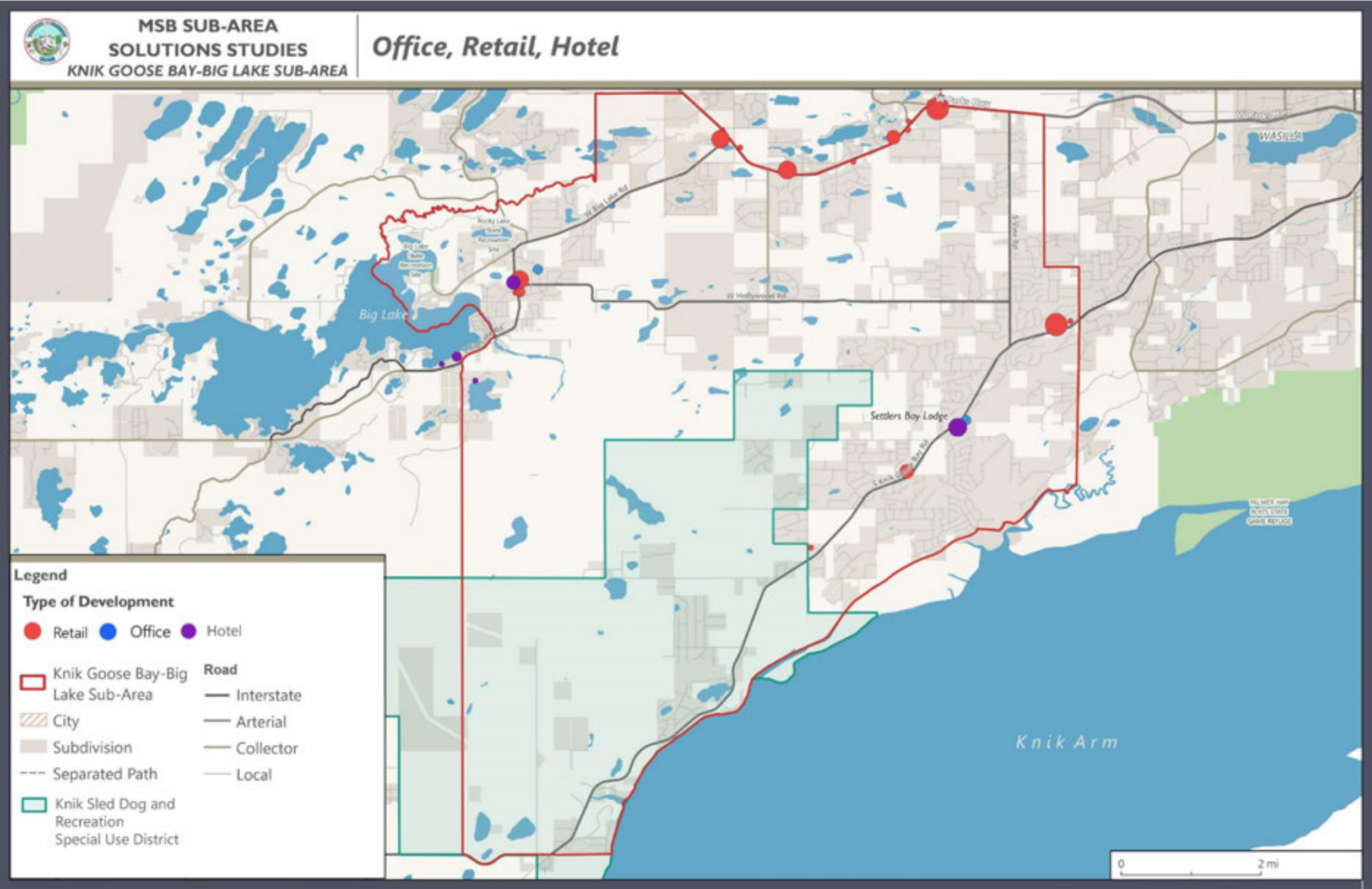
Source: MSB Assessor Data, 2022

Figure 11. Multifamily Units within the Knik Goose Bay-Big Lake Sub-Area, 2022



Source: Costar, Leland Consulting Group, 2022

Figure 12. Office, Retail, and Hotel Development within the Knik Goose Bay-Big Lake Sub-Area, 2022



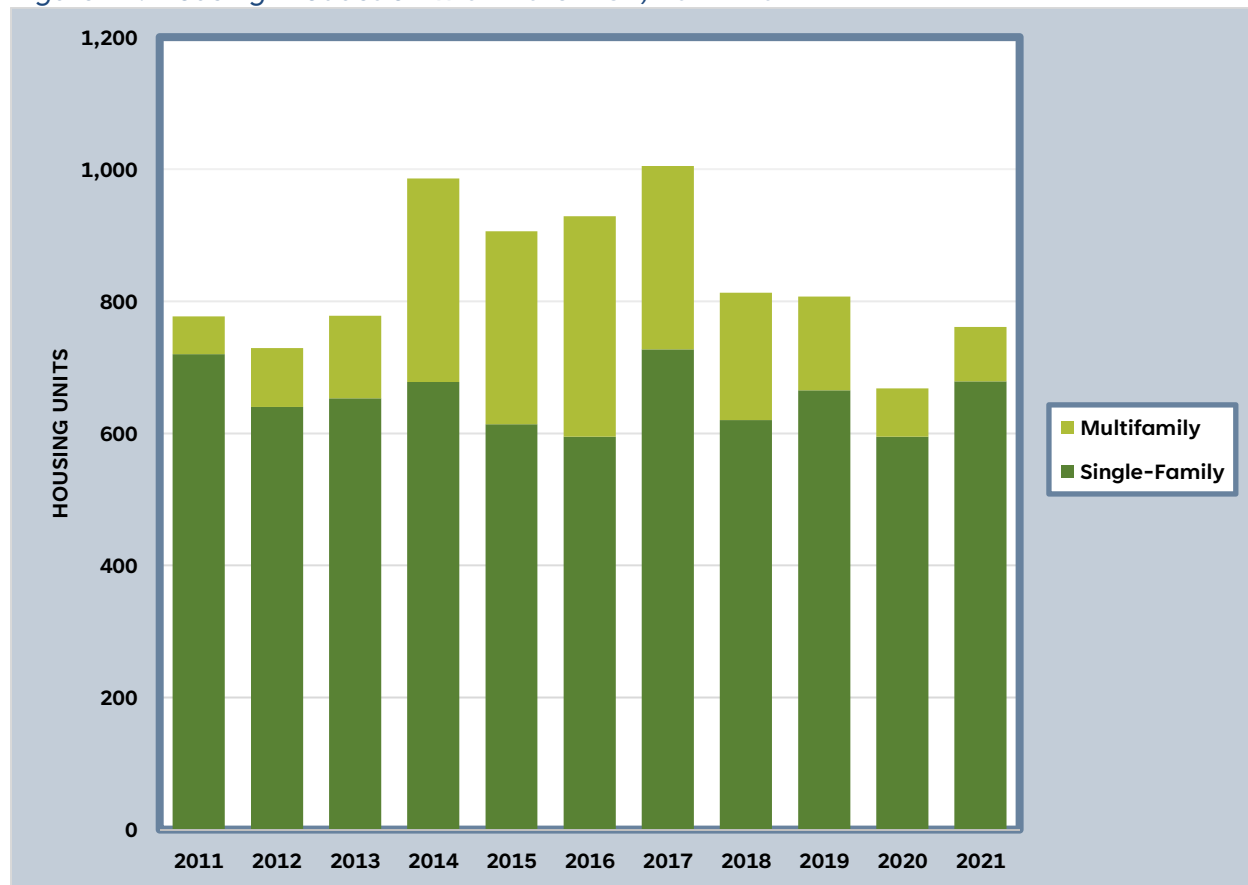
Source: Costar, Leland Consulting Group, 2022

5 Future Land Use

5.1 Housing Growth

The MSB has seen a large amount of housing development over the last decade to serve the influx of new residents, as shown in Figure 14. Although most of the development has been single-family homes on large lots, some multifamily construction has also occurred, primarily duplexes, fourplexes, and some apartment complexes.

Figure 14. Housing Production within the MSB, 2011–2021

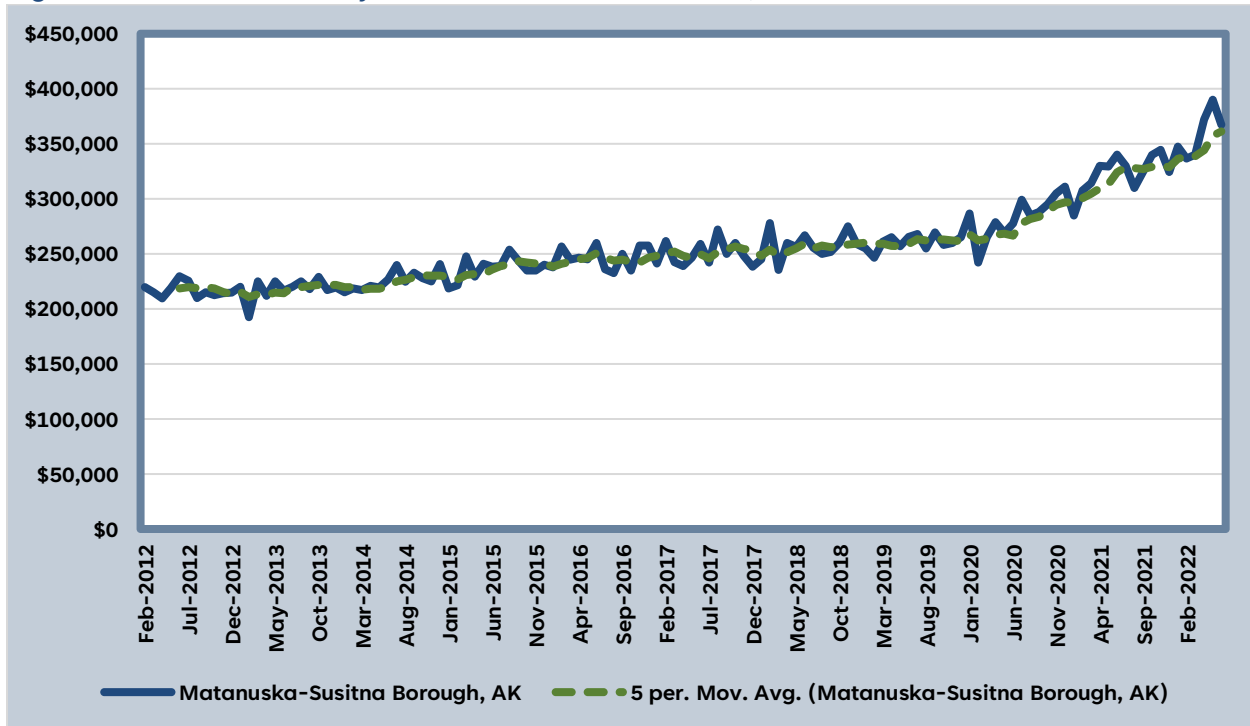


Source: DOL&WD, Department of Labor Research and Analysis, Alaska New Housing Units, 2022, <https://live.laborstats.alaska.gov/housing/new.html>

Even with this significant amount of housing production, there has been increasing pressure on the housing market within the MSB. Housing prices have been rising consistently since 2012, and the rate of increase has been larger since the onset of the COVID-19 pandemic in 2020, as shown in Figure 15. Despite these increases, the DOL&WD reports that housing affordability in the MSB has remained relatively consistent since

2019, based on the Alaska Affordability Index, a ratio of household income to housing costs used to track housing affordability in the state.²¹

Figure 15. Median Monthly Sales Price within the MSB, 2012–2022

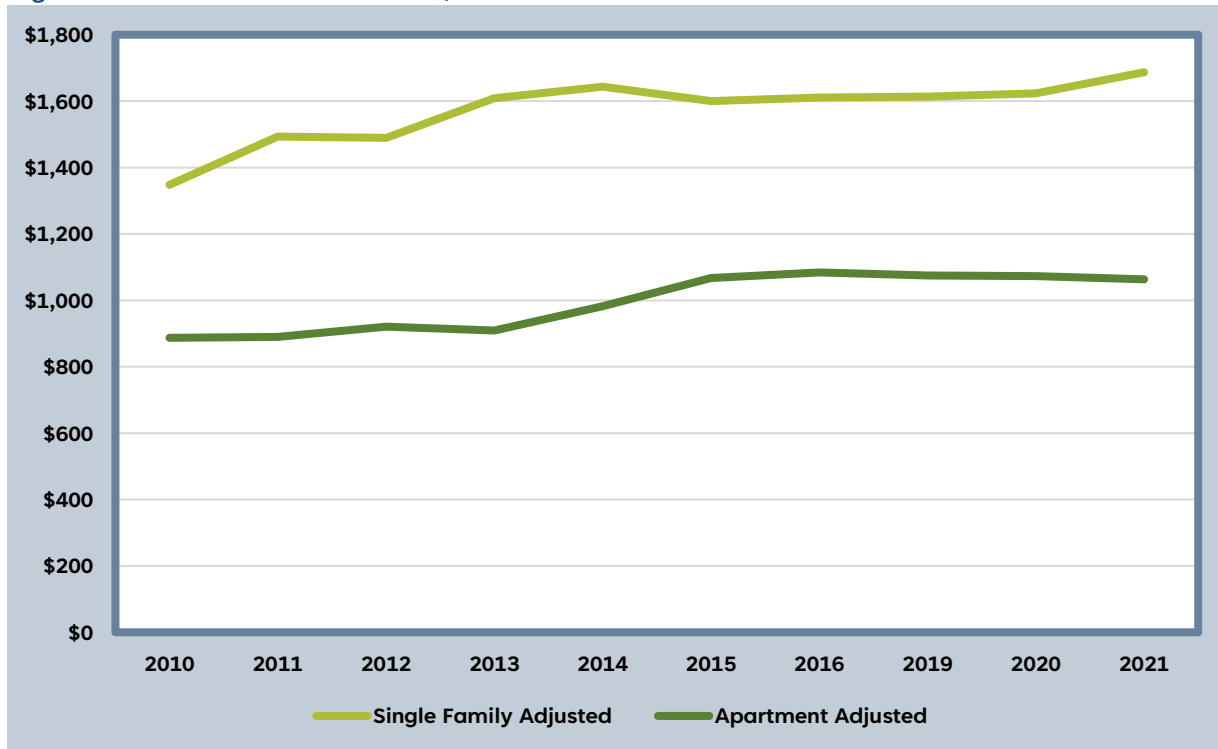


Source: Redfin Monthly Downloadable Housing Market Data, 2022, <https://www.redfin.com/news/data-center/>

The DOL&WD reports that rents within the MSB have remained relatively consistent since 2015; however, rents for single-family homes have increased recently, as shown in Figure 16.

²¹ Kreiger, Rob, Housing market tightens further, *Alaska Economic Trends*, June 2022

Figure 16. Rents within the MSB, 2010–2021



Source: DOL&WD, Department of Labor Research and Analysis, *Alaska Rental Costs and Vacancy Rates, All Units, Selected Areas, 2010–2021, 2022*, <https://live.laborstats.alaska.gov/housing/rentall.html>

Note: Rents have been adjusted for utility costs.



Overall, the rapidly escalating housing costs seen nationally in recent years have been more muted in the MSB, but recent increases in housing costs and community concerns heard during interviews by the Study project team in July 2022 suggest increasing pressure on the housing market in the MSB. *Alaska Economic Trends* reports that “Anchorage wages were 32 percent higher than Mat-Su in 2021 while

Mat-Su’s average home price was 18 percent lower.”²² This creates strong market pressure for Anchorage workers to move to the MSB, where they can buy larger homes on more land than they can in Anchorage but still be within a reasonable commuting distance. As long as this dynamic remains, demand for housing within the MSB will remain high, and a sustained level of housing production will be required to meet the needs of the population without a significant increase in housing cost. If housing costs increase significantly in the coming decades, this may deter potential new residents drawn to the lower costs of living within the MSB. The MSB is also attractive to families who work remotely in the oil, mining, and fishing industries as well as those who enjoy the MSB’s quality of life.

²² Kreiger, Rob, Housing market tightens further, *Alaska Economic Trends*, June 2022

5.2 Retail, Industrial, and Office Space

Even before the COVID-19 pandemic, online shopping caused significant declines in brick and mortar retail nationally and within Alaska, with the loss of approximately 2,000 jobs statewide between 2015 and 2019. The pandemic accelerated this trend nationally and statewide, with a 7.3 percent decrease in retail jobs in Alaska from 2019 to 2020.

However, the MSB was an outlier, adding 187 retail jobs in 2020 due to the growing population throughout 2020, the lack of store closures, and the propensity for MSB residents to spend more retail dollars closer to home since fewer were commuting to Anchorage.²³ With increasing population and the potential to work from home, more retail development seems likely in the coming years within the MSB. CoStar, a national provider of commercial real estate data, reports that retail vacancies have dropped and rents have increased within the MSB between 2021 and 2022.²⁴ Interviews of developers, realtors, and public officials by the Study project team in July 2022 confirmed recent and planned retail developments within the MSB, particularly in small strip centers with good visibility and convenient access to major roadways.

Warehousing, which has seen significant increases since the onset of the COVID-19 pandemic nationally, is a strong sector in the Municipality of Anchorage due to the importance of the Ted Stevens Anchorage International Airport as a regional hub for freight transportation. CoStar reports that the majority of industrial buildings in the MSB are warehouses, and demand for warehouse space has been relatively high in 2021 and 2022.²⁵

In addition to warehousing, gravel mining is a common industrial use throughout the MSB. The Matanuska Electrical Corporation reports that gravel pits are one of the largest users of electricity in the region.²⁶ Many of these gravel pits are converted into development sites when exhausted and transition to retail or residential uses over time.

The future of office development has been thrown into question following the rise of remote work during the COVID-19 pandemic. Many MSB residents commuted to Anchorage prior to the pandemic, and the opportunity to reduce commute time through long-term hybrid or remote work presents a unique opportunity for the region. The future of office use and remote work is multifaceted. Even as more employees shift to permanent hybrid arrangements, there remains a demand for flexible office space as companies and employees negotiate the optimal balance between in-person

²³ Fried, Neal, Retail faces a trio of pressures, *Alaska Economic Trends*, April 2021

²⁴ Costar, *Mat-Su Business Region Retail Submarket Report*, August 2022

²⁵ Costar, *Mat-Su Business Region Industrial Submarket Report*, August 2022

²⁶ Personal communication with John Sinclair, Matanuska Electric Corporation, July 2022

collaboration and flexibility.²⁷ Conversations with stakeholders by the Study project team in July 2022 confirmed a variety of views on the future of hybrid work, but one theme that emerged was the desirability of Anchorage businesses employing large numbers of MSB residents to open small, flexible, satellite offices within the MSB to facilitate hybrid work without long commutes.

5.3 Development Nodes



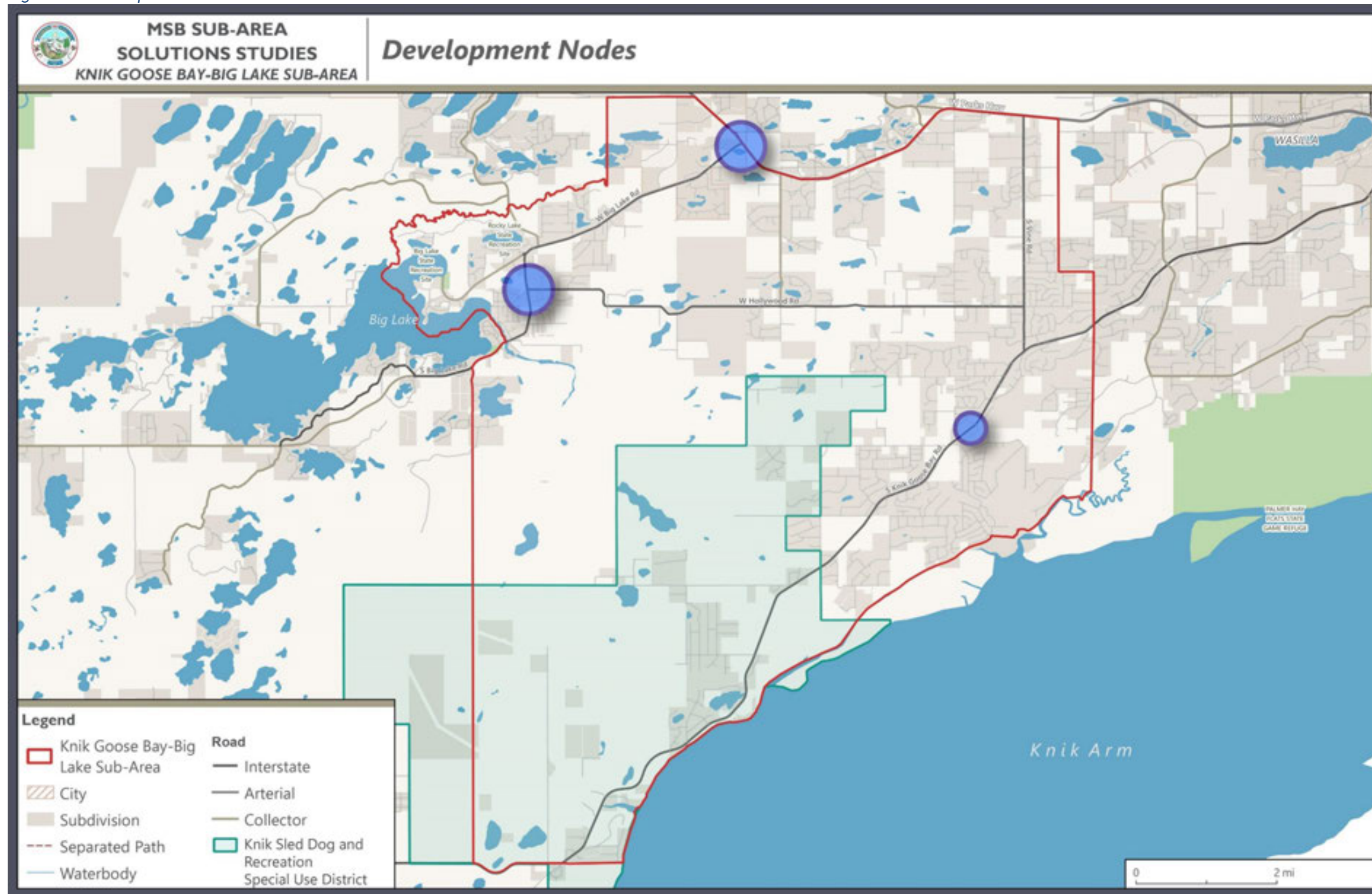
Within the MSB, current and likely future developments are clustered within a number of important intersection areas. Within the Knik Goose Bay Road-Big Lake Sub-Area, there are several nodes (Figure 17) that were identified by stakeholders interviewed by the Study project team in summer 2022. The Big Lake Town Center area at the Hollywood Road/Big Lake Road intersection contains a Three Bears supermarket, gas station, lodging, and retail and food establishments. This area was also identified as a town center area in the *Big Lake Community Council Area Comprehensive Plan Update*²⁸.

Additionally, two other intersection areas were identified. The Big Lake Road/Parks Highway intersection area currently contains an automotive parts store and church, but it was identified as a potential location for more commercial development in the future, particularly to serve residents of Houston and farther east along the Parks Highway who would wish to avoid traveling all the way to Wasilla to shop. Finally, the Knik Goose Bay Road/Settlers Bay Drive intersection area contains a lodge, store, gas station, and other small businesses and represents a potential commercial node for the notable amount of new residential development within the area.

²⁷ Cushman & Wakefield, Office of the Future Revisited, 2022

²⁸ MSB and Agnew::Beck Consulting, *Big Lake Community Council Area Comprehensive Plan Update*, August 2009, <https://matsugov.us/plans/big-lake-comprehensive-plan>

Figure 17. Development Nodes



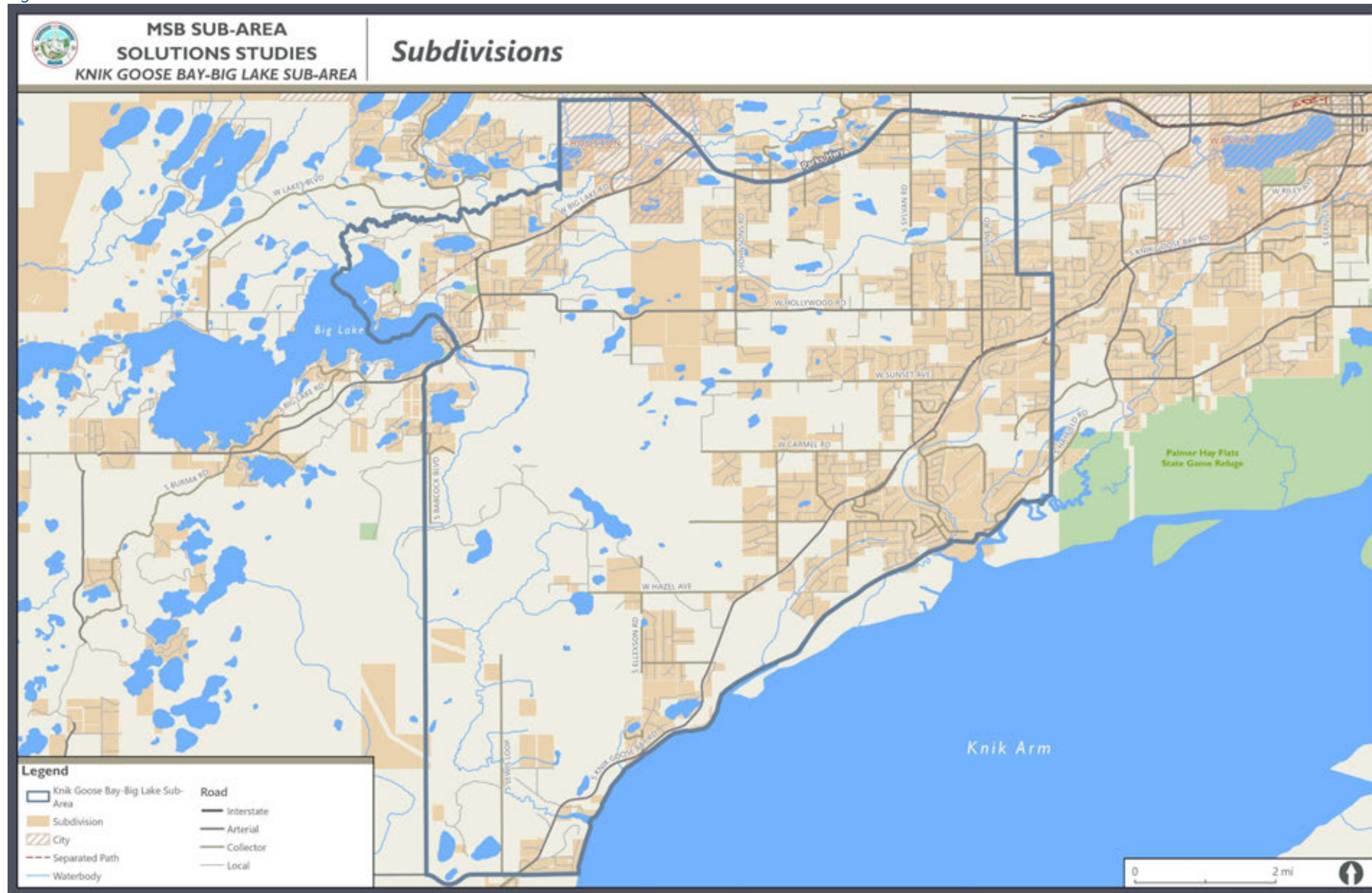
Source: Leland Consulting Group, 2022

6 Subdivisions

A subdivision refers to a tract of land that has been divided into lots. The subdivisions in the Knik Goose Bay-Big Lake Sub-Area are shown in Figure 18. This process is governed by the MSB Title 43 Subdivision Code. For additional information about this code, please see Appendix A.



Subdivision access and inter-connectivity are concerns. Many subdivisions have only one access point, which hinders evacuations or public safety responses during an emergency. Adjacent subdivisions often are not connected by local or collector roads, requiring people exiting their subdivision to use an arterial to travel a short distance or many miles to visit an adjacent subdivision. Developing a more complete collector road network will improve connectivity and enhance the overall road system.



7 Property Value

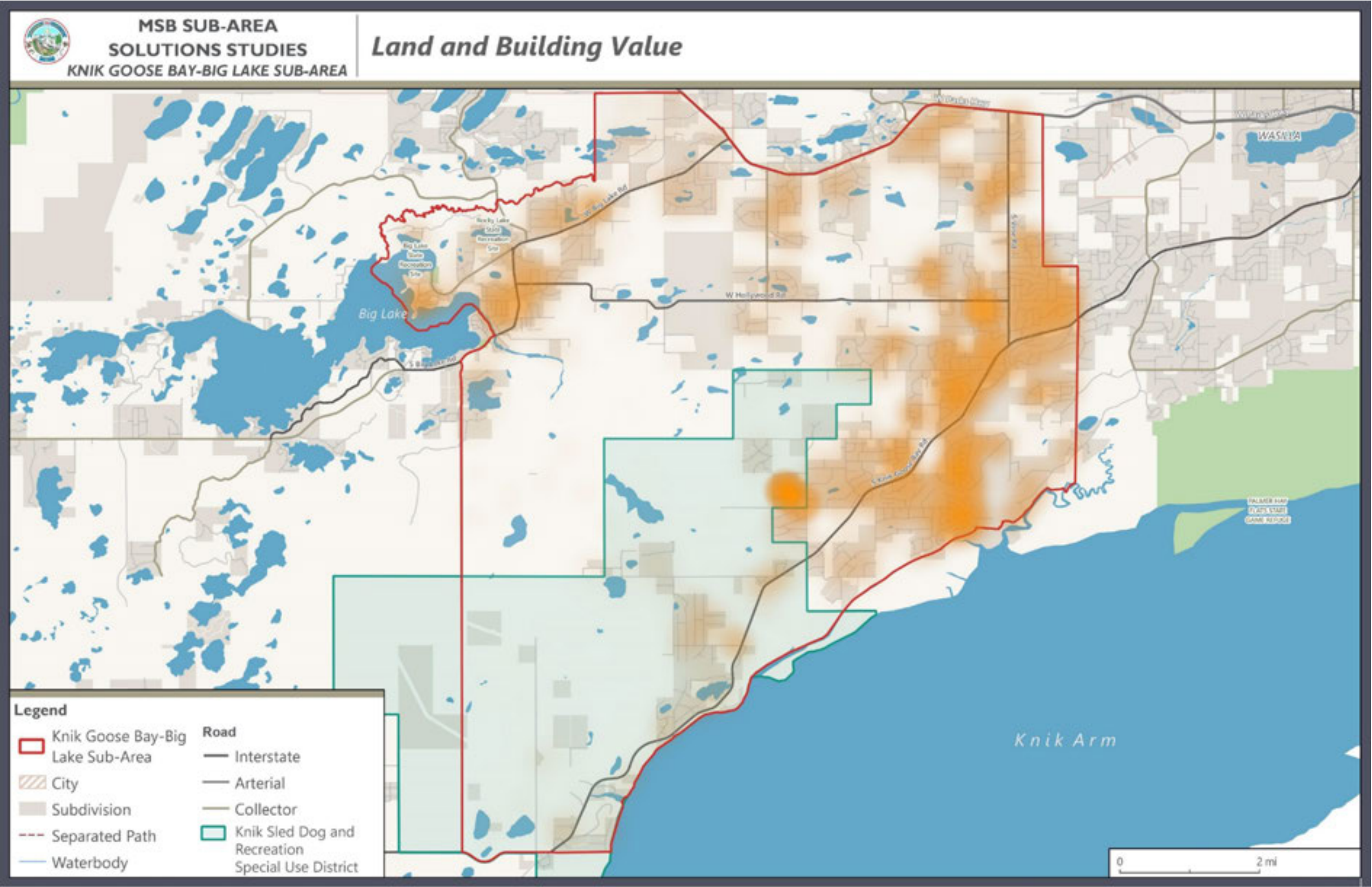
Combined land and building (improvement) value within the Knik Goose Bay-Big Lake Sub-Area, as determined by the MSB Assessor, are shown in the heatmap in Figure 19. Areas of higher value are shown in darker shades of orange, and areas of low value are white. The areas of high value in the sub-area are primarily clustered along Knik Goose Bay Road, which has seen a significant amount of housing development in recent years, including a higher share of duplex, triplex, and fourplex development than elsewhere in the MSB, as discussed above. A cluster of higher value property also extends toward Settlers Bay. Redington High School and Dena'ina Middle School are also showing a cluster of building value. Finally, the Big Lake area also contains a cluster of relatively more valuable buildings and land.

7.1 Redevelopment Potential

To identify parcels with redevelopment potential, the ratio of land value to building value was calculated (see Figure 20). This ratio helps show areas where it would potentially make financial sense to redevelop. A low ratio, below 1.0, (shown in shades of brown in Figure 20) indicates that the building is worth less than the underlying land. In this situation, the parcel is considered underutilized, since the value of the land can be maximized by a more valuable building, and it is financially feasible to replace the low-value building with a higher-value use given the underlying value of the land. On the other hand, ratios above 1.0, shown in shades of green in Figure 20, indicate that it would be unlikely that a developer would choose to replace the building given its higher value when compared to the underlying land.

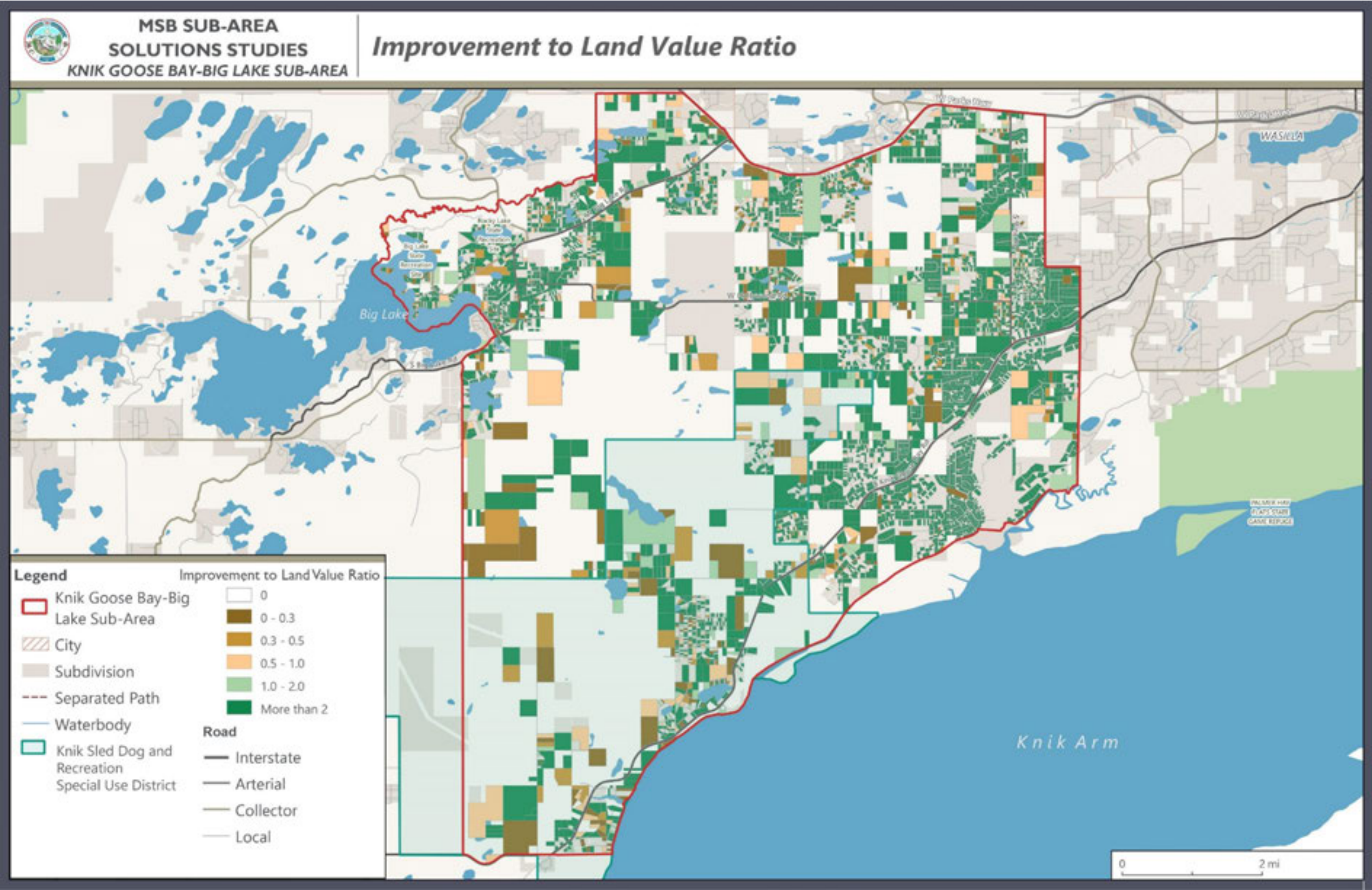
This analysis shows that the more underutilized land in the sub-area is found farther from the more populated and developed areas, as expected. The area nearest to Wasilla and extending along Knik Goose Bay Road towards Settlers Bay has seen rapid development, and the high improvement to land value ratio reflects this. On the other hand, parcels in the center and farther from the southeastern portion of the area, which are currently less developed, are showing a lower improvement to land value ratio, indicating that development occurring in the sub-area is likely to continue to move towards the south and east over time, notwithstanding wetland and infrastructure constraints discussed elsewhere in this report.

Figure 19. Land and Building Value, 2022



Source: MSB Assessor Data, 2022

Figure 20. Improvement to Land Value Ratio, 2022



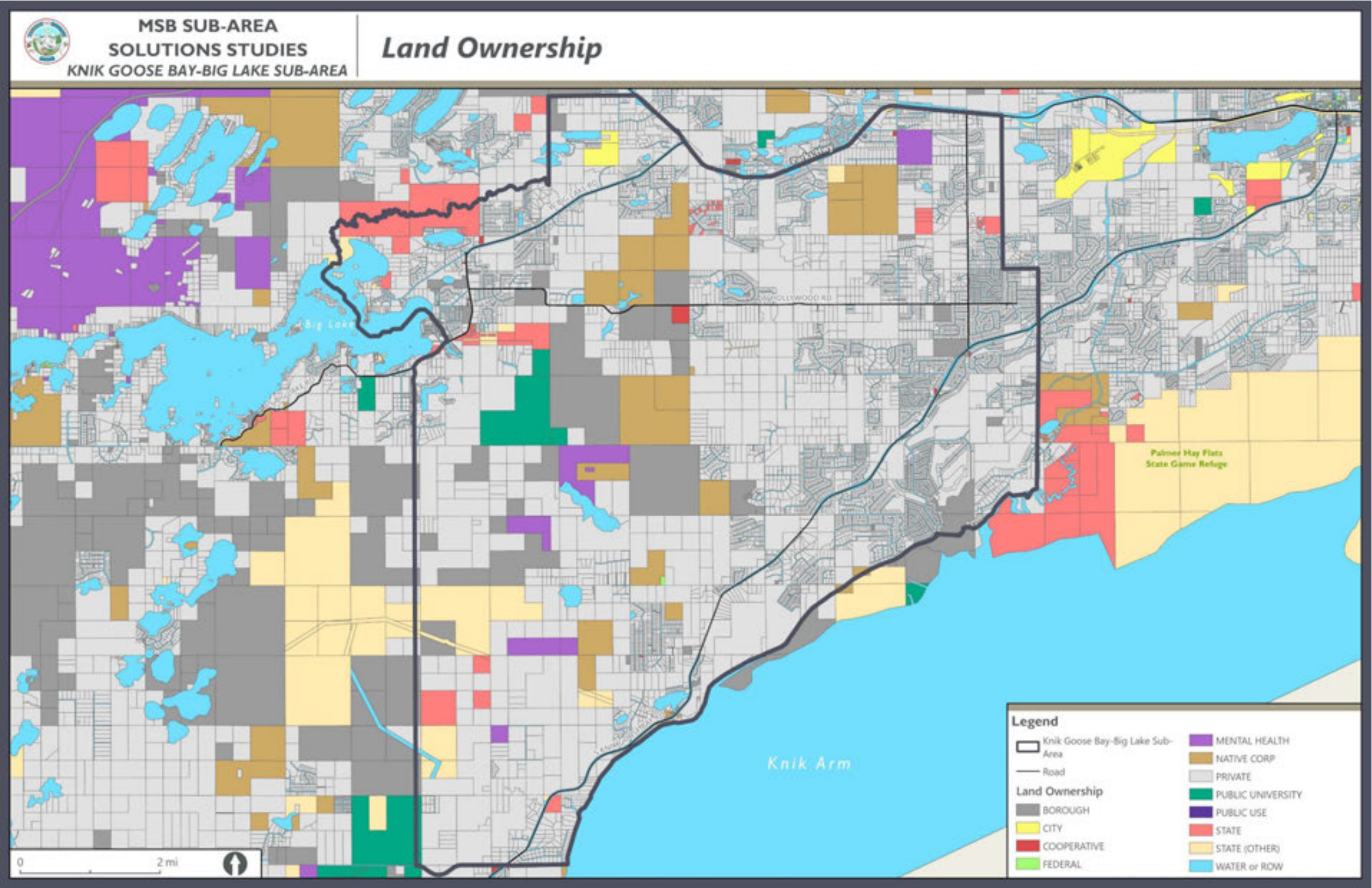
Source: MSB Assessor Data, 2022; Leland Consulting Group, 2022

8 Land Ownership

8.1 Private and Public Lands

This large Knik Goose Bay-Big Lake Sub-Area has a far more diverse property ownership than the other sub-areas. Figure 21 shows property ownership, with private property comprising the majority of parcels. Large tracts of MSB, State, University of Alaska, Mental Health Trust, and Native owned/managed lands also occur in this sub-area. The possibility of additional large residential subdivisions exists, depending upon the development potential of these agency and Native lands, which could add significant traffic and pressure to the existing road network in the sub-area.

Figure 21. Land Ownership



9 Zoning

9.1 MSB Zoning

Properties outside the City of Houston limits fall under MSB jurisdiction and must comply with the land use requirements in MSB Title 17 Zoning (see Appendix A for more detail). Title 17 establishes minimal permit requirements for development to ensure that structures meet setback requirements from rights-of-way, easements, and property lines. It establishes what uses and activities require Conditional Use Permits prior to initiation. It also identifies a limited number of activities that require administrative permits.

The MSB conducts zoning through SpUDs, which restrict land use within its boundary. The types of SpUDs include:

- Large-Lot, Single-Family Residential Land Use District
- Single-Family Residential Land Use District
- Residential Land Use District
- Interim Materials District
- Special Land Use District
- Overlay District

A map showing the SpUDs in the Knik Goose Bay-Big Lake Sub-Area is available at <https://msb.maps.arcgis.com/apps/webappviewer/index.html?id=4cd76b7861f348e68afd5cc934524a5f>.

MSB Title 17.20 established the Knik Sled Dog and Recreation Special Land Use District (SpUD) in the southwestern portion of the sub-area. This SpUD protects the historic use of this area as well as trail access for sled dog and other recreation activities.

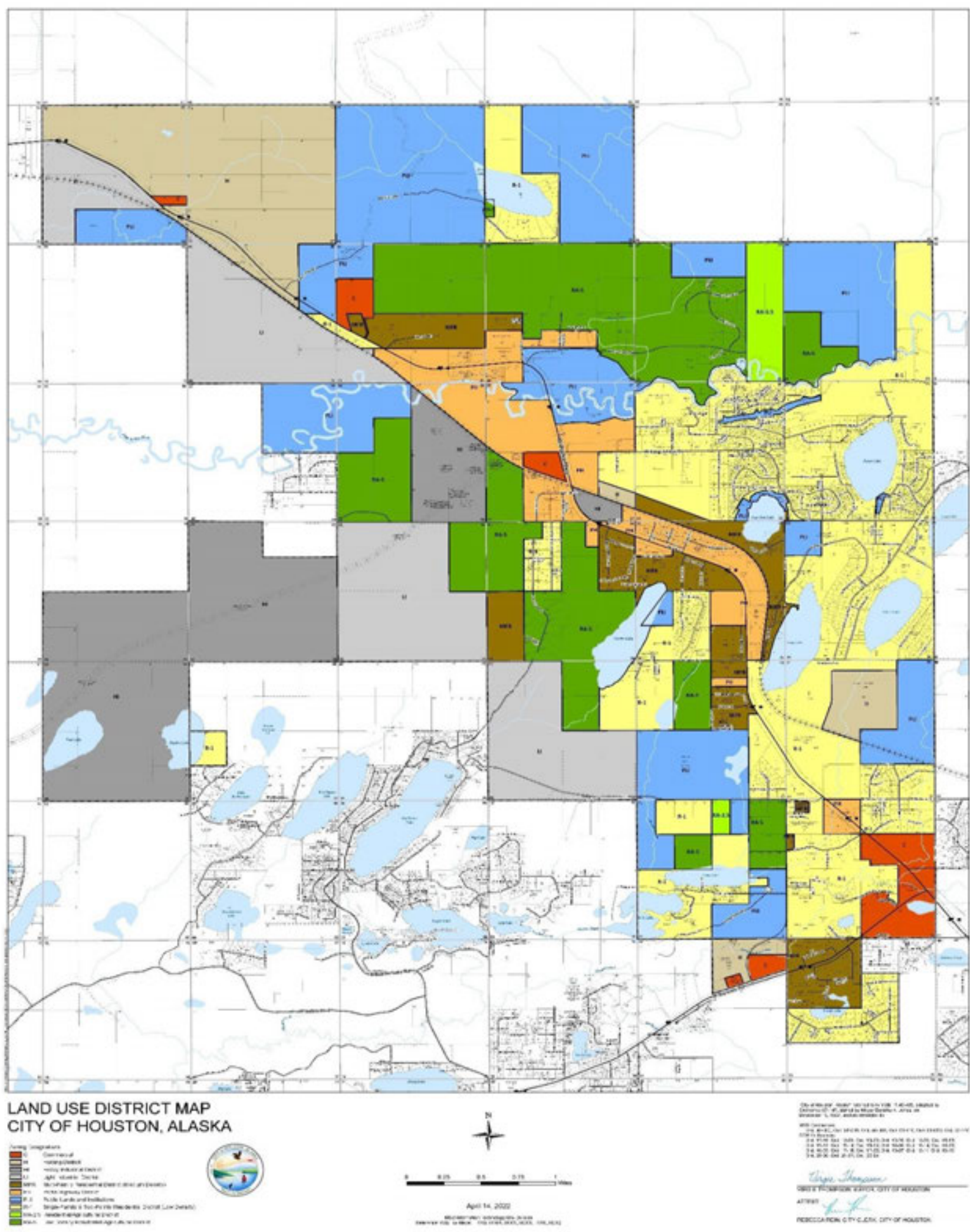
9.2 City of Houston

The City of Houston updated its comprehensive plan²⁹ in 2017. It created a map identifying 11 zoning designations within city limits (see Figure 22). The Big Lakes Road/Parks Highway intersection area is identified as commercial; the remaining area includes districts identified as single-family residential, multifamily residential, public lands and institutions, residential agricultural, low density agricultural, holding, and Parks Highway. The zoning designations are part of Houston's Municipal Land Use Regulations that may be found at the City Clerk's Office³⁰.

²⁹ MSB, *City of Houston Comprehensive Plan*, February 2017, [https://www.houstonak.com/vertical/sites/%7B31F8C92D-033A-4BBC-ADE0-01A4F0F270C3%7D/uploads/City_of_Houston_Comprehensive_Plan_Final_Web\(1\).pdf](https://www.houstonak.com/vertical/sites/%7B31F8C92D-033A-4BBC-ADE0-01A4F0F270C3%7D/uploads/City_of_Houston_Comprehensive_Plan_Final_Web(1).pdf)

³⁰ Houston Municipal Code, <https://www.codepublishing.com/AK/Houston/>

Figure 22. Land Use District Map, City of Houston



10 Transportation System

10.1 Existing Road Network Roads

The Knik Goose Bay Road-Big Lake Sub-Area road network is shown on Figure 23. It includes the state-owned Parks Highway, Knik Goose Bay Road, and Big Lake Road. The MSB owns all other roads in the sub-area outside the City of Houston. Within the sub-area, there is limited north-south and east-west connectivity, with Vine Road providing the main north-south corridor between the Parks Highway and Knik Goose Bay Road. Johnson Road provides a north-south connection between the Parks Highway and Hollywood Road but does not extend to Knik Goose Bay Road. Hollywood Road provides the only east-west connection between Vine Road and the Big Lake Town Center. Physical features within the sub-area affect connectivity, such as numerous lakes and wetland areas.

10.1.1 Major State-Owned and Maintained Roadways

10.1.1.1 Parks Highway

In the sub-area, the Parks Highway is a four-lane divided highway. A recent upgrade project improved safety on this highway segment by adding traffic signals, median breaks, and frontage roads. Current average daily traffic on the Parks Highway between Vine and Big Lake Roads is 11,800 vehicles per day.

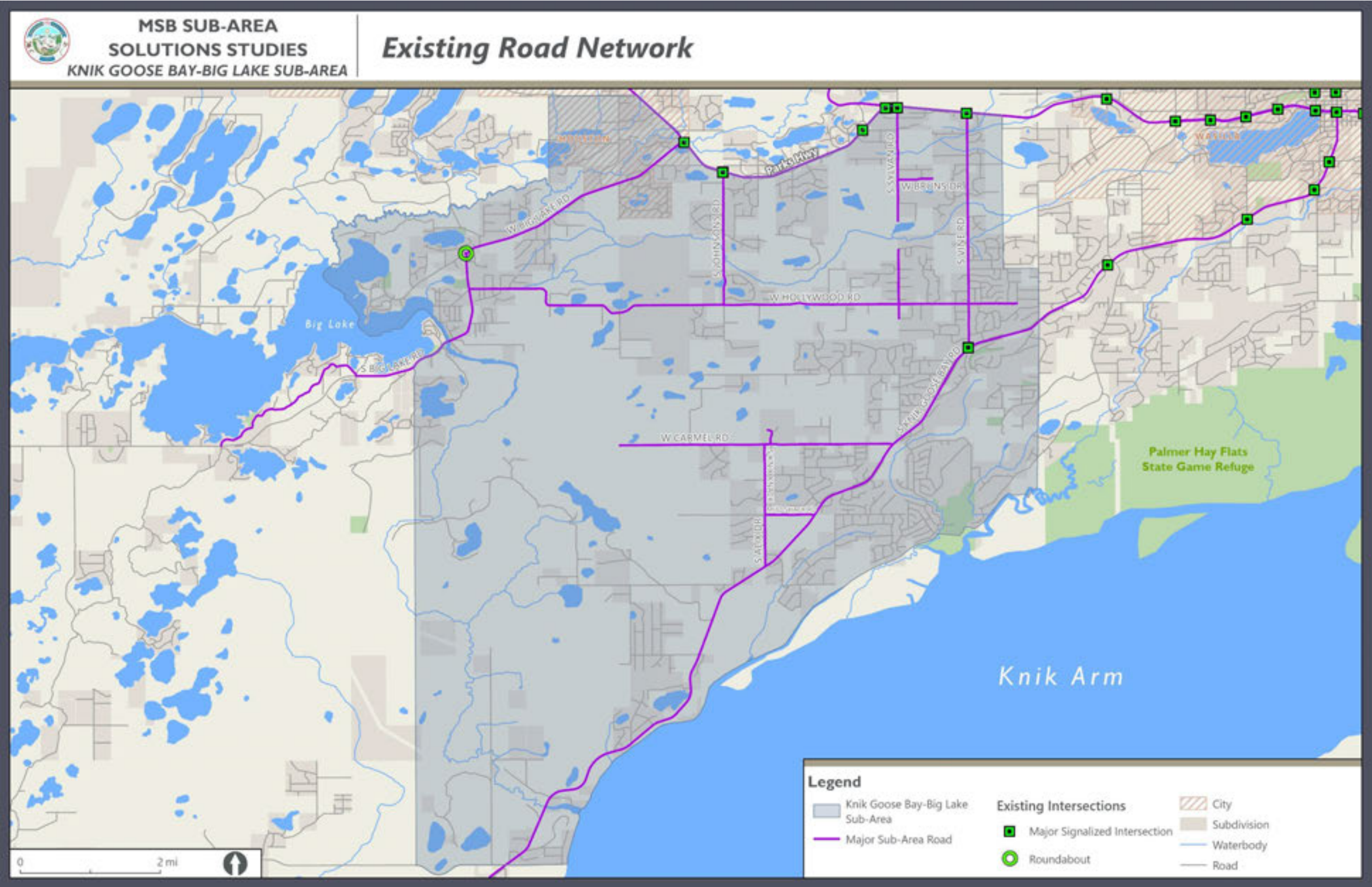
10.1.1.2 Knik Goose Bay Road

Knik Goose Bay Road is a heavily traveled, two-lane facility that is designated a Highway Safety Corridor due to its high number and seriousness of accidents. It is scheduled for major reconstruction to a four-lane roadway beginning in 2023 to address these safety concerns. Traffic volumes within the sub-area are shown in Table 1.

Table 1. Traffic Volumes

KGB Segment	Annual Average Daily Traffic (vehicles per day)
Clapp Road to Vine Road	14,000
Vine Road to Settlers Bay Drive	9,600
South of Settlers Bay Drive	2,200

Figure 23. Existing Road Network





The upgrades to the Parks Highway and Knik Goose Bay Road will provide a safer, higher speed connection to Wasilla and Anchorage, making property beyond the termini of these projects more accessible to these hub communities. These roadway improvements may encourage increased residential and commercial development beyond the four-lane sections of these highways, increasing traffic and safety concerns. Non-infrastructure solutions along these corridors will help protect the integrity of both the upgraded four-lane sections and the remaining two-lane sections of these roadways through sound access management, subdivision design, and an increased emphasis on subdivision connectivity.

10.1.1.3 Big Lake Road and South Big Lake Road

Big Lake Road extends from its Parks Highway intersection 3.5 miles to its roundabout intersection with South Big Lake Road and Northshore Drive. It is two lanes with shoulders and has a pathway long its entire length. It carries an average of 3,220 vehicles per day.

South Big Lake Road extends south from the roundabout to its intersection with the West Susitna Parkway. It is two lanes and provides access to the Big Lake Town Center, Big Lake Elementary School, and the Big Lake Airport. It has a pedestrian facility through the Big Lake Town Center to Fish Creek Park. This trail provides pedestrian access to Big Lake Elementary School. Big Lake Road carries 2,830 vehicles per day between the roundabout and its intersection with Hollywood Road. Daily traffic decreases to 1,610 vehicles per day south of Hollywood Road.

10.1.1.4 Vine Road

The state owns the section of Vine Road between Hollywood and Knik Goose Bay Roads. This segment is a narrow, two-lane segment with terrain issues. Average daily traffic is nearly 5,000 vehicles per day. The DOT&PF is planning to upgrade this road in the near future; the design is expected to start in Fiscal Year 2022 (FY22) with construction occurring after FY23.

10.1.1.5 Hollywood Road

Hollywood Road is a paved, two-lane major collector with no shoulders that connects Vine Road to South Big Lake Road. The pavement is in poor condition. A short pathway occurs between Vine Road and Goose Bay Elementary School. There have been discussions regarding transferring its ownership to the MSB in trade for continuous street lighting along Knik Goose Bay Road to Settlers Bay Drive. Hollywood Road accesses many large subdivisions in the eastern part of the sub-area. As it travels west to Big Lake, it crosses several large wetland areas that currently limit development. There is a proposed

state Highway Safety Improvement Project (HSIP) to install a roundabout at the Hollywood Road/Vine Road intersection and a project to resurface its entire length. As of November 2022, the DOT&PF and MSB are in negotiations regarding having the MSB become responsible for road maintenance on this road.

10.1.1.6 Existing Signals and Roundabouts

The DOT&PF owns and operates all traffic signals within the sub-area (Figure 23). On the Parks Highway, signals occur at Vine, Pittman, Marigold, Johnson, and Big Lake Roads. A traffic signal also occurs at the Vine Road/Knik Goose Bay Road intersection. One roundabout occurs within the sub-area at the Big Lake Road/South Big Lake Road/North Shore Drive intersection.

10.1.2 Major MSB Roads

This sub-area is served by the Knik (RSA 17), Meadow Lakes (RSA 27), and Big Lake (RSA 21) RSAs, with the City of Houston maintaining city-owned roads. Property owners are taxed to fund RSA activities. MSB roadways are primarily local subdivision roads that connect to collector roads, which connect to arterials.

The RSAs have made significant headway to pave and upgrade MSB-owned collector and arterial roads using state funds and MSB road bonds. Local roads have been paved using RSA revenues or by neighborhoods forming a local Improvement district. Developers of new subdivisions often pave their subdivision roads to attract buyers, then transfer road ownership to the MSB and maintenance to the local RSA.

10.1.2.1 Vine Road

Vine Road, between the Parks Highway and Hollywood Road, is owned by the MSB. It is a two-lane minor arterial that connects the Parks Highway with Knik Goose Bay Road.

10.1.2.2 Sylvan Road, Bruns Drive, and Sylvan Lane

Sylvan Road comprises the southern leg of the Parks Highway/Pittman Road signalized intersection. It extends south towards Hollywood Road, where it connects to Bruns Drive, but ends prior to Lucille Creek Drainage. Sylvan Lane travels north from Hollywood Road.



A 2,000-foot gap occurs between the end of Sylvan and Bruns Roads and Sylvan Lane that would have to be constructed to provide a through connection between the Parks Highway and Hollywood Road.

10.1.2.3 Johnson Road

Johnson Road is a two-lane road connecting the Parks Highway to its existing terminus south of Hollywood Road. The presence of wetlands and stream drainages makes it difficult to extend the road farther south to Knik Goose Bay Road.

10.1.2.4 Other Borough Roads

Other MSB-owned roads in the sub-area include:

- Sunset Drive provides an east-west route from Knik Goose Bay Road, with an indirect connection to Hollywood Road.
- Camel Drive provides an east-west route that dead ends approximately 3 miles west of Knik Goose Bay Road but connects to Knik Knack Mud Shack Road, providing a secondary access to Dena'ina Elementary and Redington Middle/High Schools from the north.
- Knik Knack Mud Shack Road provides access to Dena'ina Elementary and Redington Middle/High School. It travels west from Knik Goose Bay Road, then north to Carmel Drive.
- South Alix Drive travels north from Knik Goose Bay Road and intersects with Knik Knack Mud Shack Road, providing access to the schools from the south.
- West Hazel Avenue travels west from Knik Goose Bay Road.
- Horizon Drive provides an east-west route that has one north-south connection to West Hazel Avenue via Twilight Drive.
- West North Shore Drive provides access to the northern side of Knik Lake.
- Homestead Drive travels north from Knik Goose Bay Road.
- Gleason Road provides east and west access from Knik Goose Bay Road, north of Fish Creek.
- Elle Mae Road travels east from Knik Goose Bay Road to Old Knik Harbor and Ella Louise Roads.

10.2 Traffic Volumes

Figure 24 displays Average Annual Daily Traffic volumes for key roadways within the sub-area. Traffic volumes on Knik Goose Bay Road are beyond the capacity for a two-lane facility, with no access management controls in place. The upgrade of Knik Goose Bay Road will begin in 2023 and will ultimately provide a four-lane facility from Wasilla to Settlers Bay Drive. Traffic volumes fall off significantly beyond Settlers Bay Drive.



10.3 Crashes

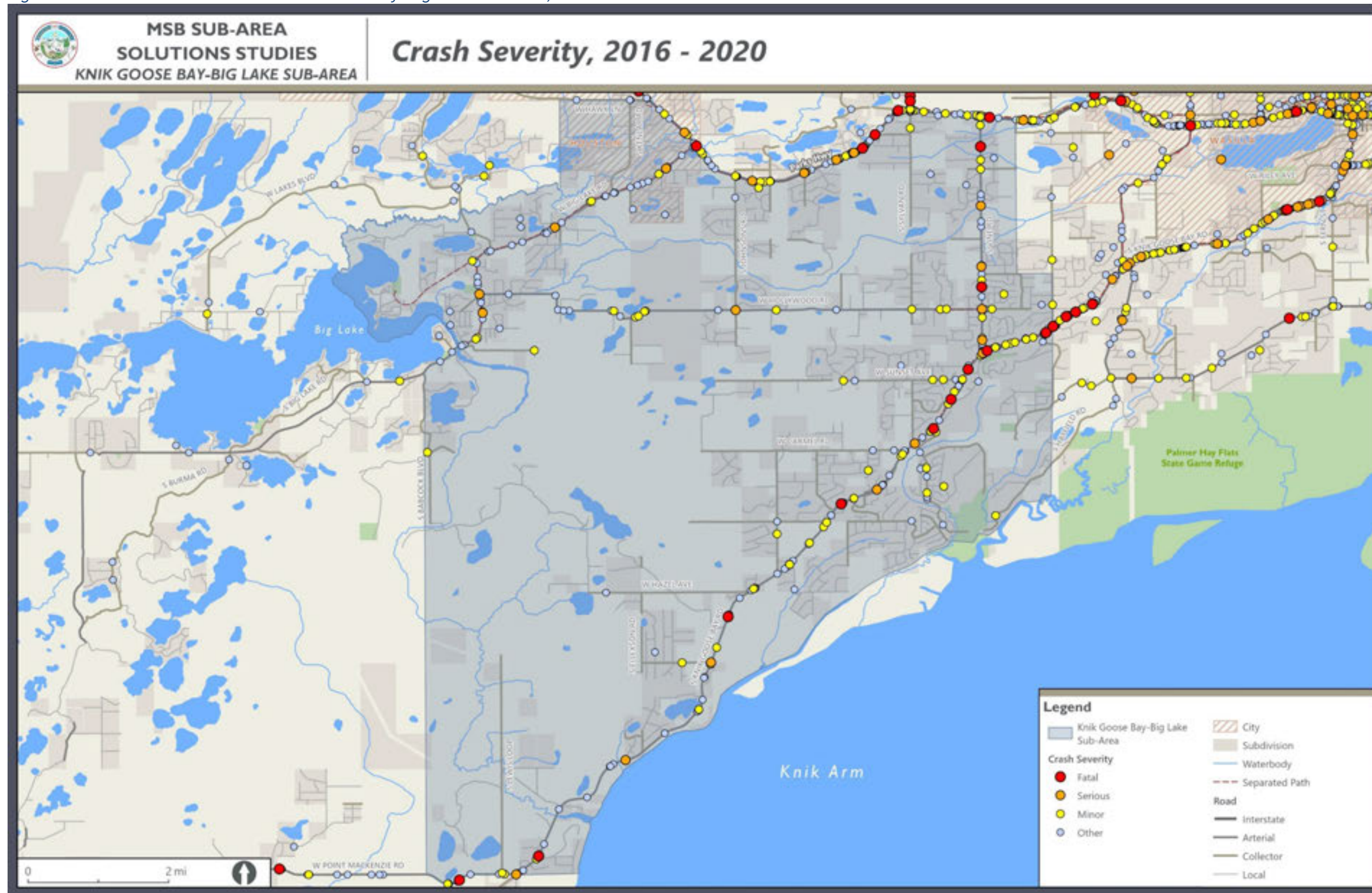
The 2016–2020 crash data³¹ is summarized in Table 2 and shown on Figure 25. Since 2016, a total of 561 crashes have occurred in the sub-area. Most of the serious crashes occur on the Parks Highway and Knik Goose Bay Road. The number of fatal and serious injury accidents is significantly higher than in the other three sub-areas. Both the Parks Highway and Knik Goose Bay Road have been classified as Highway Safety Corridors. Recently completed improvements to the Parks Highway between Lucas and Big Lake Roads will remove its Highway Safety Corridor designation.

Table 2. Knik Goose Bay–Big Lake Sub-Area Crash Severity Summary Table, 2016–2020

Year	Crash Severity				Total Number of Crashes
	Fatal	Serious Injury	Minor Injury	Other	
2016	3	4	48	76	131
2017	4	6	32	68	110
2018	5	4	32	57	98
2019	13	9	39	71	122
2020	1	7	28	64	100

³¹ Crash data was provided by DOT&PF based on Alaska Department of Motor Vehicle reports and is the best-known information available to DOT&PF Central Region as of August 2022.

Figure 25. Known Crashes within the Knik Goose Bay-Big Lake Sub-Area, 2016–2020



10.4 Transit³²

Valley Transit is a non-profit organization that provides transit service within the MSB. They offer a fixed route between the MSB and Anchorage as well as demand-response service within the MSB. They provide transit services Monday through Saturday. One fixed route transit stop is within the Knik Goose Bay-Big Lake Sub-Area at the Parks Highway/Trunk Road Park and Ride.

Sunshine Transit services the Susitna Valley communities of Trapper Creek, Talkeetna, Sunshine, Willow, and Houston with twice-weekly service to Wasilla and demand-response services for Medicaid-eligible patients to medical facilities in the Knik Goose Bay-Big Lake Sub-Area as well as other Palmer and Wasilla locations.

Mat Su Senior Services also offers transportation in the Mat-Su Valley and Anchorage area to eligible individuals. As of September 2022, rides are limited to medical needs only.³³

10.5 Non-Motorized

The Parks Highway, Knik Goose Bay Road to Settlers Bay Drive, Big Lake Road, South Big Lake Road, and Northshore Drive all have separated pathways. Hollywood Road has a short length of trail between Vine Road and Goose Bay Elementary School.

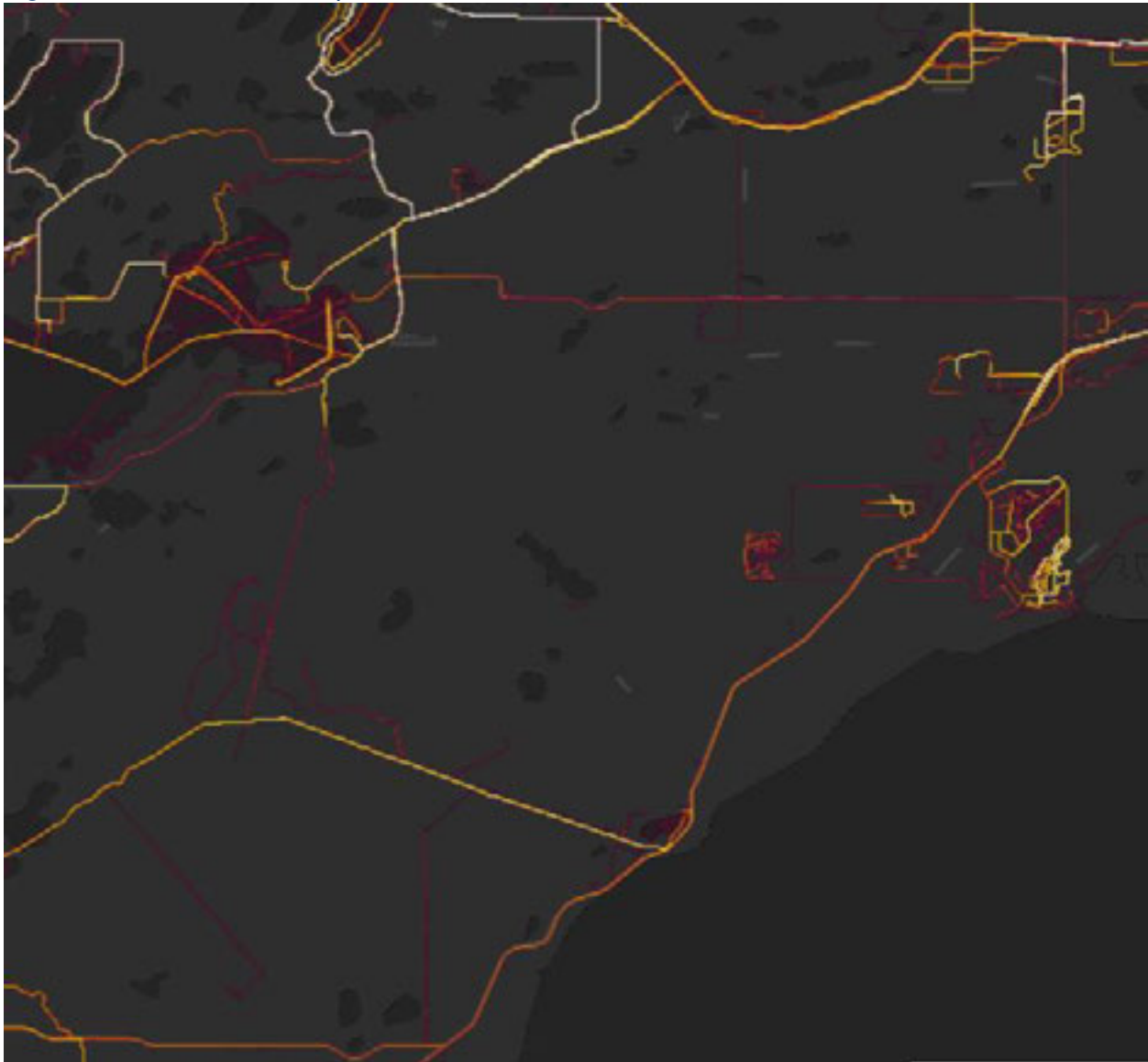
Strava is a fitness-tracking and social media app designed to allow users to track their fitness activities. Strava produces heat maps that show the most active areas for Strava users over the past year. These heat maps reflect aggregated, public activities that were recorded by Strava (see Figure 26). Lighter colors indicate more users than darker colors on the map. As the heat maps report only Strava users, they underestimate non-motorized use in the sub-area; however, the maps can provide a general estimate of where people are walking and biking compared to other areas.

The MSB is in the process of developing a Bike and Pedestrian Plan that will identify and prioritize needed non-motorized infrastructure throughout the MSB. The plan is anticipated to be completed by June 2023.

³² Transit service in the MSB is likely to change in the future when the Metropolitan Planning Organization (MPO) is formed. The MPO is likely to take over transit service because of the way transit is funded.

³³ Mat-Su Senior Services, <https://www.matsuseniors.com/transportation>

Figure 26. Strava Heat Map



Source: Strava, 2022, <https://www.strava.com/heatmap#11.80/-149.68608/61.50581/hot/all>

10.6 Aviation

The MSB has the highest concentration of public and private airports in the United States. One airport, the state-owned Big Lake Airport, is located within the sub-area as well as several private airstrips. Several local lakes can accommodate both float and ski plane operations.

10.7 Rail

One railroad operates within the MSB. The Alaska Railroad is owned by the State of Alaska and is operated as a state-owned corporation. It provides regular freight and passenger services between Seward and Fairbanks. The Alaska Railroad is situated

adjacent to the Parks Highway between Vine and Pittman Roads. The railroad and the Parks Highway form the sub-area's northern boundary between these two roads. The train station closest to the sub-area is the historic depot in Wasilla. The partially completed Port MacKenzie Rail Extensions lies west of the sub-area.

10.8 Planned Improvements

10.8.1 Alaska Statewide Transportation Improvement Program

The Alaska Statewide Transportation Improvement Program (STIP)³⁴ is the state's 4-year program for transportation system preservation and development. The STIP must include all surface transportation improvements for which partial or full federal funding is anticipated and that are expected to occur during the STIP's 4-year duration. The 2020–2023 STIP projects in the Knik Goose Bay-Big Lake Sub-Area are listed in Table 3.

Table 3. STIP Projects in the Knik Goose Bay-Big Lake Sub-Area

Project	Cost Estimate	Functional Classification	Status	Description
Parks Highway Mile Point 13–18 (MPs 48.8–52.3) Pittman Road to Big Lake Road Reconstruction	FFY 2020 Construction \$51,270,000 Utilities \$8,645,001	Interstate	Construction complete	The project would widen the Parks Highway to four lanes, with attendant traffic and safety improvements between Pittman Road and the Big Lake Cutoff. The project was coordinated with HSIP safety improvements.
Vine Road Improvements Knik-Goose Bay Road to Hollywood Boulevard	FFY 2022 Right-of-Way \$1,500,000 After 2023 \$8,500,000	Minor Arterial	Right-of-way acquisition Construction after 2023	The project will rehabilitate the existing two-lane rural road from Hollywood Boulevard to Knik-Goose Bay Road. The road will be designed to accommodate ongoing traffic growth. Scope includes repairing roadbed, drainage improvements, repaving, pedestrian accommodations, and possible HSIP safety improvements.
Big Lake Road Pavement Preservation: MPs 3.6 to 9.1 (North Shore Drive to Burma Road)	FFY 2022 \$325,000 After 2023 \$5,310,000	Minor Arterial	In design	The project includes pavement preservation of the respective roadway, including drainage and other improvements necessary to maintain the corridor in a state of good repair.

³⁴ DOT&PF, Alaska Statewide Transportation Improvement Program, 2022, <https://dot.alaska.gov/stwdplng/cip/stip/>

MSB Community Growth Solutions Study | APPENDIX A
Existing Conditions Report: **Knik Goose Bay-Big Lake**

Project	Cost Estimate	Functional Classification	Status	Description
Knik-Goose Bay Road Reconstruction Projects – Phase 1 Centaur Avenue to Vine Road	FFY 2022 \$54,500,000	Principal Arterial	Construction contract awarded	The project will reconstruct Knik Goose Bay Road between Centaur Avenue and Settlers Bay Drive. This effort will expand the corridor to a four-lane, divided roadway with a separated multi-use pathway on the northern side that will allow Knik Goose Bay Road to function more efficiently with fewer delays, more capacity, fewer crashes, and increased safety. Project design for Phase 1 is complete and construction is underway.
Knik Goose Bay Road Reconstruction Projects – Phase 2 Vine Road to Settlers Bay Drive	FFY2025 Estimated Right-of-Way \$22,000,000 Utilities Relocation \$10,500,000 Construction \$29,500,000	Principal Arterial	Right-of-way acquisition Construction in FFY2025	The project will reconstruct Knik Goose Bay Road between Centaur Avenue and Settlers Bay Drive. This effort will expand the corridor to a four-lane, divided roadway with a separated multi-use pathway on the northern side that will allow Knik Goose Bay Road to function more efficiently with fewer delays, more capacity, fewer crashes, and increased safety. Project design for Phase 2 (Vine Road to Settlers Bay Drive) is anticipated to be completed in spring 2025.
Hollywood & Vine Intersection Improvements (HSIP)	FFY2025 Estimated Right-of-Way \$1,500,000 Utilities \$1,775,000 Construction \$4,100,000	Minor Arterial	In design Construction in FFY2025	The project would improve the intersection of Vine and Hollywood Roads.
Hollywood Road: Vine Road to Big Lake Road Pavement Preservation	FFY2024 Estimated Construction \$6,750,000	Major Collector	In design Construction in FFY2024	The project would resurface Hollywood Road between Big Lake Road to the west and Vine Road to the east.

Source: DOT&PF, 2022, <https://dot.alaska.gov/stwdplng/cip/stip/>

Notes: FFY = Federal Fiscal Year; MP = Milepost; completed STIP projects are not listed in this table.

10.8.2 2021 MSB Transportation Infrastructure Package

The MSB funds many of its road improvement projects using road bonds. The roads in the Knik Goose Bay-Big Lake Sub-Area that are included in the MSB's 2021 Transportation Infrastructure Package are listed in Table 4.

Table 4. 2021 MSB Road Bond Projects in the Knik Goose Bay-Big Lake Sub-Area

Project	Cost Estimate	Functional Classification	Status	Description
MSB School District 2018 Pedestrian Projects	\$2,300,000	--	--	Safe Routes to Schools Implementation: Big Lake Elementary, Dena'ina Elementary, and Redington Middle/High School

Source: MSB Ordinance Serial Number 21-076, adopted August 17, 2021

10.9 Plans and Studies

10.9.1 MSB 2035 Long Range Transportation Plan

The MSB's *2035 Long Range Transportation Plan* update³⁵ (LRTP) is a fiscally constrained policy document that established transportation goals and objectives to guide the MSB's multi-modal transportation system, including road, bike and pedestrian, trail, transit, aviation, and port improvements through 2035. It established the following goals:

- Goal One: Improve Transportation and Land Use Connection
- Goal Two: Provide Transportation Choices
- Goal Three: Improve Connectivity
- Goal Four: Improve Mobility
- Goal Five: Make Transportation Safer
- Goal Six: Support Economic Vitality
- Goal Seven: Enhance Environmental Quality

Table 5 lists the LRTP-recommended roadway projects within the sub-area.

Table 5. LRTP-recommended Roadway Projects within the Knik Goose Bay-Big Lake Sub-Area

Project Name	Project Status
Knik Goose Bay Road: Centaur Avenue to Vine Road	Under construction – Centaur Avenue to Vine Road
Knik Goose Bay Road: Vine Road to Settlers Bay Drive	Project funded – Vine Road to Settlers Bay Drive, anticipated construction start 2025
Parks Highway: Lucas Road to Pittman Road	Completed
Parks Highway: Pittman Road to Big Lake Road	Near completion

³⁵ MSB, *2035 Long Range Transportation Plan*, December 2017, <https://matsugov.us/docs/general/13985/Combined-Document.pdf>

Project Name	Project Status
Vine Road: Knik Goose Bay Road to Hollywood Road	Funded for design
Knik Goose Bay Road: Settlers Bay Drive to Alix Drive	No activity
Parks Highway Alternative Corridor	DOT&PF preparing a Planning and Environmental Linkage Study
Museum Road Extension to Vine Road	No activity
Vine Road Hollywood to Parks Highway	Upgraded as a MSB 2011 Bond Project
Big Lake Road North Shore Drive to Parks Highway Upgrade to 4 Lanes	No activity – long-term project

Source: MSB, 2035 Long Range Transportation Plan, December 2017, <https://matsugov.us/docs/general/13985/Combined-Document.pdf>

The LRTP identified the following non-infrastructure strategies to complement roadway improvements:

- Create a transportation partnership with other transportation providers, including the DOT&PF, cities, and Tribes.
- Create safety education school and adult education programs with the Highway Safety Office, public safety agencies, and cities to promote defensive driving as well as pedestrian and bicycle safety.
- Promote a well-functioning and connected collector road network, in part by updating platting regulations and the MSB's *Subdivision Construction Manual*³⁶ to preserve corridors and the construction of collector roads.
- Establish an Asset Management Program to preserve the roadway system condition and its performance. This includes developing a system to manage and monitor driveway and roadway access to major collectors and arterials to improve safety, preserve functionality, and protect the public's investment in the roadway system.

Other non-infrastructure codes and policies are contained in Appendix A.

10.9.2 Coordinated Human Services Transportation Plan

The *MSB Coordinated Human Services Transportation Plan 2018–2022*³⁷ coordinates transit agencies and other transportation providers to better meet the needs of older adults, people with disabilities, and low-income households. It is required to access specific funding programs offered through the Federal Transit Administration.

The plan assessed transportation needs in the MSB by combining information about densities of the older adult population, households below the poverty line, and zero-

³⁶ MSB, *Subdivision Construction Manual*, 2020, <https://matsugov.us/49-documents/21522-2020-subdivision-construction-manual>

³⁷ MSB and Mat-Su Health Foundation, *MSB Coordinated Human Services Transportation Plan 2018–2022*, 2018, https://dot.alaska.gov/stwdplng/transit/pub/Coorplan-MSB_2018.pdf

vehicle households to create an overview of which transit needs are greatest. The results are presented in Figure 27. In the Knik Goose Bay-Big Lake Sub-Area, the needs vary, with less need identified in the southern portion of the sub-area and higher needs near Big Lake and the Parks Highway.

The plan identified several ways to improve coordination and services, including:

- Centralize mobility management services
- Reduce operations costs while maintaining service levels
- Determine the appropriate combination of transit services
- Generate new revenue
- Improve information access and quality
- Improve the Medicaid approval process for providers and recipients
- Improve service availability
- Improve marketing

For additional information, please see the *MSB Coordinated Public Services Transportation Plan 2018–2022*³⁸.

³⁸ MSB and Mat-Su Health Foundation, *MSB Coordinated Human Services Transportation Plan 2018–2022*, 2018, https://dot.alaska.gov/stwdplng/transit/pub/Coorplan-MSB_2018.pdf

Figure 27. Transportation Needs Index

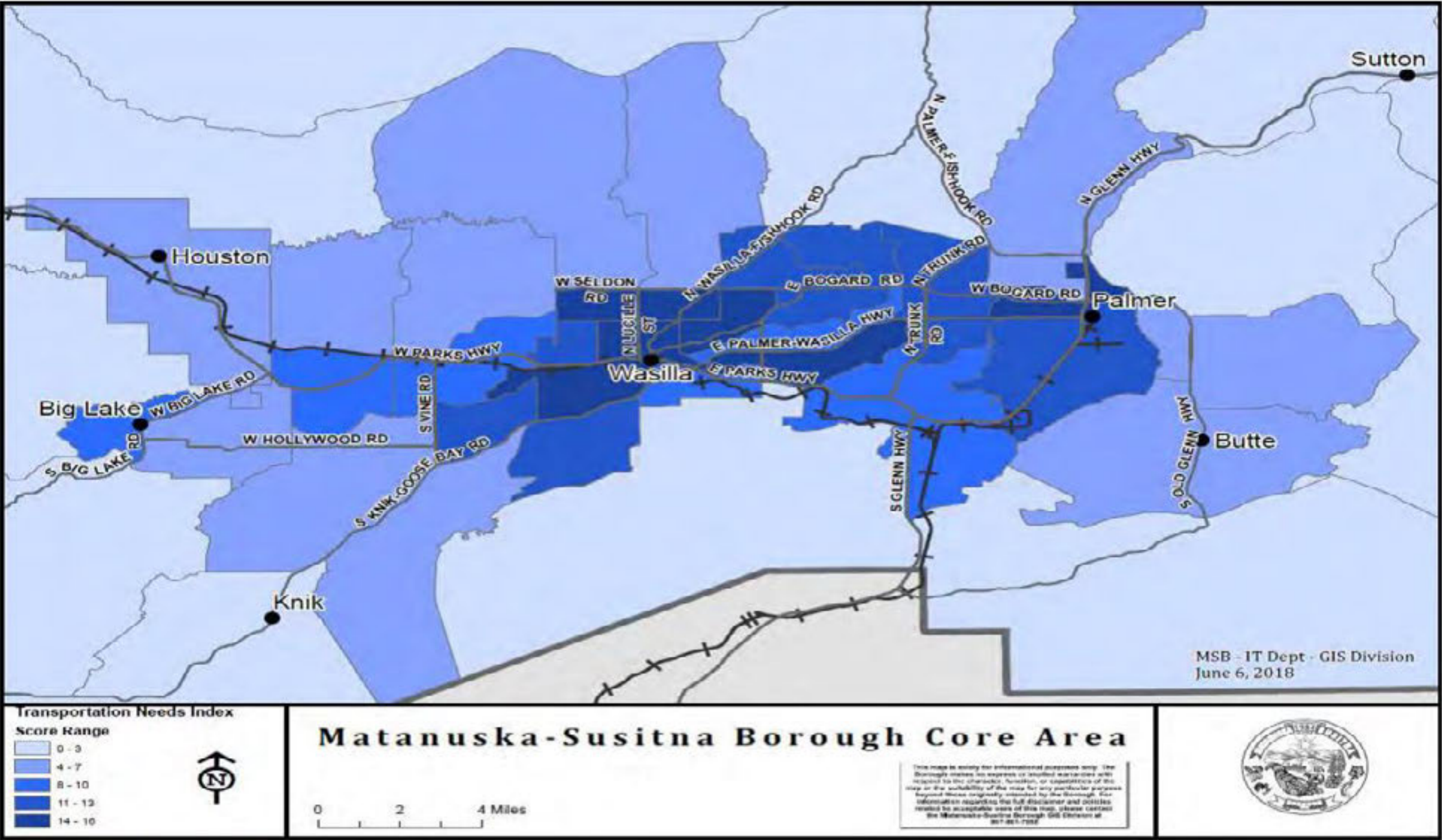


Figure 15: MSB Core Area Transportation Needs Index

Source: MSB and Mat-Su Health Foundation, MSB Coordinated Public Services Transportation Plan 2018–2022, 2018, https://dot.alaska.gov/stwdplng/transit/pub/Coorplan-MSB_2018.pdf

10.9.3 Draft MSB 2022 Official Streets and Highway Plan

The MSB is updating its OS&HP³⁹. The OS&HP is a planning tool for the MSB to identify and reserve future road corridors and identify future road network improvements to help provide transportation infrastructure to support residential, commercial, institutional, and industrial developments. The OS&HP is not fiscally constrained and does not establish project priorities. The goal is to establish within the MSB a



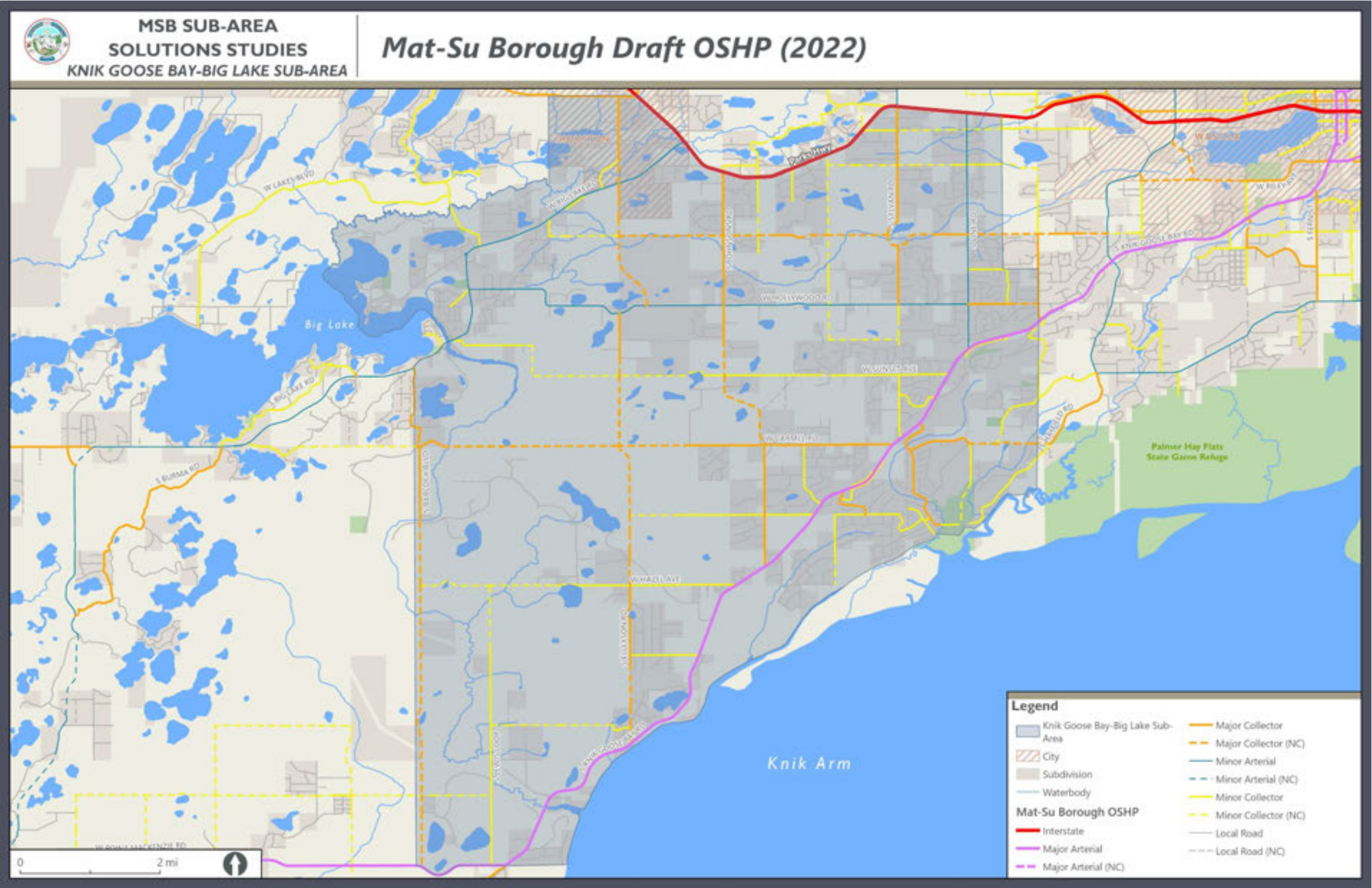
The OS&HP and the platting process need to work in tandem to reserve and protect collector and arterial corridors as part of subdivision development.

proposed hierarchical road network where local roads connect to collector roads, which in turn connect to arterial roads that ultimately connect to the Interstate Highway System. A well-connected road network improves safety, reduces travel time, improves emergency response times, provides safe evacuation routes, and reduces carbon emissions.

The draft OS&HP identifies where current roadway connectivity deficiencies exist or where future arterial and collector roadways are needed to create a viable and safe road network to serve the residents of the MSB. The draft OS&HP identifies several roadway connections within the Knik Goose Bay-Big Lake Sub-Area (see Figure 28).

³⁹ MSB, Official Streets and Highway Plan website, 2022, <https://oshp-msb.hub.arcgis.com/>; MSB, *Official Streets and Highway Plan, Technical Report and Implementation Plan*, Draft, May 2022

Figure 28. Draft OS&HP Projects



10.10 Safe Route to School Plan

The purpose of the Safe Routes to Schools Program is to improve safety and mobility for children and enable them to walk and bike to school. The *Matanuska Susitna Borough Safe Routes to School Walk Zone Inventory and Recommendations*⁴⁰ addressed pedestrian safety needs at several schools within the MSB. The plan was developed prior to the Reddington Middle/High and Dena'ina Elementary Schools being opened and did not include Knik Goose Bay Elementary School nor Houston Junior/Senior High School in its assessment. It did make recommendations for improvements at Big Lake Elementary School. The report's recommendations generally cover the topic areas listed below, which could be applied broadly to all schools in the sub-area; however, any recommendations to schools not addressed in the original Safe Routes to School Program should be based on a school-specific analysis:

1. Improved circulation and parking related to student drop off and pick up areas
2. Separated pedestrian trails along roadways accessing schools
3. Improved lighting both interior to the school and along roadways and pathways

The collocated Knik and Goose Bay Elementary Schools on Hollywood Road are connected to a 2,800-foot pedestrian trail that begins at Vine Road and ends just west of the school property. Big Lake Elementary School is fronted by a pedestrian trail that was constructed as part of the Big Lake Road improvement project and extends from Fish Creek Park through the Big Lake Town Center along South Big Lake Road and intersects trails that lead to the Parks Highway and the Big Lake North State Recreation Area.

⁴⁰ PDC Inc. Engineers, *Matanuska Susitna Borough Safe Routes to School Walk Zone Inventory and Recommendations*, December 2014, https://matsugov.us/docs/general/16869/msb-srts_final-inventoryrecommendations_final_14y12m02d_smaller.pdf

11 Utilities

11.1 Water and Sewer

Most properties in the Knik Goose Bay Road-Big Lake Sub-Area are served by on-site water and septic systems, with the exception of the Settlers Bay development, where they have a community water and sewer system, allowing higher density development.



Access to water and sewer determines density and is key to higher density development. Developers can opt to provide community water with on-site septic that allows single-family residential development on 20,000-square-foot (0.5-acre) lots. Multifamily developments require larger septic systems and well capacity. In lieu of being able to connect to a water and sewer utility or community water systems, single-family residential homes are limited to 40,000-square-foot (1-acre) lots to achieve minimum separation distances between individual well and septic systems.

No plans exist for publicly owned water and sewer systems in the sub-area.

11.2 Other Utilities

Other utilities provide more than sufficient service to existing developments in the sub-area and have the capacity accommodate continued existing development patterns or a change to higher density development. Solid waste disposal is through the MSB-owned and operated central landfill. The landfill has adequate space to accommodate additional development in the MSB. In the long term, there is a desire to develop a second landfill access point off Trunk Road. Utility providers are summarized in Table 6.

Table 6. Utility Providers

Utility	Provider
Electric	Matanuska Electric Association
Natural Gas	ENSTAR
Telecommunications	A variety of providers, including Matanuska Telephone Association, GCI, AT&T, Verizon, etc.
Internet and Broadband	A variety of providers
Solid Waste	MSB Big Lake Transfer Station and Central Landfill
Water and Sewer	Settlers Bay (private)
Storm Water System	None

12 Economy

12.1 Plans and Studies

12.1.1 2010 MSB Economic Development Strategic Plan

In 2010, the MSB engaged TIP Strategies, Inc. to develop an economic development strategic plan to help position the MSB for long-term economic vitality. The 2010 MSB *Economic Development Strategic Plan's*⁴¹ vision statement is that “The Mat-Su Borough is the premier destination for quality development and jobs in Alaska,” which is supported by five main goals:

1. Position the MSB for sustainable economic growth and vitality
2. Build capacity to conduct economic development within the MSB
3. Expand the MSB’s economic development infrastructure
4. Attract, retain, and engage talent
5. Raise awareness of economic development opportunities

The plan identified seven priority strategies with varying degrees of specificity. The top strategy was to establish a university-medical district within the MSB to attract high-level jobs and facilities.

Other goals of the 2010 plan included building greater awareness of the MSB as a destination for new investment among Anchorage employers; establishing an MSB-wide economic development partnership; facilitating communication between business, workforce training, and educational communities; investing in tourism infrastructure and marketing; developing multi-modal transportation infrastructure at Port MacKenzie; and updating the MSB planning code.

12.1.2 Fiscal Year 2023–2028 Matanuska-Susitna Borough Strategic Plan

The recently released *Matanuska-Susitna Borough Strategic Plan*⁴² contains a variety of goals around economic growth and diversification. One of the three focus areas within the plan is to implement the vision of the MSB as “the greatest community in Alaska to live, work, and play.”⁴³ The economic goals include protecting affordable housing, developing a regionally driven economic development planning process, promoting an apprenticeship program, developing future port prospects, supporting development of Hatcher Pass tourism opportunities, and hosting the 2024 Arctic Winter Games.

⁴¹ TIP Strategies, Inc., *Matanuska-Susitna Borough, Alaska, Economic Development Strategic Plan*, April 22, 2010, <https://matsugov.us/plans/economic-development-strategic-plan>

⁴² MSB, *Matanuska-Susitna Borough Strategic Plan*, February 15, 2022, <https://portmackenzie.org/docs/general/22341/FY-2023-2028-Strategic-Plan-FINAL.PDF>

⁴³ MSB, *Matanuska-Susitna Borough Strategic Plan*, February 15, 2022, <https://portmackenzie.org/docs/general/22341/FY-2023-2028-Strategic-Plan-FINAL.PDF>

12.2 Existing Economic Conditions and Trends

The MSB has traditionally been seen as a “bedroom community” of Anchorage, with between 30 to 35 percent of its residents commuting to Anchorage for employment. Table 7 shows the commuting patterns to and from Anchorage for MSB residents. Approximately 60 percent of MSB residents both live and work within the borough, and approximately 30 percent of MSB residents commute to Anchorage for work. Conversely, only a small number of Anchorage residents commute to the MSB for work (approximately 4 percent of all MSB employees).

Table 7. MSB and Anchorage Commuting Patterns, 2015 and 2019

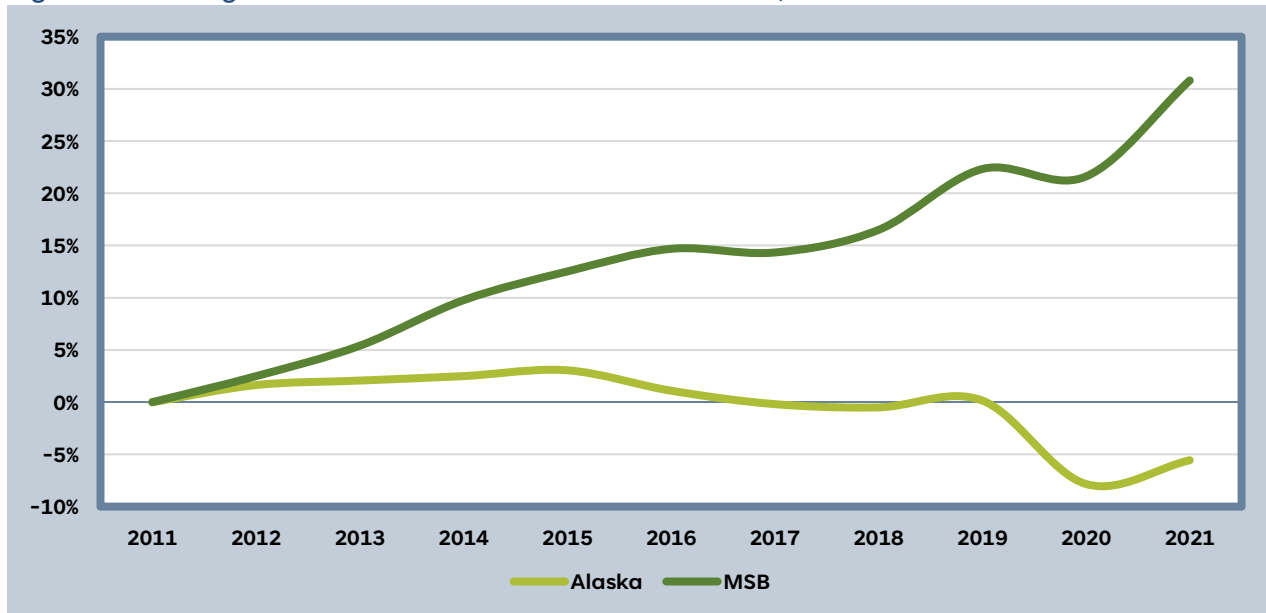
Commuting Direction	2015	2019	% Change
Live in Anchorage, Work in MSB	2,045	2,288	12
Live and Work in MSB	23,558	25,237	7
Live in MSB, Work in Anchorage	12,720	12,819	1

Source: DOL&WD data provided by Neal Fried, State Economist, 2022

As the MSB’s population has grown, the number of jobs in the MSB itself has increased, defying all statewide economic trends, including the Alaskan recession of 2017–2019. As shown in Figure 29, the number of jobs statewide was relatively stagnant between 2011 and the onset of the COVID-19 pandemic in 2020. By contrast, the MSB added jobs every year except 2017, at the onset of Alaska’s recession, and even the dip in jobs caused by the COVID-19 pandemic was relatively minimal. As of 2021, the MSB had more than 30 percent more jobs than a decade prior. This suggests that the MSB is rapidly maturing from a bedroom community to developing more substantial economic activity. Wages in the MSB increased 13 percent from 2010 to 2020, in line with statewide trends, to an average of \$48,420 in 2020. The job sectors that have seen the most growth, shown below in Figure 31, vary in average wages. Healthcare and construction jobs are higher-earning, paying between \$65,000 and \$80,000, whereas retail and food service jobs are less lucrative, with salaries in the \$25,000 to \$30,000 range.⁴⁴

⁴⁴ Fried, Neil, Average wages grew over decade, *Alaska Economic Trends*, March 2022

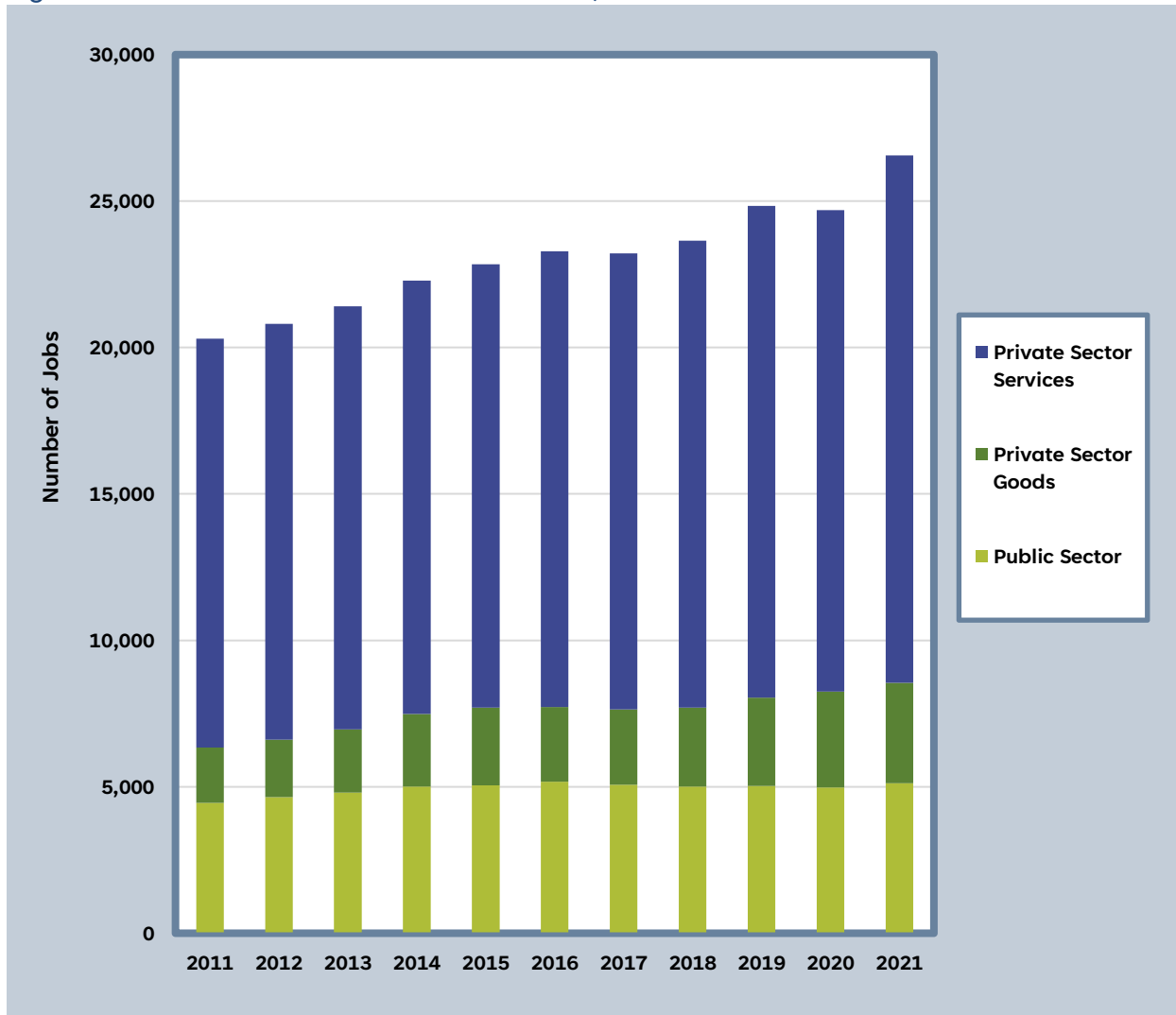
Figure 29. Change in Number of Jobs in MSB and Alaska, 2011–2021



Source: DOL&WD, *Quarterly Census of Employment and Wages*, 2011–2021, 2022,
<https://live.laborstats.alaska.gov/qcew/index.html>

The DOL&WD reports that approximately 5,000 jobs in the MSB are public sector jobs, approximately half of which are in local government and the remainder in state and federal governments. The number of public sector jobs has not appreciably changed in the past decade, but the number of private sector jobs has substantially increased, particularly in service-oriented jobs, as shown in Figure 30. As of 2021, there were 18,003 service jobs (retail, health care, management, knowledge industries, etc.), 3,426 goods-producing jobs (manufacturing, agriculture, mining, etc.), and 5,127 public jobs in the MSB.

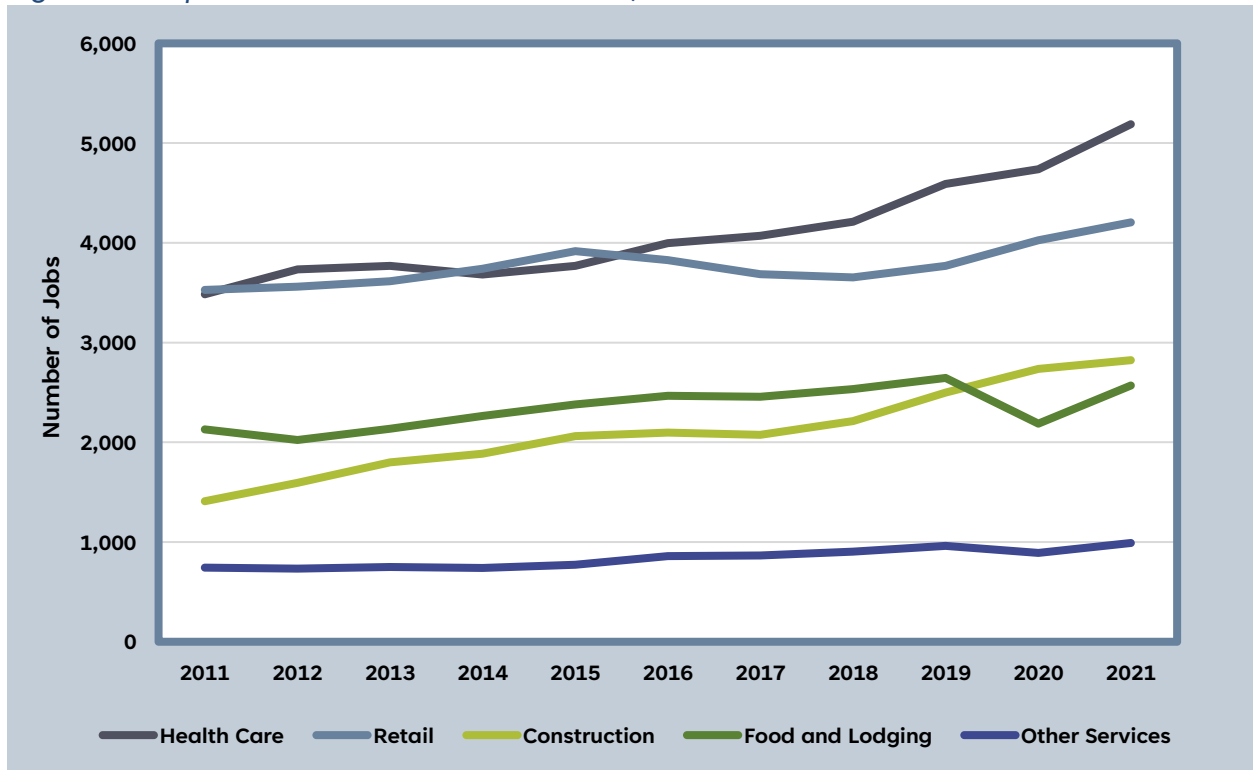
Figure 30. Public and Private Jobs in the MSB, 2011–2021



Source: DOL&WD, Quarterly Census of Employment and Wages, 2011–2021, 2022,
<https://live.laborstats.alaska.gov/qcew/index.html>

Figure 31 shows the top five job sectors in the MSB and their change over time. The health care and construction industries have seen the greatest growth in the past decade, with a 49 percent increase in health care jobs and a doubling in the number of construction jobs from 2011 to 2021. This reflects the explosive housing growth in the region. The food and lodging industries took an unsurprising hit from the COVID-19 pandemic but have since rebounded significantly as tourism has returned to the MSB. Retail jobs have also been relatively steady, despite the serious setbacks for the industry posed by both e-commerce and the COVID-19 pandemic over the past decade.

Figure 31. Top Private Job Sectors in the MSB, 2011–2021



Source: DOL&WD, Quarterly Census of Employment and Wages, 2011–2021, 2022,
<https://live.laborstats.alaska.gov/qcew/index.html>

The growth of health care employment in the MSB parallels the rise of the industry as the leading sector statewide and one of the leading economic drivers nationally. Other major industries in Alaska that have seen notable growth in recent decades are also reflected in the MSB, such as restaurants and tourism-related jobs.⁴⁵ From the perspective of the economic future of MSB residents, these are promising trends. Health care jobs in Alaska pay more than in any other state as of 2018, with an average salary of \$98,020.⁴⁶ Notwithstanding a future pandemic or other catastrophe, tourism in Alaska looks to remain a strong sector, and community members interviewed by the Study project team specifically spoke about new recreational and tourism opportunities opening up in the Hatcher Pass area. The MSB was recently awarded a grant for the construction of the new Mat-Su Gateway Visitor Center, which will help increase tourism employment.

12.3 Major Employers

The Three Bears Alaska in the Big Lake Town Center and adjacent businesses represent one employment hub in the sub-area. Another is found at the Settlers Bay Lodge and Golf Course, which employs around 40 people, according to ESRI.⁴⁷ The MSB School District is

⁴⁵ Fried, Neal, Industry winners and losers, *Alaska Economic Trends*, February 2019

⁴⁶ Zaguirre, Aiko, How healthcare wages in Alaska rank, *Alaska Economic Trends*, December 2018

⁴⁷ ESRI Business Analyst Point of Interest Search, data provided by Data Axle, September 2022

the borough's largest public employer, with more than 2,000 employees across all its schools.⁴⁸

13 Environmental

This section summarizes the existing environmental conditions and resources in the Knik Goose Bay-Big Lake Sub-Area. Understanding the existing environmental conditions and cultural resources are important for several reasons: they help determine which improvements may be challenging or more expensive to construct, which level of environmental documentation is needed, where additional agency coordination may be needed, and where opportunities exist for avoidance and mitigation.

13.1 Cultural Resources

An October 2022 review of the Alaska Heritage Resources Survey database indicated 325 cultural resources located within the Knik Goose Bay-Big Lake Sub-Area. Of these, two are eligible for listing in the National Register of Historic Places. The remaining sites are either not eligible, unevaluated, or an evaluation is pending. Several laws and regulations, such as regulations implementing Section 106 of the National Historic Preservation Act⁴⁹, govern the process to be followed if a cultural resource may be impacted as the result of a federal undertaking. Potential impacts to cultural resources should be considered as part of the project development process because it may increase the project cost and schedule.

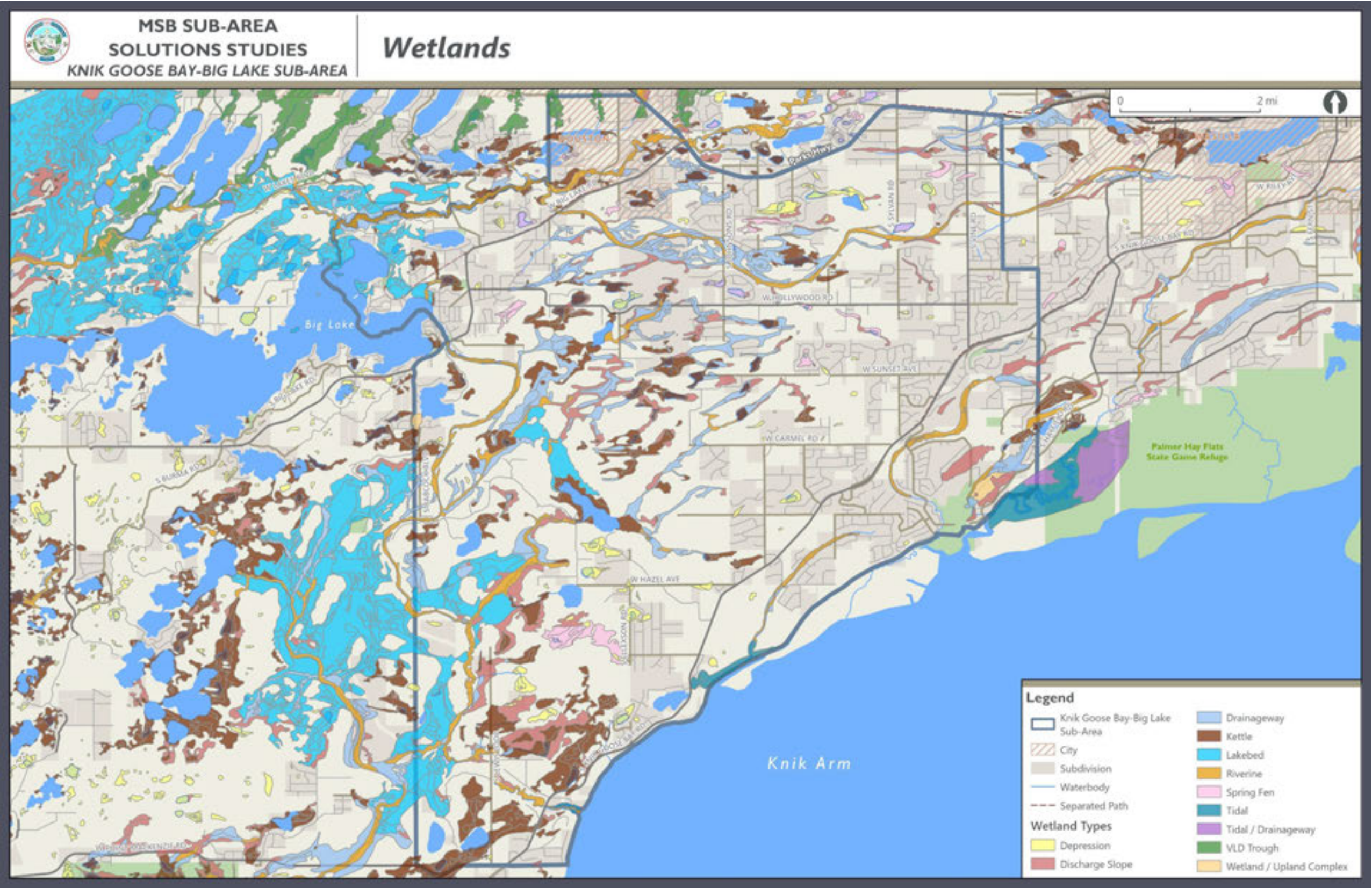
13.2 Wetlands

Figure 32 shows the location of wetlands identified within the Knik Goose Bay-Big Lake Sub-Area based on the MSB wetlands Geographic Information System (GIS) data.

⁴⁸ MSB School District, About Us, 2022, <https://www.matsuk12.us/domain/3379>

⁴⁹ 36 Code of Federal Regulations Part 800

Figure 32. Wetlands



Source: MSB GIS, 2022

13.3 Floodplains

Floodplains are land areas of low-lying ground adjacent to a waterbody that are subject to inundation by floodwaters during times of heavy rain, snowmelt, or high tides (for coastal areas). They can act as reservoirs that temporarily store waters, slowing down their speed and reducing the impact of erosion downstream. They typically are important habitats for fish, birds, and wildlife. Managing development or encroachments to floodplains reduces the impacts of flooding on the built environment, sustains healthy ecosystems, and supports local economic and recreation opportunities.

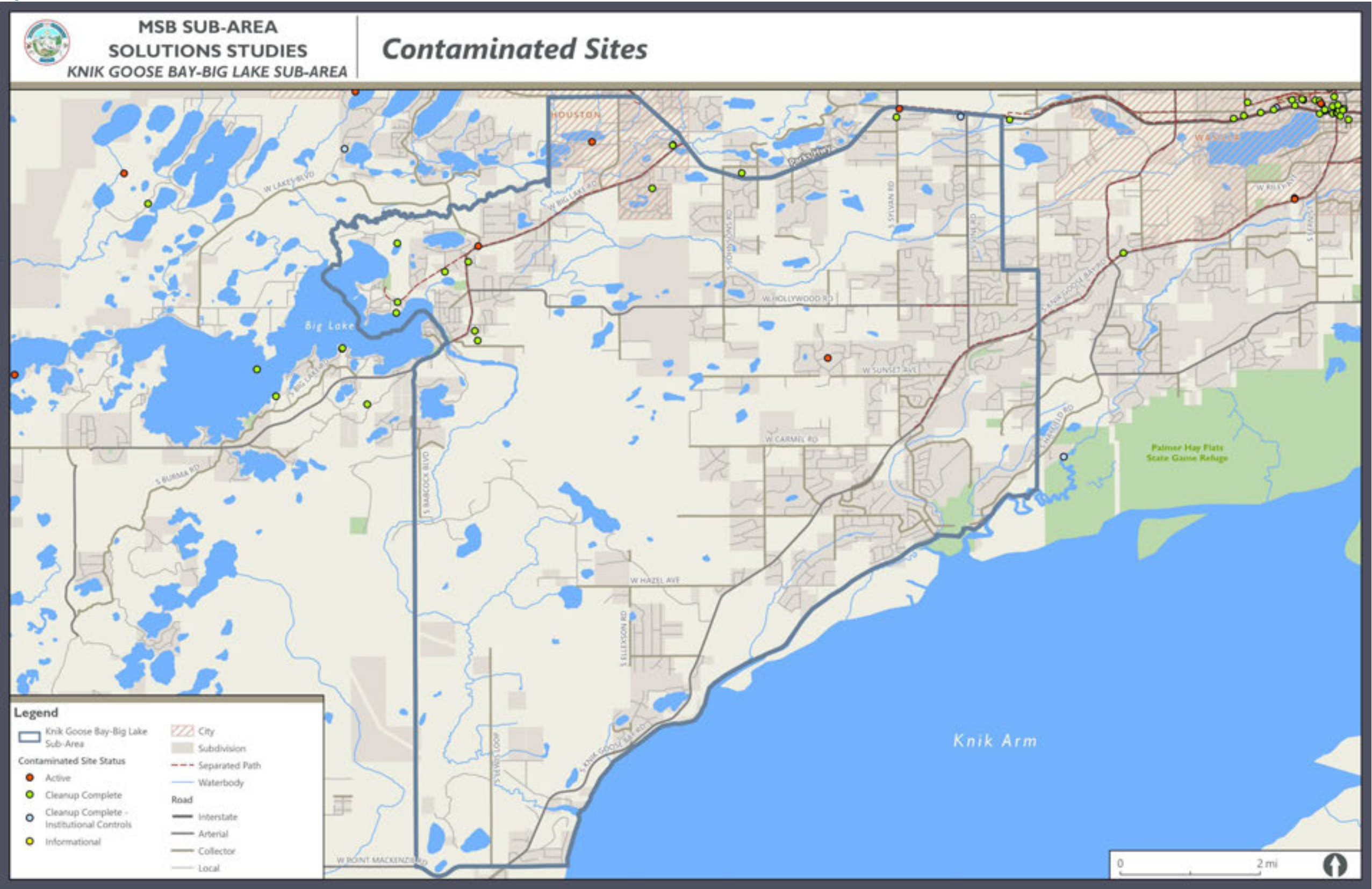
In the Knik Goose Bay Big Lake Sub-Area, one mapped floodplain occurs along Lucille Creek (see Figure 33). Several other unmapped drainages occur within the sub-area, with Fish Creek being the largest. Construction within the floodplains would have to comply with appropriate floodplain regulations.

13.4 Contaminated Sites

A July 2022 review of the Alaska Department of Environmental Conservation (ADEC) Contaminated Sites Database⁵⁰ indicated four known active contaminated sites in the Knik Goose Bay-Big Lake Sub-Area. There are multiple sites that have been previously addressed (see Figure 34).

⁵⁰ ADEC, Contaminated Sites, 2022, <https://dec.alaska.gov/spar/csp.aspx>

Figure 34. Contaminated Sites



Source: ADEC, Contaminated Sites, 2022, <https://dec.alaska.gov/spar/csp.aspx>

Appendix A Existing Non-Infrastructure Policy and Codes

A.1 Subdivision Construction Manual

The Matanuska Susitna Borough (MSB) Assembly approved the updated *Subdivision Construction Manual* (SCM)⁵¹ by adopting ordinance Serial Number 20-15 that amended MSB 43.05.015(b)(3) to replace the SCM in Borough Code. The SCM provides design standards to developers for the design and construction of roads whose ownership will be transferred to the MSB for long-term maintenance, repair, and upgrade. It is important that all roads constructed by developers meet appropriate standards prior to the transfer of ownership to the MSB.

The SCM goals are to:

1. Establish standards for the design and construction of transportation networks throughout the MSB.
2. Provide information and guidelines for the design, construction, and upgrade of roads, drainage facilities, and utilities within rights-of-way.
3. Develop and maintain a safer and more efficient transportation system.
4. Minimize operation and maintenance efforts.

Issue: The SCM Annual Average Daily Traffic levels defining local roads are much higher than national standards, leading to the potential under design of local roads.

A.2 Title 43 Subdivisions (see MSB Code⁵² for all code requirements contained in this Title.)

MSB Code Title 43 Subdivisions regulates the development of subdivisions within the MSB. This Title identifies subdivision design standards and the responsibilities of property owners, developers, and the MSB. These regulations establish the Platting Board and defines members responsibilities. It addresses plat approval, abbreviated plats, and vacations; existing plat status and validation; reconsideration and appeals; and subdivision agreements.

Issue: Platting decisions historically have defined land use within the MSB without assessing impacts to the existing and future road networks.

Most of the property within the Knik Goose Bay-Big Lake Sub-Area is in the unincorporated area of the MSB. These lands comprise a portion of what is known as the

⁵¹ MSB, *Subdivision Construction Manual*, 2020, <https://matsugov.us/49-documents/21522-2020-subdivision-construction-manual>

⁵² MSB Code, Title 43, <https://www.codepublishing.com/AK/MatanuskaSusitnaBorough/#!/MatanuskaSusitnaBorough43/MatanuskaSusitnaBorough4305.html#43.05.015>

Core Area of the MSB, where the majority of the MSB's population is located. The *Core Area Comprehensive Plan*⁵³ established planning goals and objectives within the Core Area. These goals and objectives are implemented in part by MSB Code Section 17.61 Core Area, with certain developments or activities requiring a Conditional Use Permit and/or a Traffic Impact Analysis with Mitigation prior to project initiation.

A.3 Applicable MSB Development Codes

Additionally, all areawide code requirements are applicable within the Knik Goose Bay-Big Lake Sub-Area, including the following Titles that address residential, commercial, institutional, and industrial development:

- **MSB Code Title 8 Health and Welfare**⁵⁴: Title 8 identifies health and safety standards related to construction by formally adopting the International Mechanical Code, International Building Code, Uniform Plumbing Code, National Electrical Code, International Fire Code, and International Fuel and Gas Code for all construction within the MSB. It also establishes standards for sewer and septic systems, including sizing and separation from wells and water bodies. Sewer and septic systems must meet Alaska Department of Environmental Conservation requirements.
- **MSB Code Title 11 Roads, Streets, Sidewalks and Trails**⁵⁵: Title 11 establishes standards for roads, streets, sidewalks, and trails. These standards are implemented through the MSB's *Subdivision Construction Manual*⁵⁶, which contains all relevant standards. This Title also defines encroachments and remedies. It establishes driveway standards and permits, and states when Traffic Impact Analyses and Traffic Impact Mitigations are required.
- **Title 15 Planning**⁵⁷: Title 15 establishes the role and function of the MSB Planning Commission as an advisory body to the MSB Assembly with respect to proposed ordinances and plans and that serves in a quasi-judicial function related to the approval or denial of Conditional Use Permits. This Title establishes MSB Assembly functions related to zoning, comprehensive planning, lake management plans, and

⁵³ MSB, *Core Area Comprehensive Plan*, 2007 Update, <https://matsugov.us/docs/plans/14442/sandy-formatted-core-area-comp-plan1.pdf>

⁵⁴ MSB Code, Title 8, <https://www.codepublishing.com/AK/MatanuskaSusitnaBorough/#!/MatanuskaSusitnaBorough08/MatanuskaSusitnaBorough08.html>

⁵⁵ MSB Code, Title 11, <https://www.codepublishing.com/AK/MatanuskaSusitnaBorough/#!/MatanuskaSusitnaBorough11/MatanuskaSusitnaBorough11.html>

⁵⁶ MSB, *Subdivision Construction Manual*, 2020, <https://matsugov.us/49-documents/21522-2020-subdivision-construction-manual>

⁵⁷ MSB Code, Title 15, <https://www.codepublishing.com/AK/MatanuskaSusitnaBorough/#!/MatanuskaSusitnaBorough15/MatanuskaSusitnaBorough15.html>

amending state management plans affecting MSB lands. Chapter 15.30 establishes the Official Streets and Highway Plan as the official map that shows the location of present and future road construction projects throughout the MSB. This Title establishes the Board of Adjustment and Appeals as a process for residents to appeal decisions made by the MSB Administration, Boards, and Commissions.

- **Title 17 Zoning**⁵⁸: Title 17 establishes areawide and special use district zoning requirements throughout the MSB:
 - Establishes 13 Special Land Use Districts throughout the MSB that require additional development standards or limitations to address community or agency goals.
 - Requires conditional use permits for a variety of activities prior to their initiation, including a public process.
 - Establishes setbacks from lot lines, water courses, water bodies, rights-of-way, and screening easements.
 - Creates aviation overlay districts for commercial service airports, public airports, and privately owned public use airports.
 - Addresses flood damage prevention.
 - Provides regulations and permit requirements related to materials extraction and the establishment of Interim Material Districts.
 - Establishes standards for multifamily development and mobile home parks.
 - Provides a process to establish single-family and large-lot, single-family districts.
 - Regulates adult businesses, waste incinerators, nonconforming structures, racetracks, and tall structures.
 - Establishes conditional use permit requirements and noise, traffic, and hazardous materials standards within the Core Area of the MSB.
 - Establishes a public and permit process for the placement of essential service utilities within the MSB.
 - Establishes procedures to address variances.
 - Establishes fees.

The Cities of Palmer, Wasilla, and Houston as well as the Port MacKenzie Special Use District are often exempted from Title 17 regulations, and a thorough review of the regulations are needed to determine applicability.

⁵⁸ MSB Code, Title 17,
<https://www.codepublishing.com/AK/MatanuskaSusitnaBorough/#!/MatanuskaSusitnaBorough17/MatanuskaSusitnaBorough17.html>

Matanuska-Susitna Borough



**Community
GROWTH**
SOLUTIONS STUDY

UMED Sub-Area Existing Conditions Report

November 2022

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Appendices

Appendix A Existing Non-Infrastructure Policy and Codes

Acronyms/Abbreviations

ACS	American Community Survey
ADEC	Alaska Department of Environmental Conservation
ADNR	Alaska Department of Natural Resources
CIRI	Cook Inlet Region, Inc.
DOL&WD	Alaska Department of Labor and Workforce Development
DOT&PF	Alaska Department of Transportation and Public Facilities
FFY	Federal Fiscal Year
GIS	Geographic Information System
LRTP	Long Range Transportation Plan
MHI	Median Household Income
MP	Milepost
MPO	Metropolitan Planning Organization
MSA	Metropolitan Statistical Area
MSB	Matanuska-Susitna Borough
OS&HP	Official Streets and Highway Plan
RSA	Road Service Area
SASS	Sub-Area Solutions Studies (original name for these studies. Renamed in September 2025 to 'Community Growth Solutions Study')
Study	Community Growth Solutions Study
STIP	Statewide Transportation Improvement Program
UAA	University of Alaska Anchorage
UAF	University of Alaska Fairbanks
UMED	University Medical District

1. Introduction

1.1 Project Overview

The Matanuska-Susitna Borough (MSB) Assembly adopted their 2023–2028 Strategic Plan to focus on three key areas:

1. Foster economic growth and diversification within the MSB,
2. Support the delivery of high-quality MSB services, and
3. Help manage growth throughout the MSB.



As part of the implementation of the Strategic Plan, the MSB is developing the Community Growth Solutions Study (Study), with the goal of supporting a safe, robust transportation system that can be a catalyst for economic growth and prosperity in the MSB.

A functioning transportation system is more than just a road network. While new or expanded roads can provide short-term solutions to transportation problems, they are most effective when paired with non-infrastructure programs and policies to protect the roadway network over the long term.

This project's purpose is to identify infrastructure and non-infrastructure solutions to transportation needs that address the MSB's Strategic Plan focus areas. Combining infrastructure and non-infrastructure-based transportation solutions can result in better mobility, which can lower business costs, improve freight movement, and provide better employment opportunities. It can also improve quality of life as residents can get places faster using a variety of travel options, making the MSB an even more desirable place people want to live.

The project consists of the following four sub-areas:



1.2 Project Goals

The project's goals are to:

- Identify current and future transportation deficiencies
- Establish purpose and need for proposed solutions
- Prioritize the *Official Streets and Highway (OS&HP)* corridor recommendations

- Promote comprehensive solutions to MSB's growth related transportation issues
- Demonstrate the linkage between transportation, land use, and economic development

1.3 Planning Process

The planning process used to develop the study for each sub-area is shown in Figure 1.

Figure 1. Planning Process



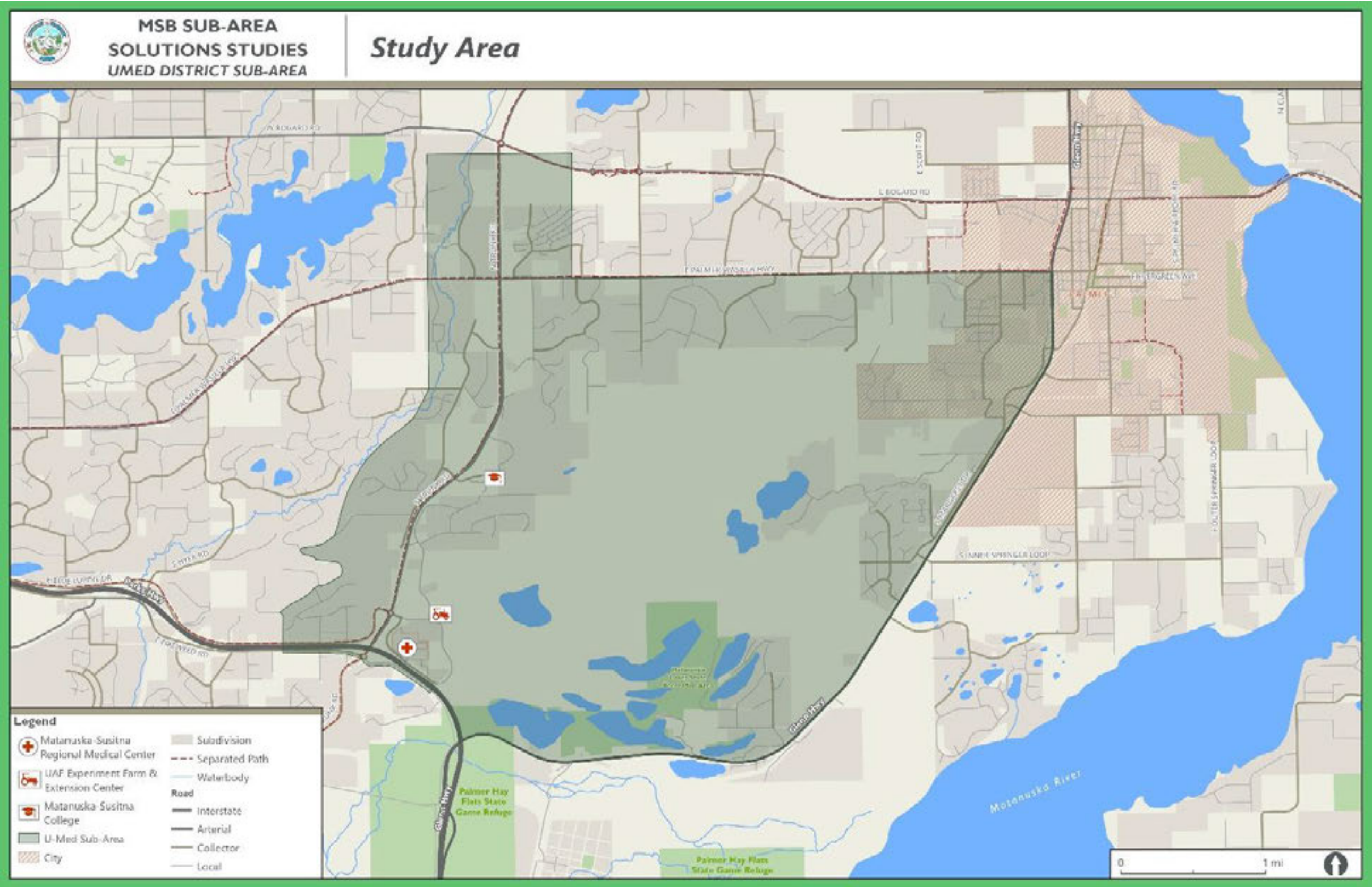
Throughout the planning process, the MSB will engage with the public, stakeholders, and partner agencies. This input will guide the development of the study and establish public understanding of the relationship between transportation improvements and their functionality and safety with land use policies, as well as how transportation and land use are important to economic development and investments.

1.4 Study Area

The University Medical District (UMED) Sub-Area is distinctive in that it contains several educational and medical facilities, including the Mat-Su Regional Medical Center and adjacent Providence Medical Buildings, University of Alaska Anchorage's (UAA) Mat-Su Campus, University of Alaska Fairbanks (UAF) Matanuska Experiment Farm and Extension Center, and numerous other medical offices and senior living facilities. UMED includes a large, contiguous open space composed of UAF, UAA, MSB, and Alaska Department of Natural Resources (ADNR) property, locally known as the Matanuska Greenbelt or Central Park.

The UMED Sub-Area is generally bounded by the Parks Highway to the south, Glenn Highway to the east and southeast, Trunk Road Corridor to the west, and a portion of Bogard Road and the Palmer-Wasilla Highway to the north (see Figure 2). Most of the sub-area is within the Gateway Community Council or the City of Palmer.

Figure 2. Study Area Map



2 Demographics

This section provides a demographic summary to provide context for the existing conditions and anticipated changes in the sub-area.

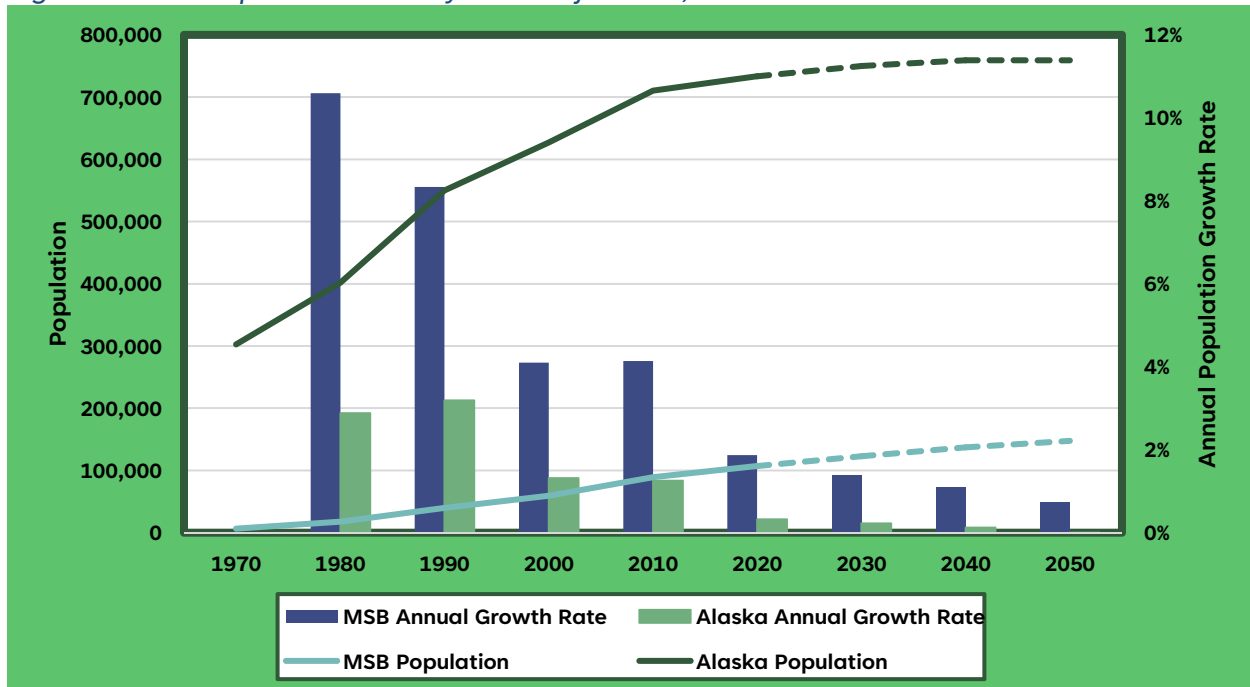
2.1 Population

Error! Reference source not found. and Table 1 show the historic and projected future population of the MSB and Alaska. According to the Alaska Department of Labor and Workforce Development (DOL&WD)¹, the state and MSB grew rapidly from the 1970s through the 2000s. Beginning in 2010, the Alaskan population began to stabilize, growing only 3 percent between 2010 and 2022.

Table 1. Yearly Growth Rates

Area	1970–2000	2000–2020	2020–2050
MSB	7.6%	3.0%	1.1%
Alaska	2.5%	0.8%	0.1%

Figure 3. MSB Population History and Projections, 1960–2050



Source: DOL&WD, Alaska Population Estimates, 2021, <https://live.laborstats.alaska.gov/pop/index.cfm>

¹ DOL&WD, Alaska Population Estimates, 2021, <https://live.laborstats.alaska.gov/pop/index.cfm>

Much of Alaska's population growth results from more significant in and out-migration than in other states. Economic factors, such as the volatility of the oil industry and recessions on national and state levels, significantly impact the state's population. Readjustment of military personnel to bases in other states has also had notable impacts on Alaska's population.² The DOL&WD's most

recent population forecast, published in 2021, assumes that slow population growth in the state over the 2021 to 2050 horizon will result from an aging population, lower birth rates, and a net out-migration³ between -0.7 and -0.2.⁴



Overall, the MSB is by far the fastest-growing area in Alaska, resulting in the need for new housing stock, potential increases in traffic congestion, and the need to consider future development patterns and nodes that affect the location, construction, and preservation of new collector and arterial corridors.

By contrast, the MSB population grew 22 percent between 2010 and 2022. These trends are projected to continue, with the DOL&WD forecasting a 38 percent increase in population within the MSB by 2050, compared with only 4 percent statewide.⁵ The MSB is growing much faster than the Anchorage Metropolitan Statistical Area (MSA), of which the MSB is a part; the Anchorage MSA is expected to see a 4 percent decrease in population by 2050. More than half of the MSB's new residents are in-migrants from within Alaska, mostly from Anchorage (see Figure 4**Error! Reference source not found.** for regional context). The MSB is one of only two regions in Alaska that has experienced net positive in-migration in the past 20 years. Families with children are particularly prominent in the demographic breakdown of residents moving from Anchorage to the MSB. Overall, this migration from other areas of the state is the main reason for the MSB's recent and continuing population growth.⁶

This rapid population increase affects many aspects of life in the MSB that are discussed throughout this report, including housing prices, residential and commercial development and real estate, traffic, transportation infrastructure and connectivity, school capacity, commuting patterns, and the regional economy.

² DOL&WD, Alaska Population Overview: 2019 Estimates, December 2020

³ Net out-migration refers to the difference between the number of people moving from an area compared to those moving to the area. Net outmigration means that more people are expected to move out of Alaska than into the state.

⁴ DOL&WD, Alaska Population Estimates, 2021, <https://live.laborstats.alaska.gov/pop/index.cfm>

⁵ DOL&WD, Alaska Population Estimates, 2021, <https://live.laborstats.alaska.gov/pop/index.cfm>

In 2020, the UMED Sub-Area had a population of 5,126, which was approximately 4.7 percent of the MSB's total population.⁷ Figure 5 shows the population distribution within the sub-area.

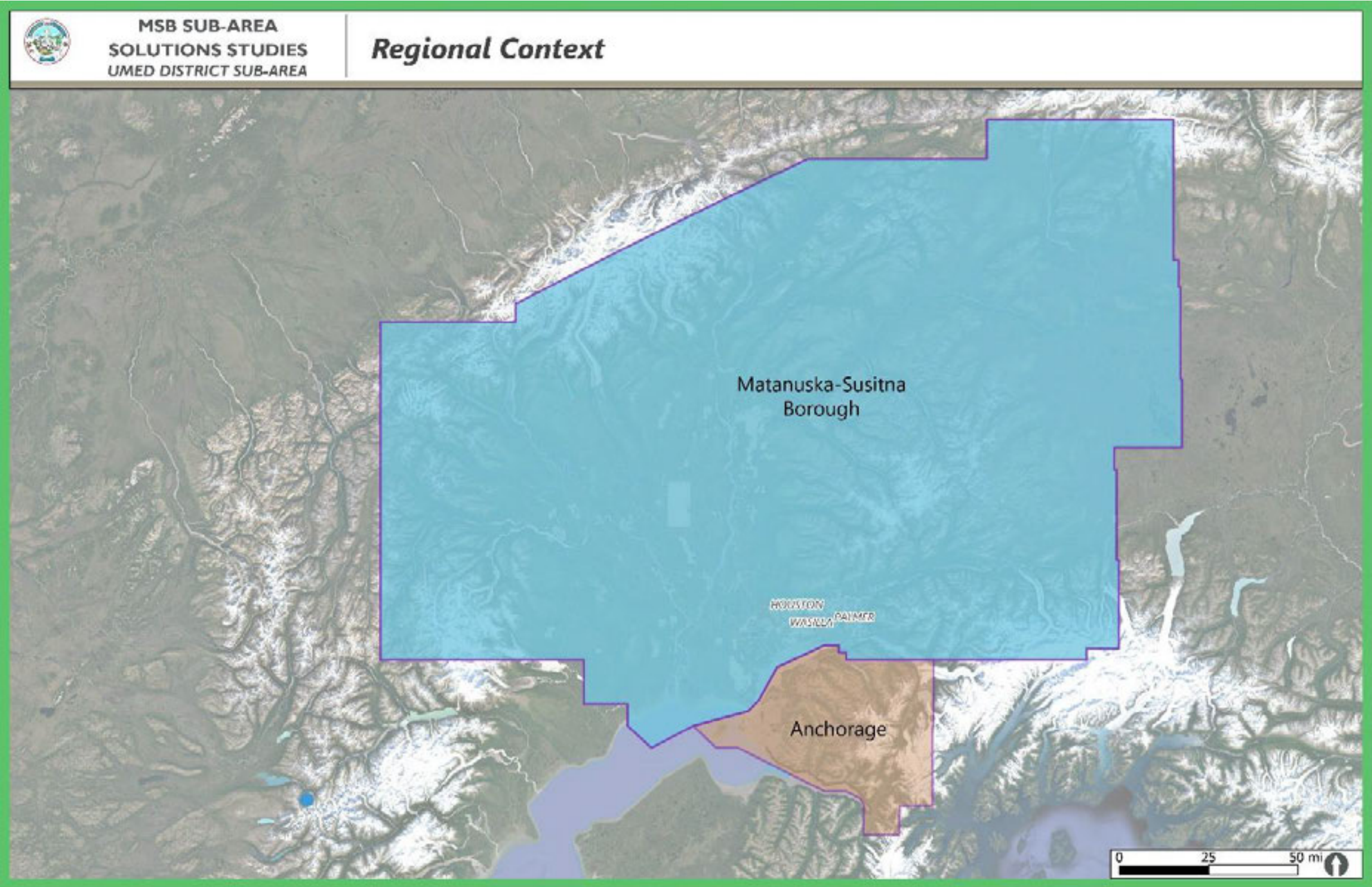
2.2 Population Density

The average population density in the UMED Sub-Area is 380 people per square mile⁸, which is below the U.S. Census definition of an urbanized area (1,000 people per square mile) and urban fringe area (500 people per square mile). However, the population density varies greatly over the sub-area. It is lowest near the MSB Greenbelt and higher in the surrounding residential areas. The population density in the sub-area by Census Block Group is shown in Figure 6.

⁷ American Community Survey, 5-year Estimates, 2020, via ESRI's ACS Population Summary, 2022

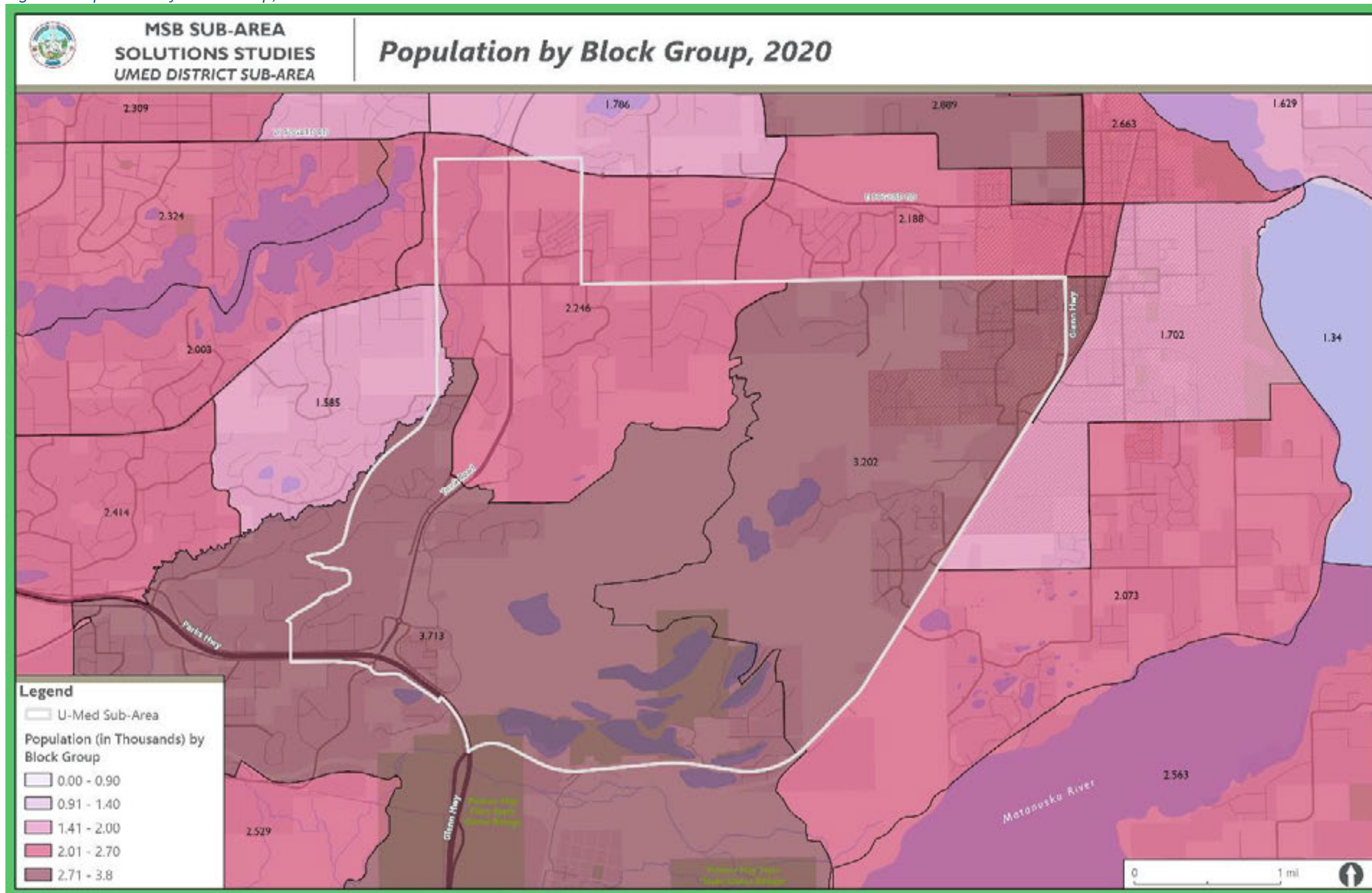
⁸ American Community Survey 5-year estimates, 2020, via ESRI's ACS Population Summary, 2022

Figure 4. MSB and Anchorage Regional Context



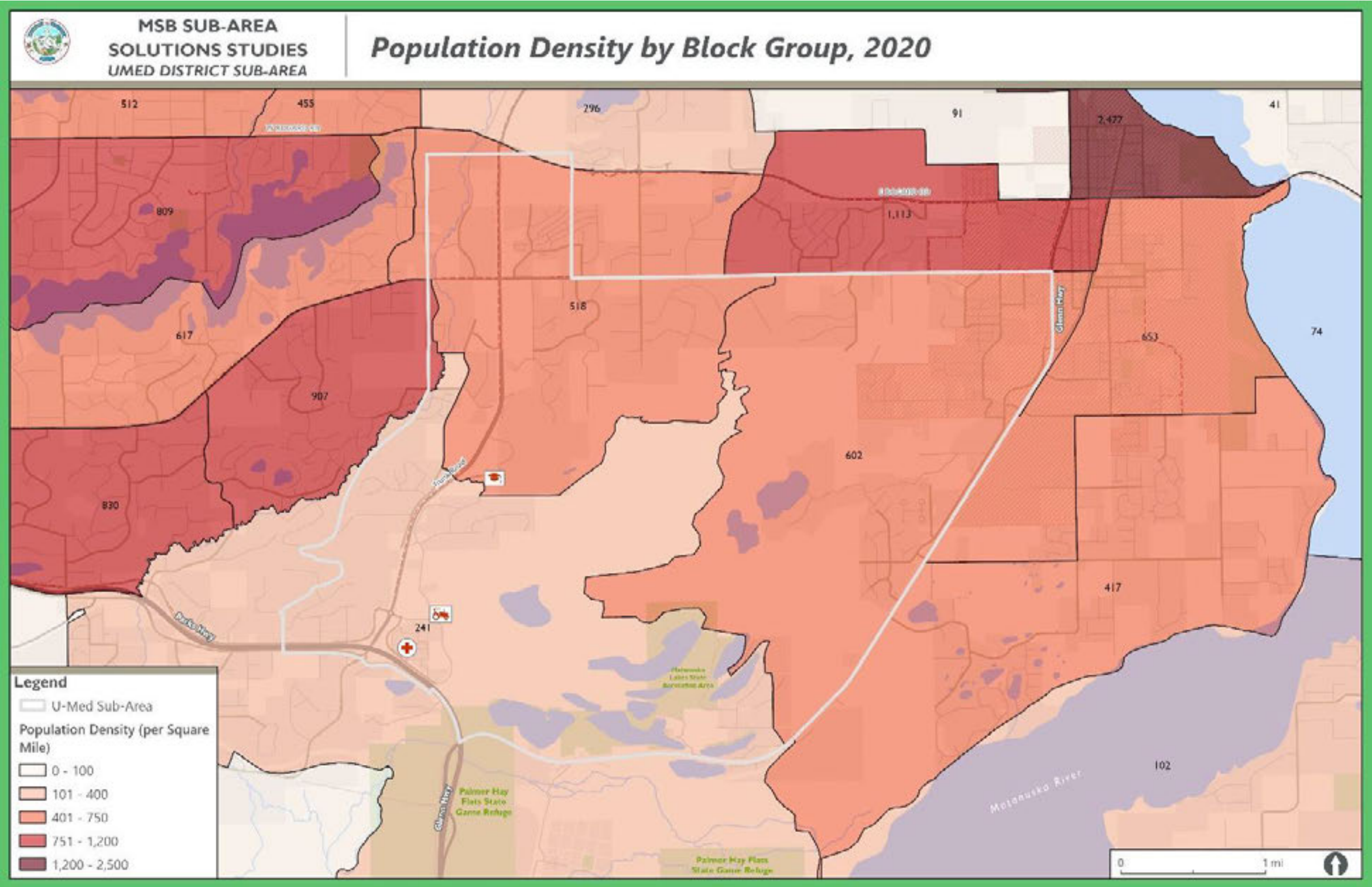
Source: U.S. Census Bureau TIGER Line Shapefiles; Google Earth; Leland Consulting Group, 2022

Figure 5. Population by Block Group, 2020



Source: American Community Survey, 2016–2020 5-year Estimates Summary

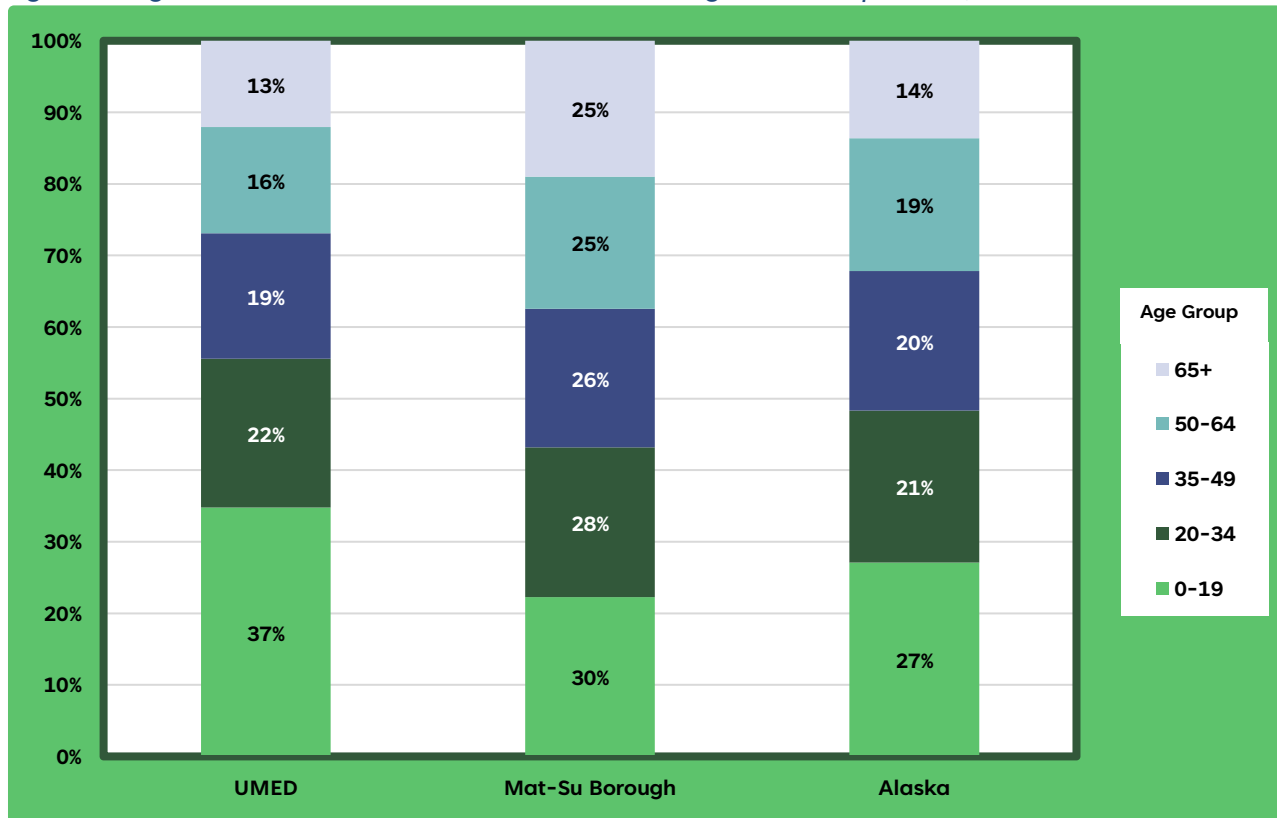
Figure 6. Population Density by Block Group, 2020



2.3 Age

UMED Sub-Area residents are younger than the MSB and statewide averages, as shown in Figure 7. In 2020, 37 percent of the population was under age 19, and 22 percent was between the ages of 20 and 34.⁹ Only 13 percent of the UMED population was over age 65, compared to 25 percent MSB-wide. The younger population may reflect proximity to education facilities that serve the sub-area, including Pioneer Peak Elementary, Colony Middle and High Schools, Palmer Middle and High Schools, Valley Pathway, and Mat-Su College.

Figure 7. Age of UMED Sub-Area Residents with Regional Comparison, 2020



Source: American Community Survey, 2016–2020 5-year Estimates; DOL&WD, Alaska Population by Age and Sex, 2010, 2020 to 2021, 2021, <https://live.laborstats.alaska.gov/pop/estimates/data/AgeBySexAK.xls>

According to the 2020 American Community Survey¹⁰, the average household size within the UMED Sub-Area is 2.9 people per household. This is similar to the MSB, slightly more than the statewide average of 2.7 people per household. Approximately 80 percent of the households in the UMED Sub-Area are family households¹¹, compared with 71 percent

⁹ U.S. Census 2022

¹⁰ American Community Survey 5-year estimates, 2020, via ESRI's ACS Population Summary, 2022

¹¹ A family household refers to a household that is composed of a family (i.e., a group of two or more people related by birth, marriage, or adoption and residing together). It includes any unrelated people who may be residing there.

within the MSB overall and 65 percent statewide. Additionally, 47 percent of households in the UMED Sub-Area have children under age 18, compared with 35 percent within the MSB and 34 percent statewide. This large share of family households and households with children helps explain the larger-than-average household size and the number of young residents within the area. It also demonstrates the continued demand for schools within the sub-area and the need for road safety, connectivity, and transit service, particularly for children too young to drive vehicles.

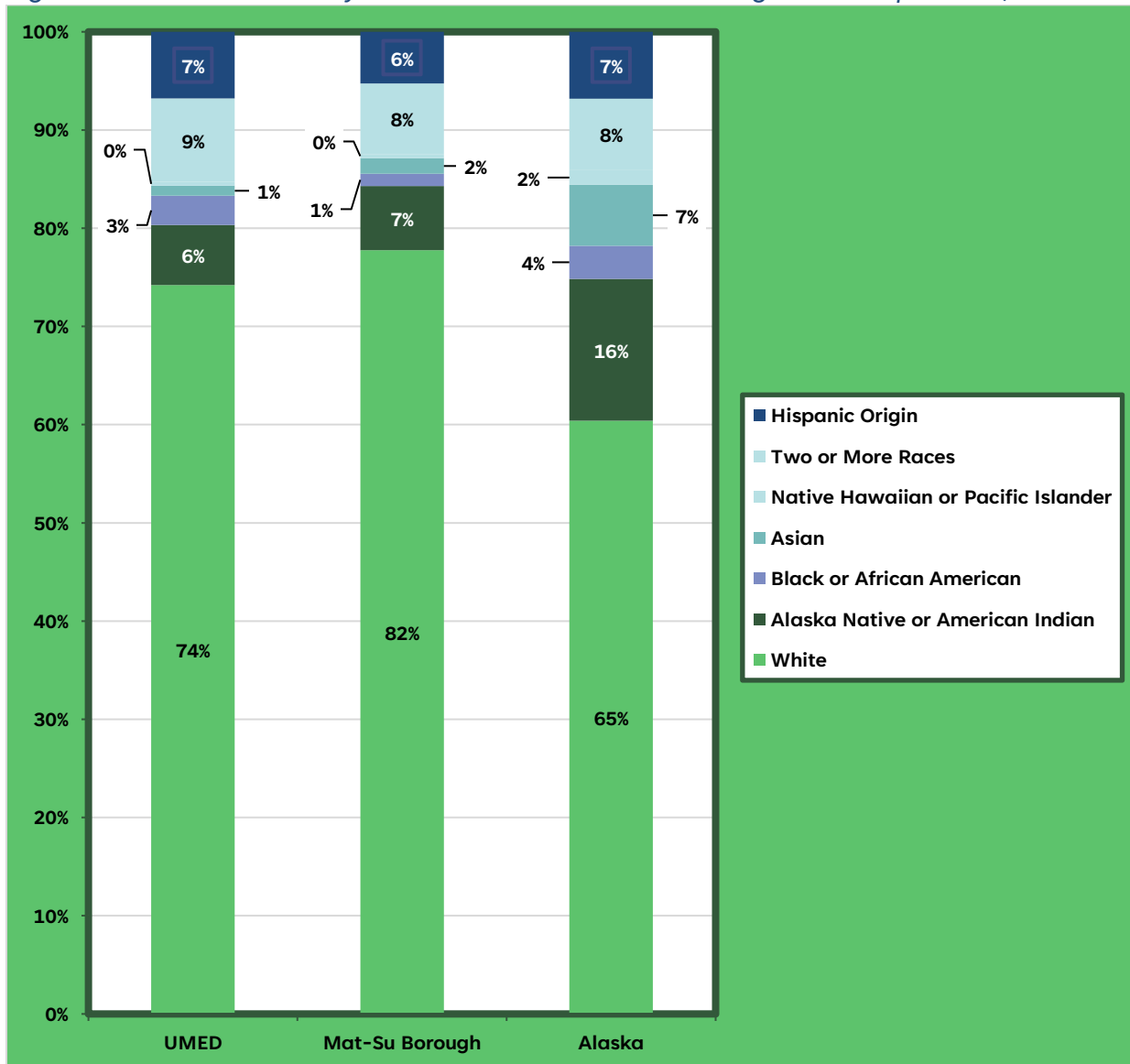
2.4 Race/Ethnicity

The UMED Sub-Area is slightly more diverse than the MSB as a whole, though less diverse than reported statewide, as shown in Figure 8. The 2020 American Community Survey¹² reported that 74 percent of the sub-area's population identifies as white, 9 percent as two or more races, and 6 percent as Alaska Native or American Indian. MSB-wide, the 2020 American Community Survey reported that 82 percent of residents identify as white, 7 percent as Alaska Native or American Indian, and 8 percent as two or more races. Statewide, the 2020 American Community Survey reported that 65 percent of residents identify as white, 15 percent as Alaska Native or American Indian (approximately twice the share of the MSB population), and 8 percent as two or more races.

Figure 9 shows the geographic distribution of minority populations in the UMED Sub-Area. There is a slightly higher concentration of minority populations within the eastern and southern parts of the sub-area. Approximately 15 to 25 percent of the population identifies with a race or ethnicity other than white.

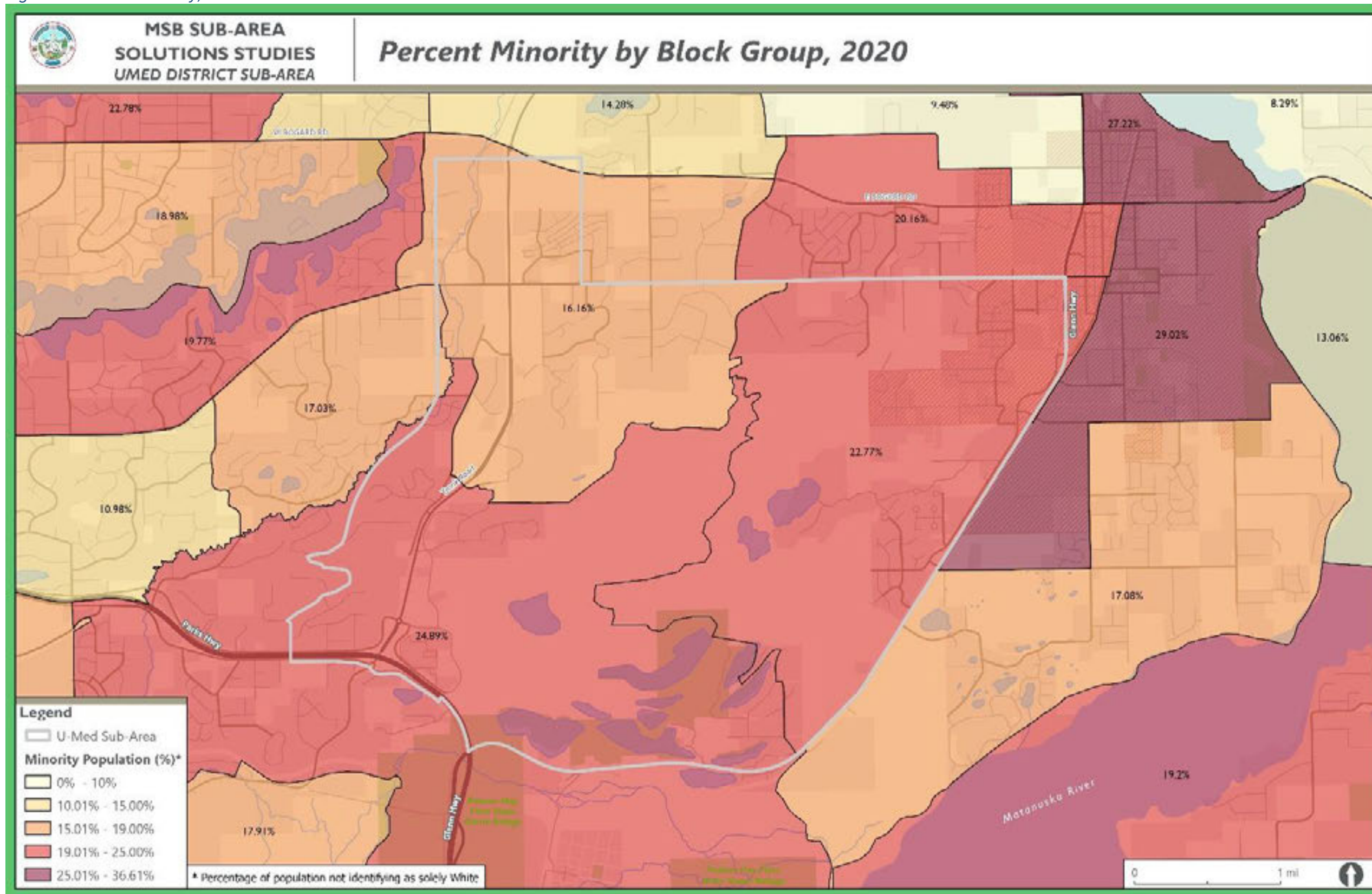
¹² American Community Survey 5-year estimates, 2020, via ESRI's ACS Population Summary, 2022

Figure 8. Race and Ethnicity in the UMED Sub-Area with Regional Comparisons, 2020



Source: DOL&WD, Alaska Population by Race and Hispanic Origin, 2020 to 2021, 2021, <https://live.laborstats.alaska.gov/pop/estimates/data/RaceHispAK.xls>; American Community Survey 5-Year Estimates, 2020

Figure 9. Percent Minority, 2020

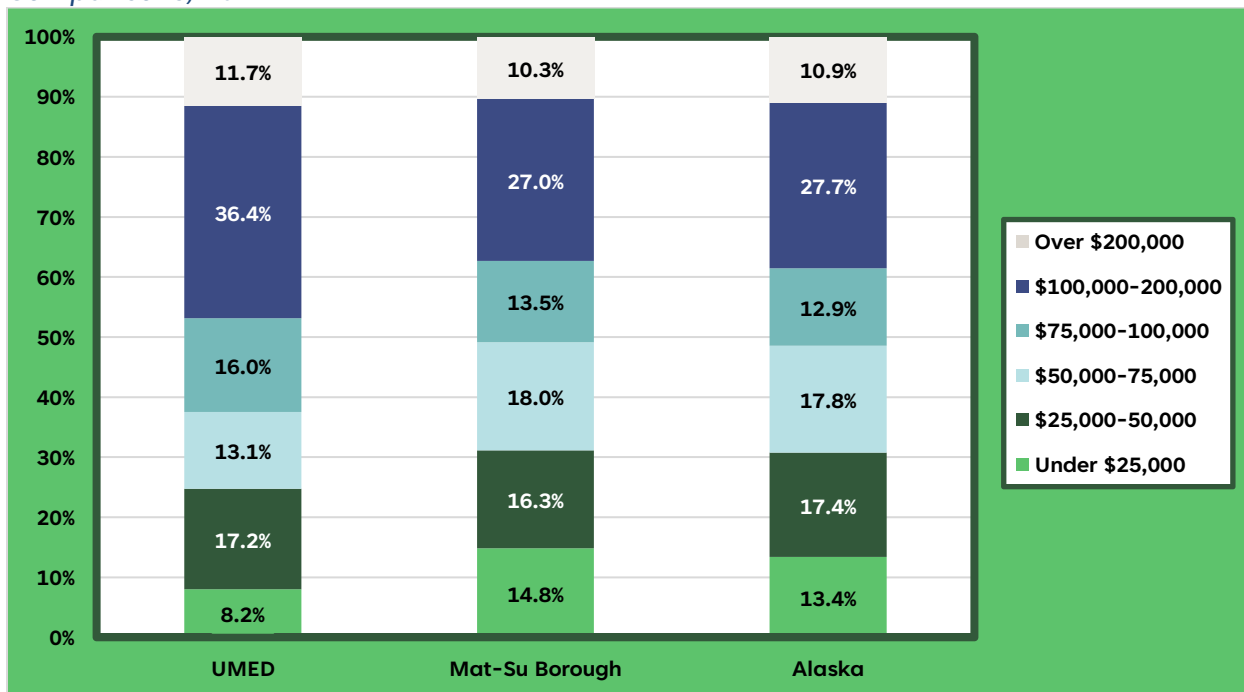


Source: American Community Survey, 2016–2020 5-year Estimates Summary

2.5 Median Household Income

In 2022, ESRI¹³ reports that the UMED Sub-Area has a Median Household Income (MHI) of \$95,173. This is higher than the MSB's MHI of \$76,316 and the statewide MHI of \$77,141. When broken down by income bracket, as shown in Figure 10, UMED households are comparatively well-off, with 36 percent of households in the sub-area earning between \$100,000 and \$200,000 per year, compared to 27 percent within the MSB. There is also a smaller share of lower-income households earning under \$25,000 per year, at 8.2 percent, compared with 14.8 percent MSB-wide.

Figure 10. Household Income Distribution in the UMED Sub-Area with Regional Comparisons, 2022



Source: ESRI Market Profiles for UMED District, MSB, State of Alaska, 2022

¹³ A leading provider of Geographic Information Systems (GIS) software and datasets, ESRI uses Census, U.S. Post Office, and other data to create population and economic estimates across the United States.

3 Land Use Plans

This section summarizes the land use plans that cover the UMED Sub-Area.

3.1 Borough-Wide Comprehensive Plan

The *Matanuska-Susitna Borough Comprehensive Development Plan*¹⁴ provides general goals and policy recommendations to guide the MSB's future development in a manner that improves quality of life, public health, safety, and welfare. Implementation of the plan is done in many ways, including Title 17 Zoning Ordinances, which include the ability to establish Special Use Districts (SpUDs), subdivision regulations, capital improvement programs, specific ordinances, and general policies. The plan is updated whenever a community comprehensive plan, lake management plan, regional plan, asset plan, or other specialty plan is adopted by the Assembly.

3.2 MSB Core Area Plan

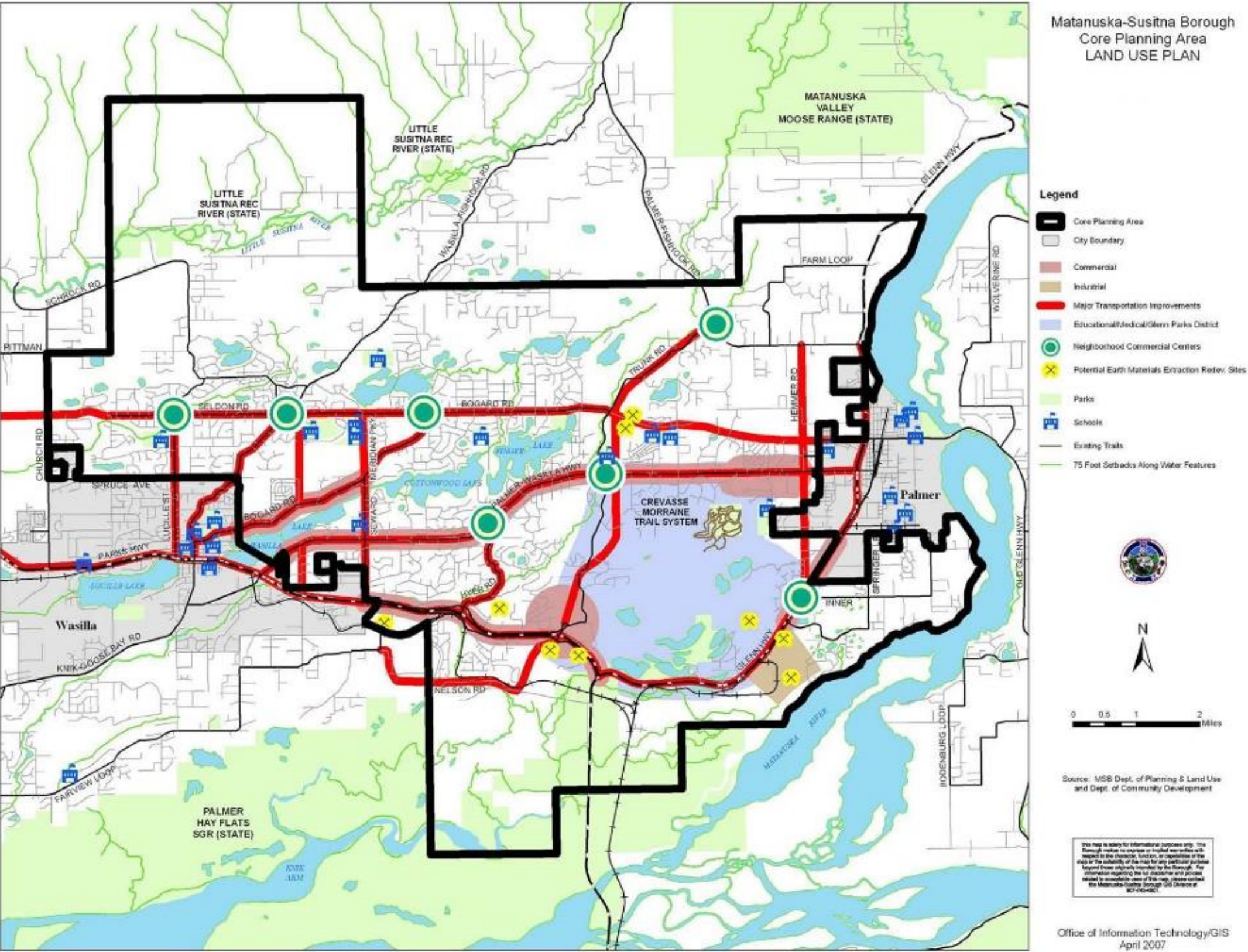
The *Matanuska-Susitna Borough Core Area Comprehensive Plan*¹⁵ established goals and policies to guide the Core Area's development to enhance the quality of life and the public health, safety, and welfare of residents. This plan established a framework to guide public and private decisions about land use and public infrastructure within the Core Area. In the UMED Sub-Area, the Core Area plan includes the Gateway Community Council and a small portion of the Farm Loop Community Council. The Core Area plan's land use plan map (see Figure 11) identified conceptual locations for different types of development.

The Core Area plan identified needed transportation improvements based on the 2007 *Long Range Transportation Plan* (LRTP). Those projects are not listed here, as the MSB updated its LRTP in 2017 (see Section 10.1.1 for updated project recommendations). The Core Area plan was last updated in 2007. Since then, certain plan recommendations have been implemented through Title 17.61 Core Area of the MSB's Zoning Code. The Core Area plan will likely be updated in the near future, as part of the MSB is expected to be designated an urban area by the U.S. Census Bureau in late 2022.

¹⁴ MSB, *Matanuska-Susitna Borough Comprehensive Development Plan*, <https://matsugov.us/plans/borough-wide-comprehensive-plan>

¹⁵ MSB, *Matanuska-Susitna Borough Core Area Comprehensive Plan*, 2007 Update, <https://matsugov.us/plans/core-area-comprehensive-plan>

Figure 11. MSB Core Area Plan, Land Use Plan Map



Source: MSB, Matanuska-Susitna Borough Core Area Comprehensive Plan, 2007 Update, <https://matsugov.us/plans/core-area-comprehensive-plan>

3.3 City of Palmer Comprehensive Plan

Adopted in 2016, the *City of Palmer Comprehensive Plan*¹⁶ documents the city's vision for community growth. The plan identifies the following transportation improvements in the sub-area:

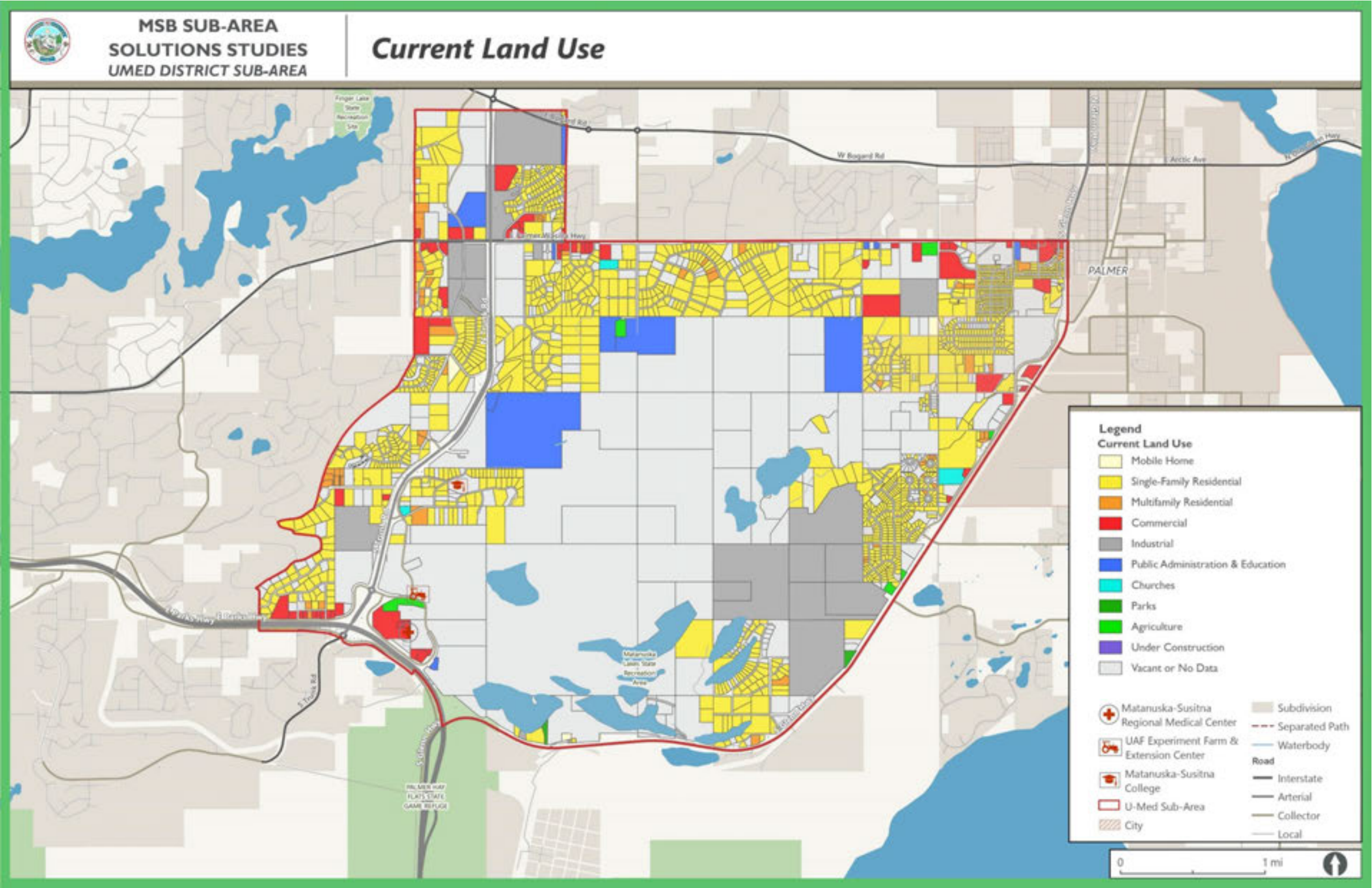
- Create an arterial-level street on the north-south section line currently partially occupied by Hemmer Road, Blunck Street, and North Werner Road. This route will connect the Glenn Highway with development along the Palmer-Wasilla Highway and Bogard Road and avoid the congested intersection of the Glenn and Palmer-Wasilla Highways. As of August 2022, this project is unfunded.
- Change the character of the Glenn Highway in Palmer. Establish a limited access, boulevard-style road with a landscaped median and right-of-way, and improve pedestrian and vehicular links between the eastern and western sides of the highway. Provide access to development with perpendicular access roads rather than direct driveway access or frontage roads. The first phase of this project has been completed between South Inner Springer Loop/Cienna Avenue and the Old Glenn Highway. The project's second phase, between the Glenn/Parks Interchange and South Inner Springer Loop/Cienna Avenue, will initiate construction in 2023.
- Extend Bogard Road east to connect with the Glenn Highway and continue into the greater downtown area. This project has been constructed.
- Connect Dogwood Avenue to the east over the Alaska Railroad and to the west across the Glenn Highway to an extended Felton Street. Dogwood Avenue has been extended west across the Glenn Highway, accessing Fred Meyer. No action has been taken with other project elements.
- Work with the State of Alaska and MSB to reserve land for other key transportation-related improvements, including reserving routes for collector streets on an approximately 0.5-mile grid and reserving or acquiring property to expand key intersections. This is an ongoing effort.
- Maintain and improve community sidewalks and trails. This is an ongoing effort.
- Work on a regional basis to expand and improve transit service. This is an ongoing effort.

4 Existing Land Use

The UMED Sub-Area is unique in that residential, commercial, institutional, and industrial activities are located on the boundaries of the sub-area, surrounding the large greenbelt area at its center. The current land use within the sub-area is shown in Figure 12.

¹⁶ City of Palmer, Palmer Planning Team, and Agnew::Beck Consulting, *City of Palmer Comprehensive Plan*, September 2006, <https://www.palmerak.org/community-development/page/comprehensive-plan>

Figure 12. Current Land Use in the UMED Sub-Area, 2022



Source: MSB Assessor Data, 2022

4.1 Residential

Single-family residential comprises the majority of housing in the UMED Sub-Area. The northeastern portion of the sub-area within the Palmer city limits is served by city-owned water and sewer services, allowing for higher-density development with several single-family housing units per acre. Outside city limits, larger lot, single-family residential is the most common, with the majority of lots being a minimum of 40,000 square feet to allow onsite well and septic systems. Subdivisions with community water systems are scattered throughout the sub-area, allowing 0.5-acre lots with onsite septic.

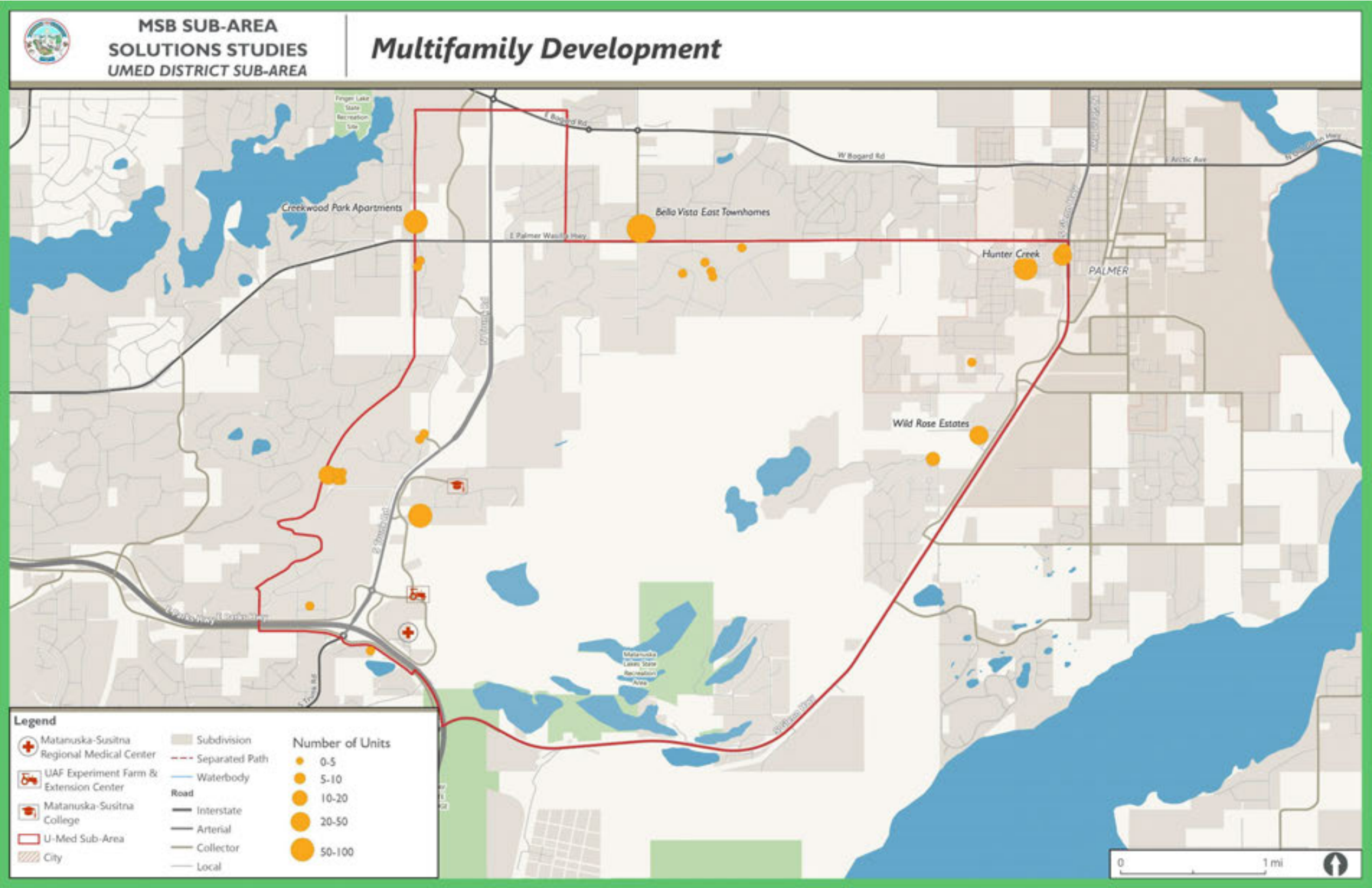
A few multifamily developments are located within the sub-area, shown in Figure 13 and listed below:

1. Duchess Apartments, located on the corner of Duchess and South Georgeson Drives, consists of 30 2-bedroom units in 5 sixplexes.
2. Creekwood Park Apartments are located on Creekwood Drive on the northern side of the Palmer-Wasilla Highway, adjacent to Wasilla Creek. It consists of a total of 48 1-, 2-, and 3-bedroom units.
3. Wild Rose Estates apartments, located just south of the Palmer city limits on Drift Lane, consists of five fourplexes with one- and two-bedroom units.
4. Three individual apartment buildings, consisting of two fourplexes and one sixplex, are located on Daron Drive within Palmer, near the Carrs-Safeway store.
5. A fourplex apartment is located on East Woodstock Drive off Irwin Loop in Palmer.
6. Four fourplexes are located north of Fern Street in Palmer.
7. Six duplexes are located on Shooting Star Circle south of Palmer, west of the Glenn Highway.
8. A total of 40 2-bedroom apartments are under construction at the southwestern corner of Trunk and Bogard Roads, with plans for an additional 40 units to be constructed in the near future.

4.2 Commercial

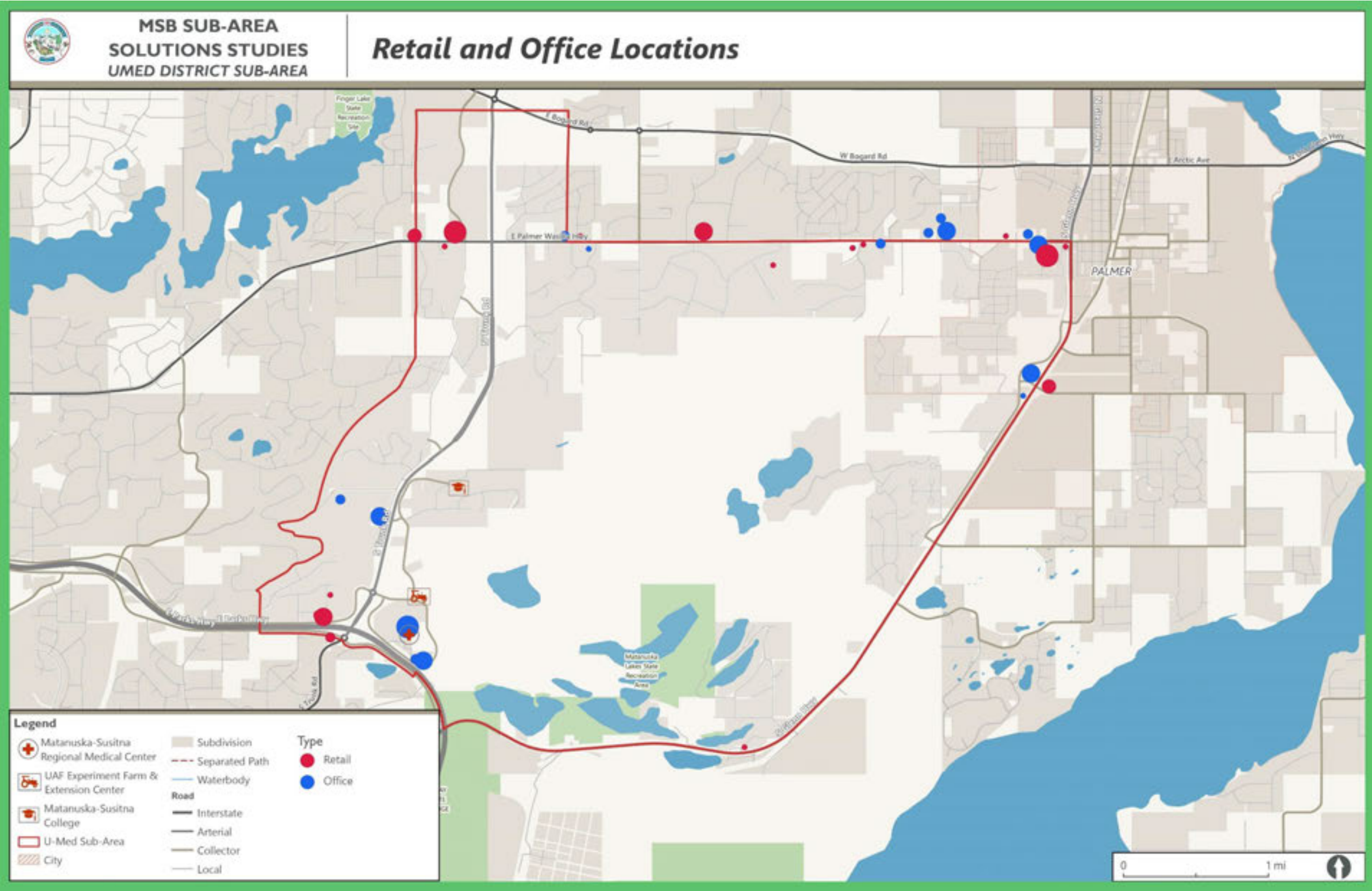
Commercial activities within the UMED Sub-Area are located primarily along the Palmer-Wasilla Highway, from Wasilla Creek to the Glenn Highway. Additional commercial businesses are located along the Glenn Highway, south of its intersection with the Palmer-Wasilla Highway, and a commercial area is being developed at the southwestern corner of Trunk and Bogard Roads. More than 100 acres of minimally developed commercial property, prime for development as retail property, are located at the southwestern corner of Trunk Road and the Palmer-Wasilla Highway. Retail and office development is shown on Figure 14.

Figure 13. Multifamily Units in the UMED Sub-Area, 2022



Source: Costar, Leland Consulting Group, 2022

Figure 14. Retail, Industrial, and Office Development in the UMED District, 2022



Source: Costar, Leland Consulting Group, 2022

4.3 Industrial

Industrial activity within the UMED Sub-Area primarily consists of gravel operations located near or at:

1. West of the Glenn Highway between Crimson View Drive and South Colleen Street
2. The Glenn/Parks Interchange adjacent to Matanuska Lake
3. West of Trunk Road off Snodgrass Drive
4. West of Trunk Road at the end of Wasilla Creek Drive
5. West of Trunk Road off Little Brook Lane
6. The northeastern corner of the Trunk Road/Palmer-Wasilla Highway intersection
7. The southeastern corner of the Trunk Road/Bogard Road intersection
8. The MSB Landfill, located at the southern terminus of 49th State Street

Another industrial area is found on the eastern side of Trunk Road, south of Katherine Drive, where a major construction business and equipment/laydown yard is located.

4.4 Parks and Open Space

The center of the UMED Sub-Area consists of a large, 2,500-plus-acre, open-space area that consists of MSB, UAF, UAA, and Alaska Department of Natural Resources (ADNR) property locally known as the Matanuska Greenbelt or Central Park. This large, open-space area has more than 20 miles of non-motorized trails, maintained by volunteers, that provide area residents with both summer and winter recreation activities.

Formally designated parks and open spaces in the sub-area consist of MSB's Crevasse Moraine Trail System and the Matanuska Lakes State Recreation Area. These areas are part of the informal Matanuska Greenbelt, including the UAF Experiment Farm and Extension Service and UAA Mat-Su Campus properties. The privately owned Kepler Bradley Lakes Park is adjacent to and east of the Matanuska Lakes State Recreation Area, off the Glenn Highway.

4.5 Agriculture

Agricultural lands include the 900-acre UAF Experiment Farm and Extension Center, and several remnant farm fields located west of the Glenn Highway between the Parks Highway and Palmer. The remnant farm fields are under development pressure to be converted to commercial and residential uses.

4.6 Community Facilities

Government, education, and medical institutions located within the UMED Sub-Area include:

1. The Mat-Su Regional Medical Center is located near the Parks Highway/Trunk Road Interchange. This area also includes medical facilities associated with the Providence Hospital System.
2. The UAF Experiment Farm and Extension Center is located just north of the Mat-Su Regional Medical Center. It is dedicated to agriculture and natural resources research.
3. UAA's Mat-Su Campus is located at the Trunk Road/College Drive intersection.
4. Pioneer Peak Elementary School¹⁷ is located between North Stringfield Drive and Trunk Road, just north of the Palmer-Wasilla Highway.
5. The MSB Central School will be relocated from its existing location to the area north of the Pioneer Peak Elementary School campus.
6. The MSB Central Landfill is located on 640 acres at the southern terminus of 49th State Street, south of the Palmer-Wasilla Highway. The Crevasse Moraine Trail System is located on undeveloped landfill properties.
7. Valley Pathways High School is located at the southern end of France Road, south of the Palmer-Wasilla Highway.
8. Maple Springs Senior Living Center is located off South Hemmer Road.



The Mat-Su Regional Medical Center has only one primary access at the Parks Highway/Trunk Road/Georgeson Road roundabout. Secondary access is limited to a right turn in and right turn out at Duchess Drive.



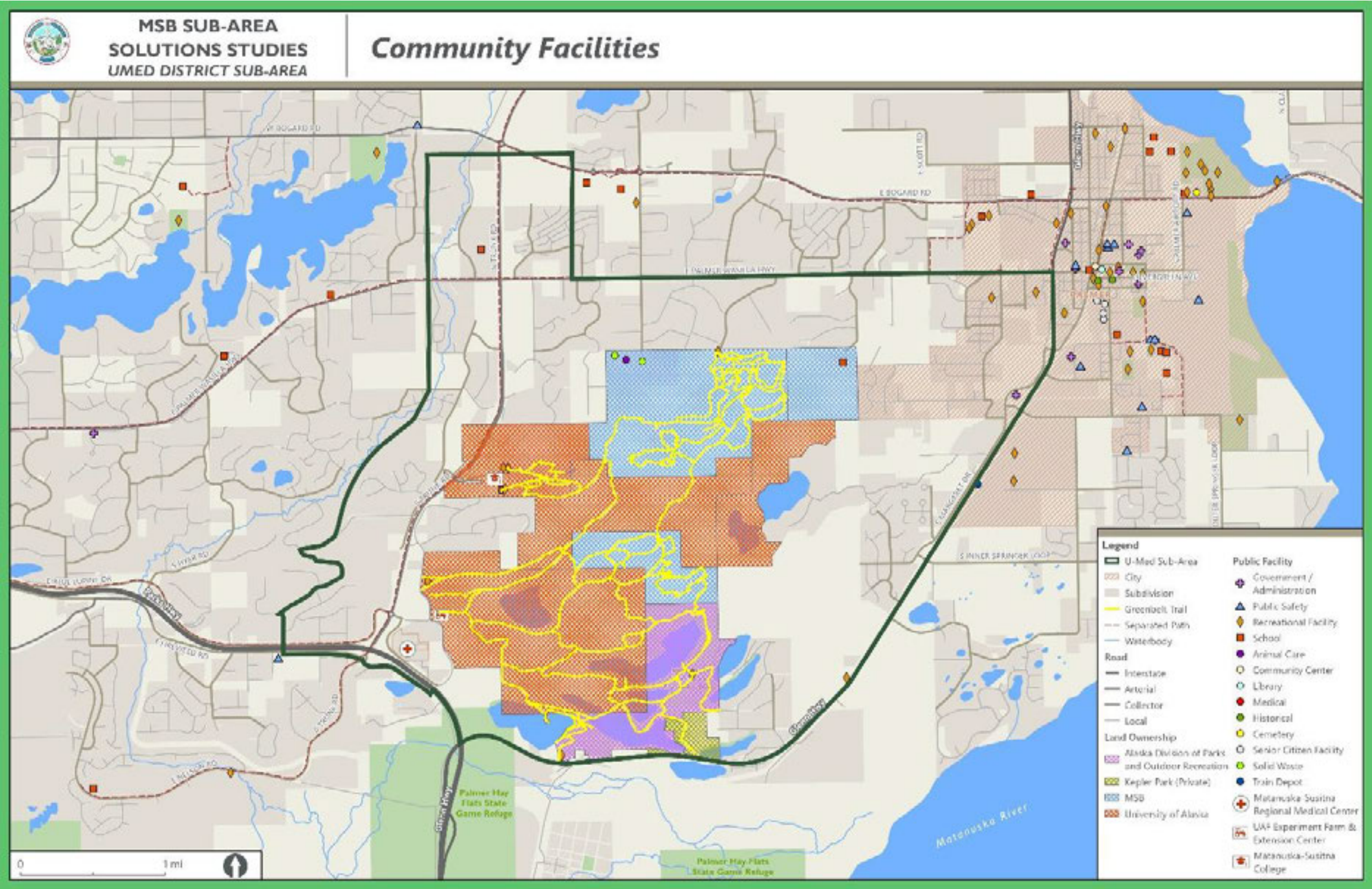
Students are discouraged from walking or biking to Pioneer Peak Elementary School because of the lack of dedicated pedestrian and bicycle facilities. Other concerns that limit walking and biking to school include traffic, weather, intersection safety, and moose encounters.

¹⁷ For additional information regarding the Pioneer Park callout box (at right), see: PDC Inc. Engineers, *Matanuska Susitna Borough Safe Routes to School Walk Zone Inventory and Recommendations*, December 2014, https://matsugov.us/docs/general/16869/msb-srts_final-inventoryrecommendations_final_14y12m02d_smaller.pdf

No public safety facilities are located within the sub-area. Three fire and ambulance stations are located just outside the sub-area in Palmer, west of the Parks Highway/Trunk Road Interchange and at the Bogard Road/Engstrom Road intersection. Police services are provided either by the Alaska State Troopers or Palmer Police, based on location.

Figure 15 shows the community facilities in the UMED Sub-Area.

Figure 15. Community Facilities

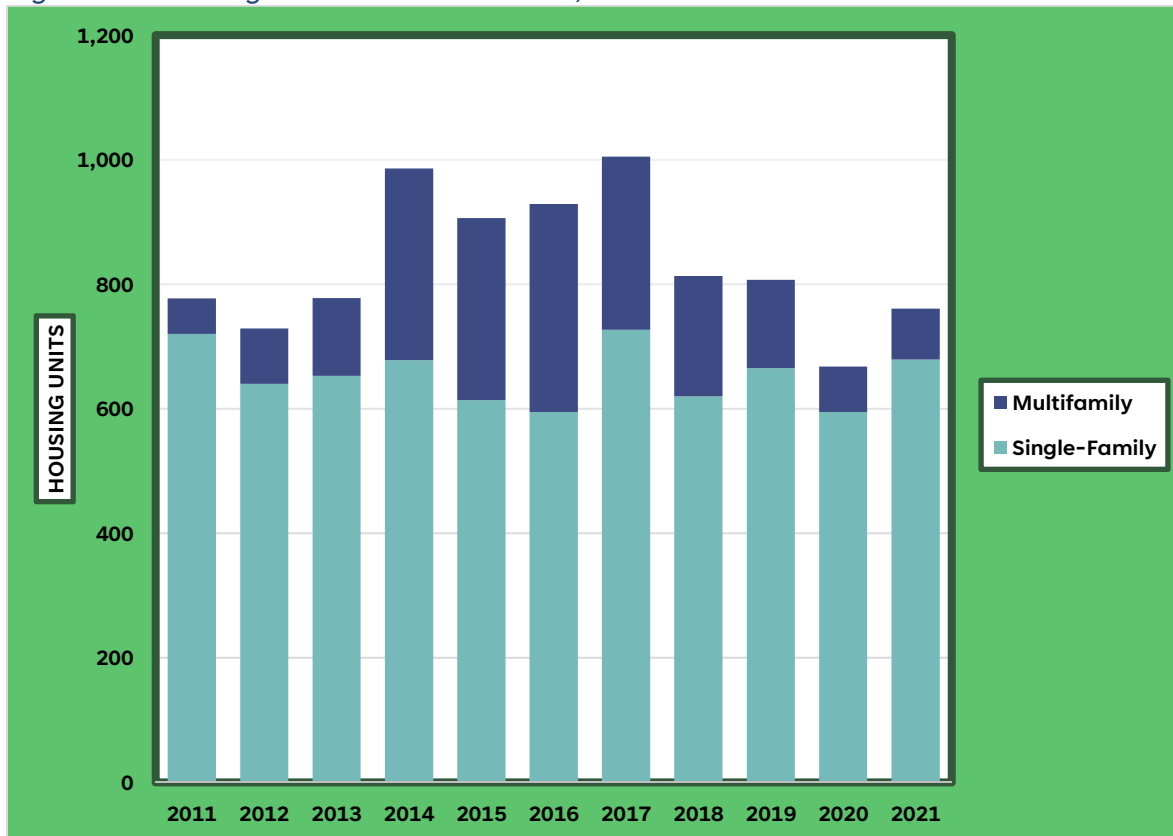


5 Future Land Use

5.1 Housing Growth

The MSB has seen a large amount of housing development over the last decade to serve the influx of new residents, as shown in Figure 16. Although most of the development has been single-family homes on large lots, there has been some multifamily construction, primarily duplexes, fourplexes, and some apartment complexes.

Figure 16. Housing Production in the MSB, 2011–2021

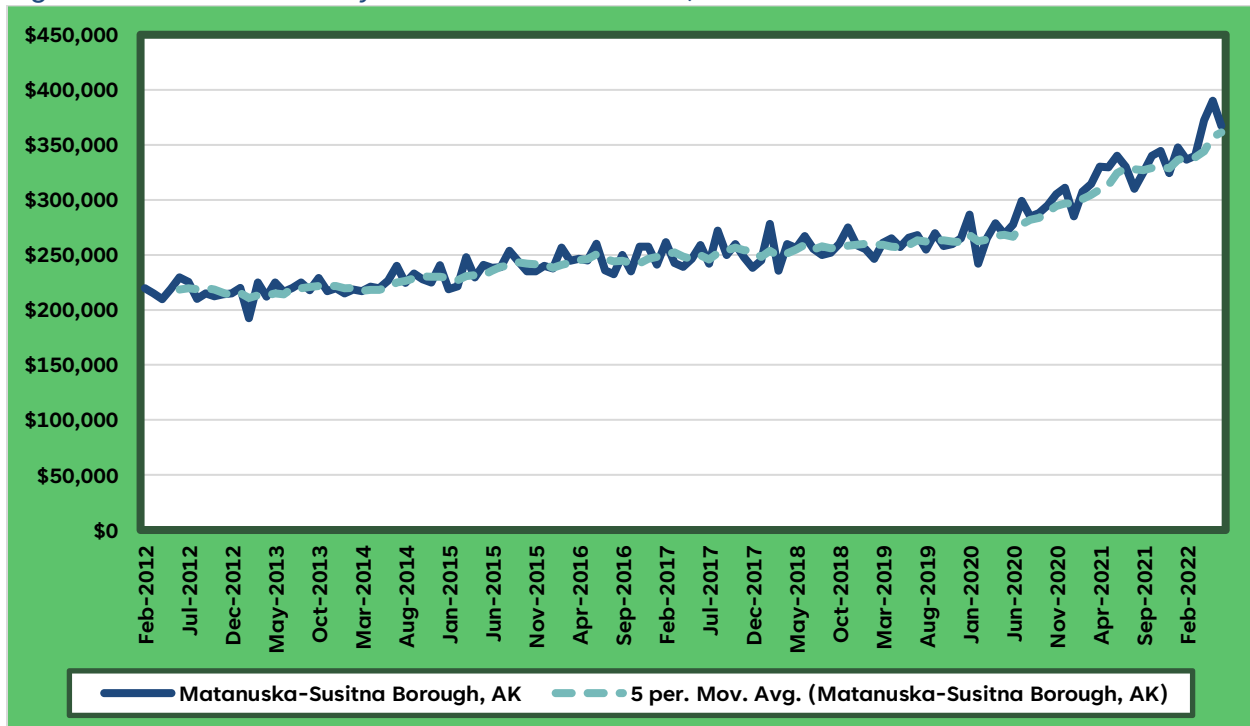


Source: DOL&WD, Department of Labor Research and Analysis, *Alaska New Housing Units*, 2022, <https://live.laborstats.alaska.gov/housing/new.html>

Even with this significant amount of housing production, there has been increasing pressure on the housing market in the MSB. Housing prices have risen consistently since 2012, and the rate of increase has been larger since the onset of the COVID-19 pandemic in 2020, as shown in Figure 17. Despite these increases, the DOL&WD reports that housing affordability in the MSB has remained relatively consistent since 2019, based on the Alaska Affordability Index, a ratio of household income to housing costs used to track housing affordability in the state.¹⁸

¹⁸ Kreiger, Rob, Housing market tightens further, *Alaska Economic Trends*, June 2022

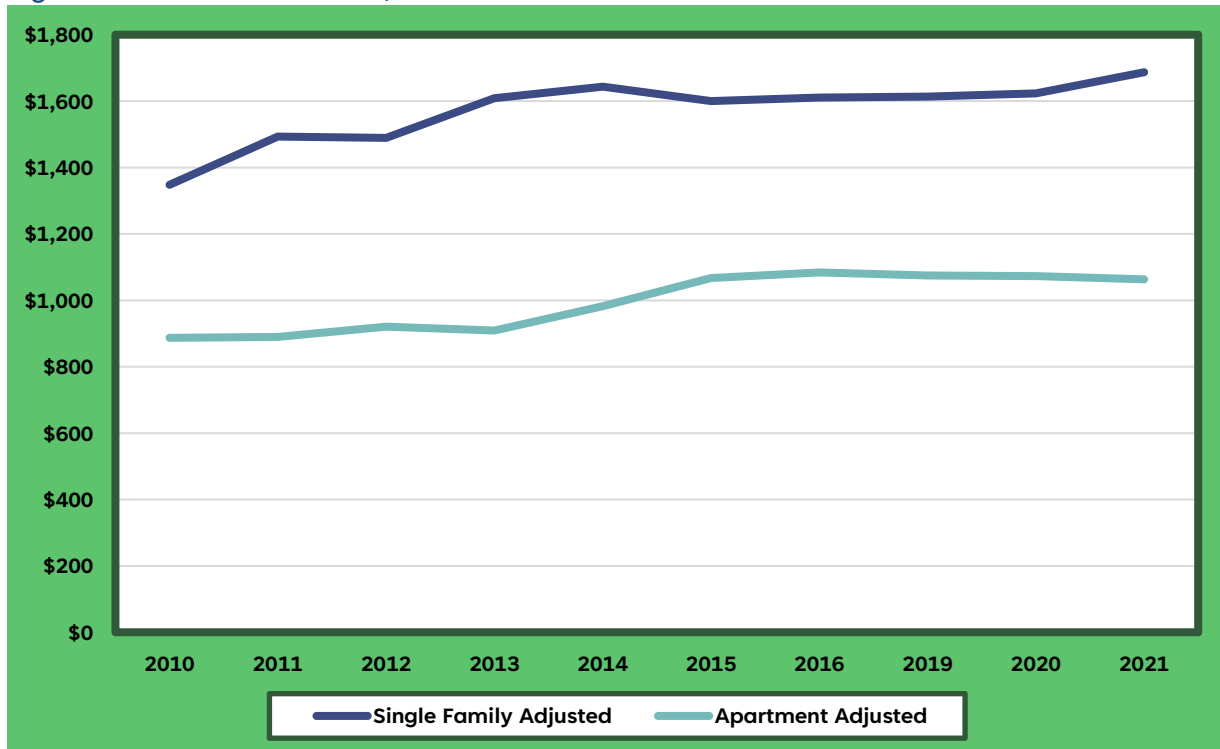
Figure 17. Median Monthly Sales Price in the MSB, 2012–2022



Source: Redfin Monthly Downloadable Housing Market Data, 2022, <https://www.redfin.com/news/data-center/>

The DOL&WD reports that rents in the MSB have remained relatively consistent since 2015; however, rents for single-family homes have increased recently, as shown in Figure 18.

Figure 18. Rents in the MSB, 2010–2021



Source: DOL&WD, Department of Labor Research and Analysis, Alaska Rental Costs and Vacancy Rates, All Units, Selected Areas, 2010–2021, 2022, <https://live.laborstats.alaska.gov/housing/rentall.html>

Note: Rents have been adjusted for utility costs.



The rapidly escalating housing costs seen nationally in recent years have been more muted in the MSB. However, recent increases in housing costs and community concerns heard during interviews by the Study project team in July 2022 suggest increasing pressure on the housing market in the MSB. *Alaska Economic Trends* reports, “Anchorage wages were 32 percent higher than Mat-Su in 2021, while Mat-Su’s average home price was 18 percent lower.”¹⁹ This creates strong market pressure for Anchorage workers to move to the MSB, where they can buy larger homes on more land than in Anchorage but still be within a reasonable commuting distance. As long as this dynamic remains, demand for housing in the MSB will remain high, and a sustained level of housing production will be required to meet the population’s needs. If housing costs increase significantly in the coming decades, it may deter potential new residents drawn to the lower costs of living in the MSB. The MSB is also attractive to families who work remotely in the oil, mining, and fishing industries as well as those who enjoy the MSB’s quality of life.

¹⁹ Kreiger, Rob, Housing market tightens further, *Alaska Economic Trends*, June 2022

5.2 Retail, Industrial, and Office Space

Even before the COVID-19 pandemic, online shopping caused significant declines in brick-and-mortar retail nationally and in Alaska, with the loss of approximately 2,000 jobs statewide between 2015 and 2019. The pandemic accelerated this trend nationally and statewide, with a 7.3 percent decrease in retail jobs in Alaska from 2019 to 2020. However, the MSB was an outlier, adding 187 retail jobs in 2020 due to the growing population, the lack of store closures, and the propensity for MSB residents to spend more retail dollars closer to home with fewer commuting to Anchorage.²⁰ With increasing population and the potential to work from home, more retail development seems likely in the coming years. CoStar, a national provider of commercial real estate data, reports that retail vacancies have dropped and rents have increased in the MSB between 2021 and 2022²¹. Interviews of developers, realtors, and public officials by the Study project team in July 2022 confirmed recent and planned retail developments in the MSB, particularly in small strip centers with good visibility and convenient access to major roadways.

Warehousing, which has seen significant increases nationally since the onset of the COVID-19 pandemic, is a strong sector. CoStar reports that the majority of industrial buildings in the MSB are warehouses, and demand for warehouse space has been relatively high in 2021 and 2022.²²

In addition to warehousing, gravel mining is a common industrial use throughout the MSB. The Matanuska Electrical Corporation reports that gravel pits are one of the region's largest electricity users.²³ When exhausted, many of these gravel pits are converted into development sites and transition to retail or residential uses over time.

The future of office development has been thrown into question following the rise of remote work during the COVID-19 pandemic. Many MSB residents commuted to Anchorage prior to the pandemic, and the opportunity to reduce commute time through long-term hybrid or remote work presents a unique opportunity for the region. Even as more employees shift to permanent hybrid arrangements, there remains a demand for flexible office space as companies and employees negotiate the optimal balance between in-person collaboration and flexibility.²⁴ Conversations with stakeholders by the Study project team in July 2022 confirmed a variety of views on the future of hybrid work. One theme that emerged was the desirability of Anchorage businesses employing large

²⁰ Fried, Neal, Retail faces a trio of pressures, *Alaska Economic Trends*, April 2021

²¹ Costar, *Mat-Su Business Region Retail Submarket Report*, August 2022

²² Costar, *Mat-Su Business Region Industrial Submarket Report*, August 2022

²³ Personal communication with John Sinclair, Matanuska Electric Corporation, July 2022

²⁴ Cushman & Wakefield, *Office of the Future Revisited*, 2022

numbers of MSB residents to open small, flexible, satellite offices in the MSB to facilitate hybrid work without long commutes.

5.3 Development Nodes

Within the MSB, current and likely future developments are clustered in a number of important intersection areas. Within the UMED Sub-Area, one major development node is centered on Trunk Road between the Palmer-Wasilla Highway and Bogard Road (see Figure 19).

A great deal of development is already occurring in this area. A local developer is building 80 subsidized, affordable apartments on the southwestern corner of Bogard and Trunk Roads. This development would occur in two phases of ten fourplexes, each with communal areas, and would be targeted at residents earning 30 to 60 percent of the area median income. Market rate and affordable senior units will also be in the development, as well as a gas station. Additionally, Cook Inlet Region, Inc. (CIRI) owns a large parcel at the southwestern corner of Trunk Road and the Palmer-Wasilla Highway, on which Three Bears is building a new supermarket²⁵ (as of August 2022), and there is potential for other development on that site in the future. The large gravel pit on the southeastern corner of Trunk and Bogard Roads is nearly fully expended and was identified in stakeholder interviews as another potential development location in the coming decade.



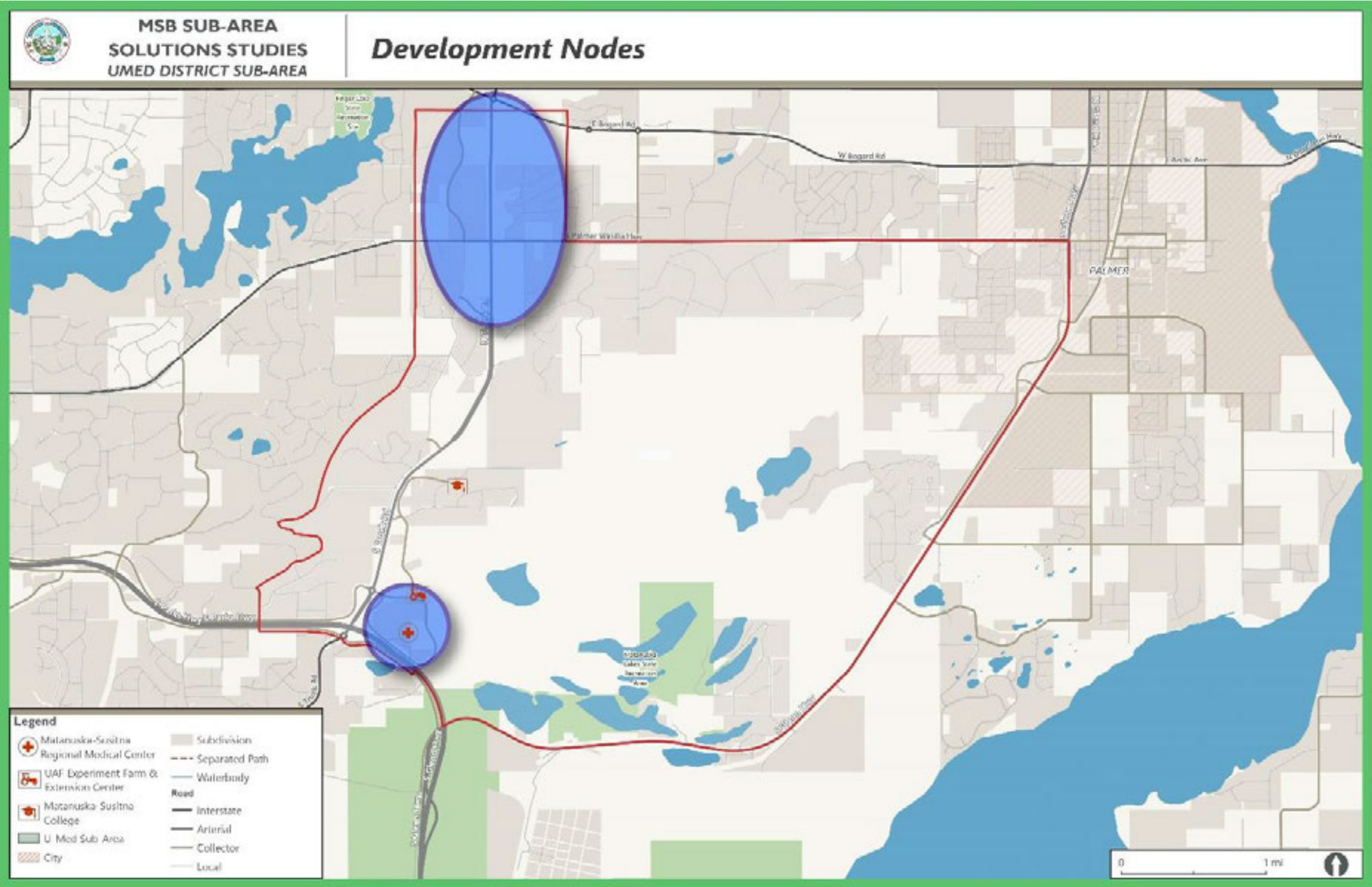
Overall, the area between the intersections of Trunk Road at the Palmer-Wasilla Highway and Bogard Road is considerably less developed than other high-traffic intersections in the MSB. It represents an opportunity for concentrated commercial and residential development, particularly considering its central location on commuting routes to Anchorage from many other parts of the MSB.

Currently, no sewer and water utilities are provided at these locations; however, they are very near the farthest extent of Palmer's water service, and some of the developments are installing their own community water and sewer systems.

A second development node is centered on the Mat-Su Regional Medical Center (see Figure 19). South and east of the medical center are 40 acres of land owned by the Mat-Su Health Foundation. This area is currently undergoing a master planning process and is likely to be redeveloped with medical, commercial, and mixed uses in the coming years.

²⁵ Three Bears may be closing the existing store in the area and using it as a warehouse for their MSB stores.

Figure 19. Development Nodes in the UMED Sub-Area



Source: Leland Consulting Group, 2022

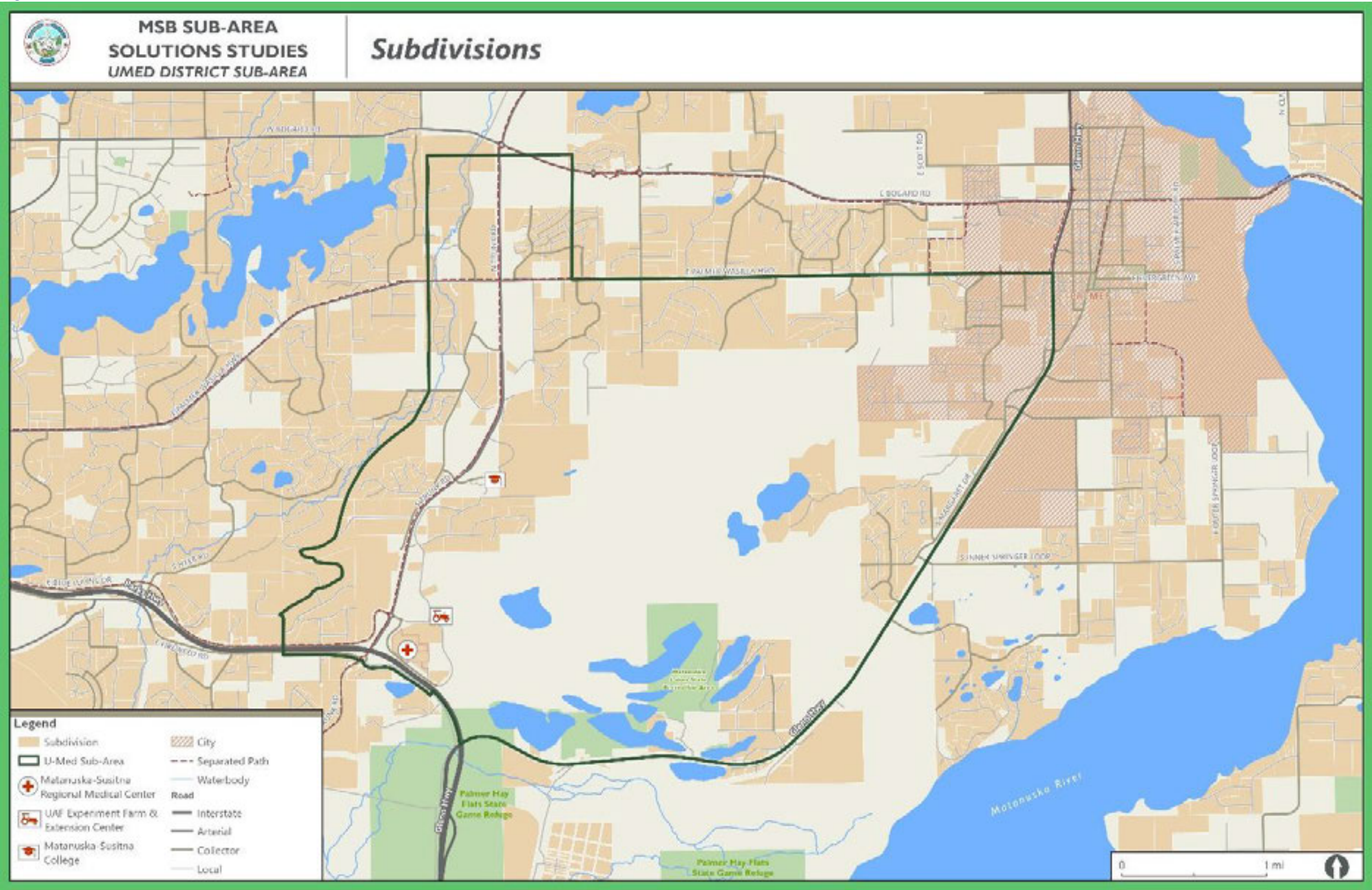
6 Subdivisions

A subdivision refers to a tract of land that has been divided into lots. The subdivisions in the UMED Sub-Area are shown in Figure 20. This process is governed by the MSB Title 43 Subdivision Code. For additional information about the code, please see Appendix A.



Subdivision access and interconnectivity are concerns. Many subdivisions have only one access point, which hinders evacuations or public safety responses during an emergency. Adjacent subdivisions often are not connected by local or collector roads, requiring people exiting their subdivision to use an arterial to travel a short distance or many miles to visit an adjacent subdivision. Developing a more complete collector road network will improve connectivity and enhance the overall road system.

Figure 20. Subdivisions



7 Property Value

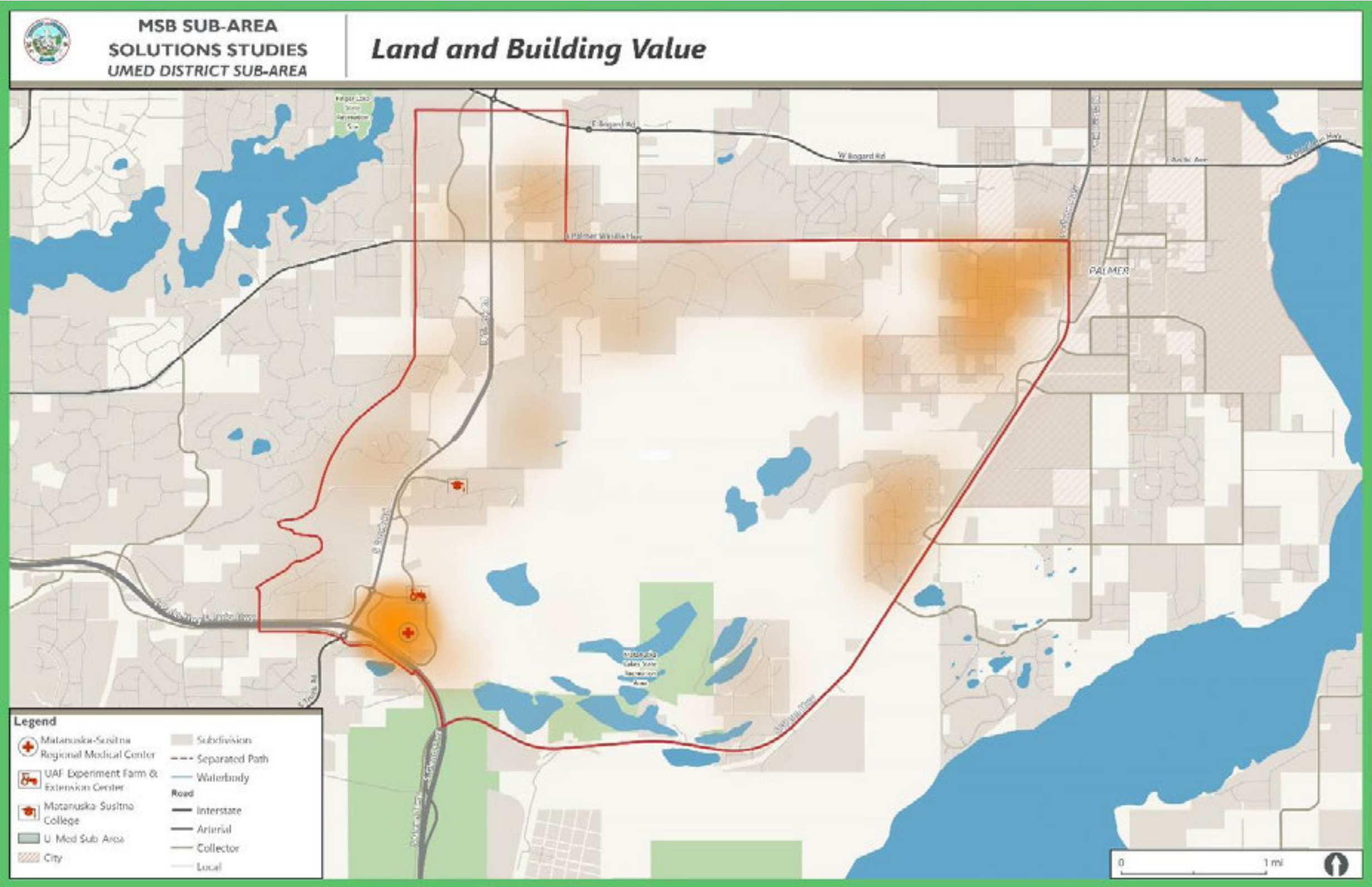
Combined land and building (improvement) values, as determined by the MSB Assessor, are shown in the heatmap in Figure 21. The most valuable land and buildings within the UMED Sub-Area are clustered around the Mat-Su Regional Medical Center. Other clusters of value are the residential neighborhoods within Palmer in the northeast of the sub-area and the eastern residential subdivisions.

7.1 Redevelopment Potential

To identify parcels with redevelopment potential, the ratio of land value to building value was calculated (see Figure 22). This ratio helps paint a picture of areas where it would make financial sense to potentially redevelop. A low ratio, below 1.0, (shown in Figure 22 in shades of brown) indicates the building is worth less than the underlying land. In this situation, the parcel is considered underutilized, since the value of the land can be maximized by a more valuable building; it is financially feasible to replace the low-value building with a higher-value use given the underlying value of the land. On the other hand, ratios above 1.0, shown in Figure 22 in shades of green, indicate it would be unlikely that a developer would choose to replace the building given its higher value when compared to the underlying land.

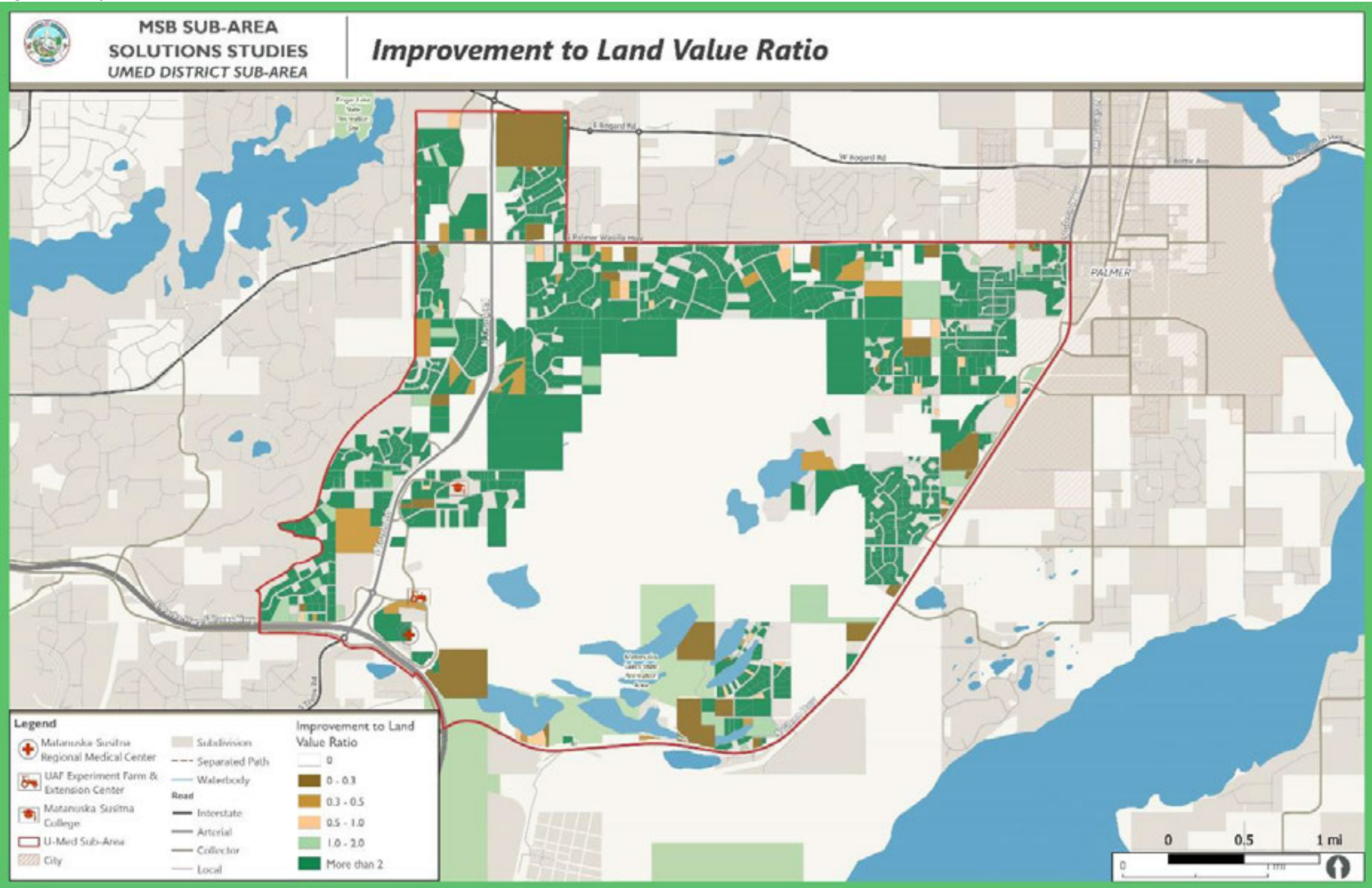
This analysis shows that the majority of parcels in the UMED Sub-Area are not likely to be redeveloped into more intensive uses. The most notable underutilized parcels are within the northernmost section of the sub-area, around the Palmer-Wasilla Highway and Trunk Road intersection, the area known as “Four Corners.” The large parcel in the southwestern corner of this intersection is owned by CIRI, which has plans for commercial development of the parcel. The Bogard and Trunk Road intersection is experiencing mixed-use development on its southwestern corner. The large parcel on the southeastern corner of that intersection is currently a gravel pit but has the potential for significant development once the gravel supply has been exhausted. Several other underutilized or vacant parcels occur along the Palmer-Wasilla Highway near Trunk Road. The large, underutilized parcel in the southern part of the sub-area directly adjacent to the Mat-Su Regional Medical Center is owned by the Mat-Su Health Foundation and is currently being farmed. However, this parcel has a relatively high land value due to its proximity to the Mat-Su Regional Medical Center and Parks Highway.

Figure 21. Land and Building Value, 2022



Source: MSB Assessor Data, 2022

Figure 22. Improvement to Land Value Ratio



Source: MSB Assessor Data, 2022; Leland Consulting Group, 2022

8 Land Ownership

8.1 Private and Public Lands

Private lands exist along the highway corridors that form the boundaries of the UMED Sub-Area. Public/university lands within the sub-area are primarily found in the interior of the sub-area, known as the Matanuska Greenbelt. As described previously, this large, 2,500-acre area consists of UAA, UAF, MSB, and ADNR properties. Trail access is allowed within the greenbelt. UAA and UAF properties have dedicated purposes for education, research, and farming. Public use of the trail systems on these properties is allowed but could be revoked. Pioneer Peak Elementary School is located on MSB-owned property.

9 Zoning

9.1 MSB Zoning

Properties outside the Palmer city limits fall under MSB jurisdiction and must comply with the land use requirements in MSB Title 17 Zoning (see Appendix A for more detail). Title 17 establishes minimal permit requirements for development to ensure that structures meet setback requirements from rights-of-way, easements, and property lines. It establishes what uses and activities require Conditional Use Permits prior to initiation. It also identifies a limited number of activities that require administrative permits.

The MSB conducts zoning through SpUDs, which restricts land use within its boundary. The types of SpUDs include:

- Large-Lot, Single-Family Residential Land Use District
- Single-Family Residential Land Use District
- Residential Land Use District
- Interim Materials District
- Special Land Use District
- Overlay District

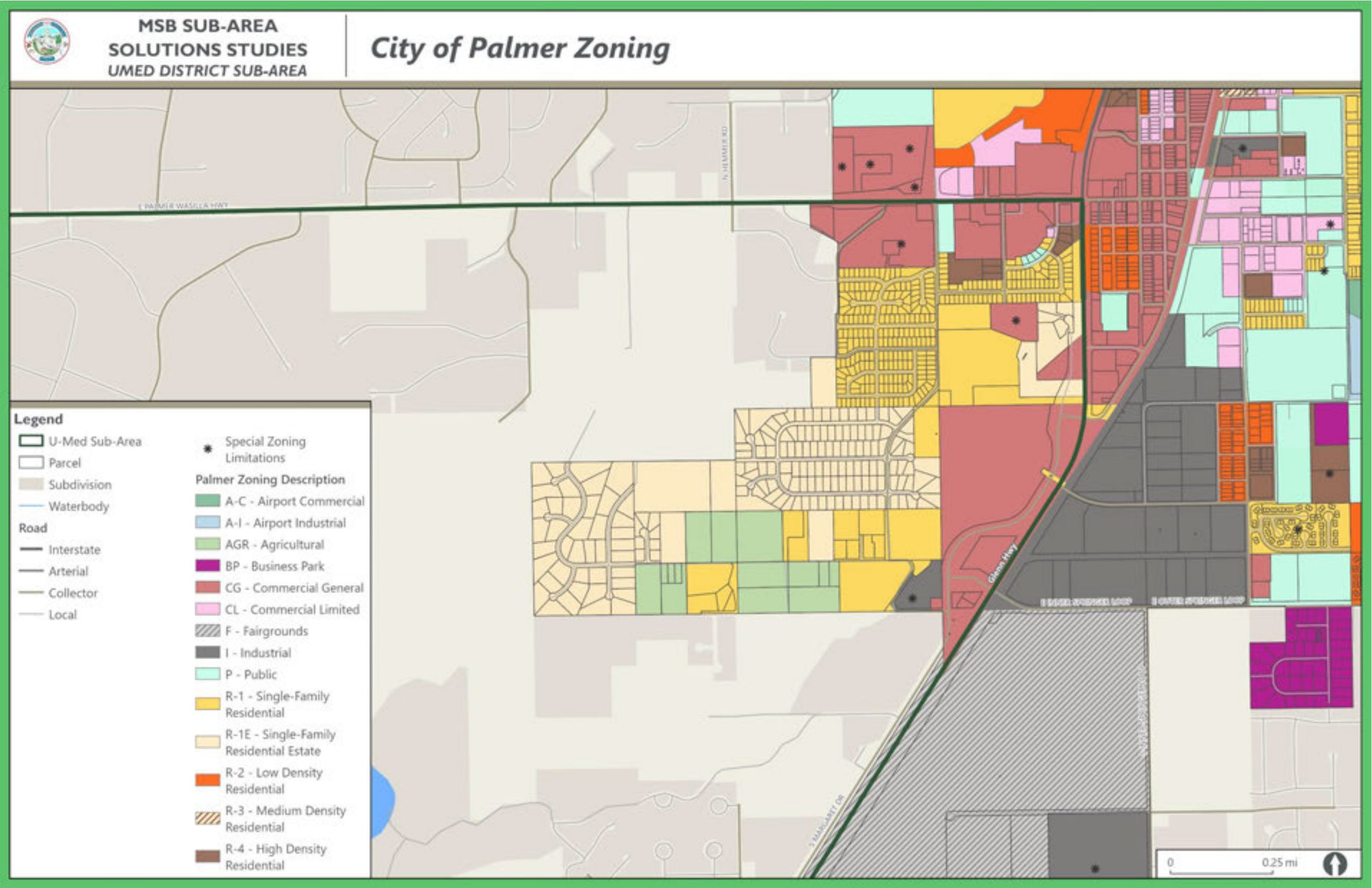
A map showing the SpUDs in the UMED Sub-Area is available at

<https://msb.maps.arcgis.com/apps/webappviewer/index.html?id=4cd76b7861f348e68afd5cc934524a5f>.

9.2 City of Palmer Zoning

The City of Palmer has zoned all property within its city limits. The portion of the City of Palmer included in the UMED Sub-Area is zoned commercial, agricultural, single-family residential, low-density residential, and medium-density residential (see Figure 23).

Figure 23. City of Palmer Zoning Map



Source: City of Palmer, 2017

10 Transportation System

10.1 Existing Road Network Roads

The UMED Sub-Area road network is shown on Figure 24. It comprises state, MSB, and City of Palmer-owned roadways.

10.1.1 Major State-Owned and Maintained Roadways

10.1.1.1 *Trunk Road*

Trunk Road is a four-lane, divided, limited-access highway with a depressed median, shoulders, and a separated pathway along its western boundary with a trail underpass connection to Duchess Drive. It provides a north-south connection from the Parks Highway/Trunk Road Interchange to the Palmer-Wasilla Highway and northward to Bogard Road within this sub-area.

10.1.1.2 *Palmer-Wasilla Highway*

The Palmer-Wasilla Highway, within the sub-area, extends from Winding Brook Loop on the western boundary of the sub-area to its intersection with the Glenn Highway in Palmer. The Palmer-Wasilla Highway was recently expanded to three lanes, roughly between the Fred Meyer access in Wasilla to Felton Street in Palmer, to accommodate left-hand turning movements to and from adjacent subdivisions, driveways, and businesses. It has a separated pathway along its entire length on the northern side that transitions to curb and gutter, with sidewalks on both sides as it enters the City of Palmer commercial district.

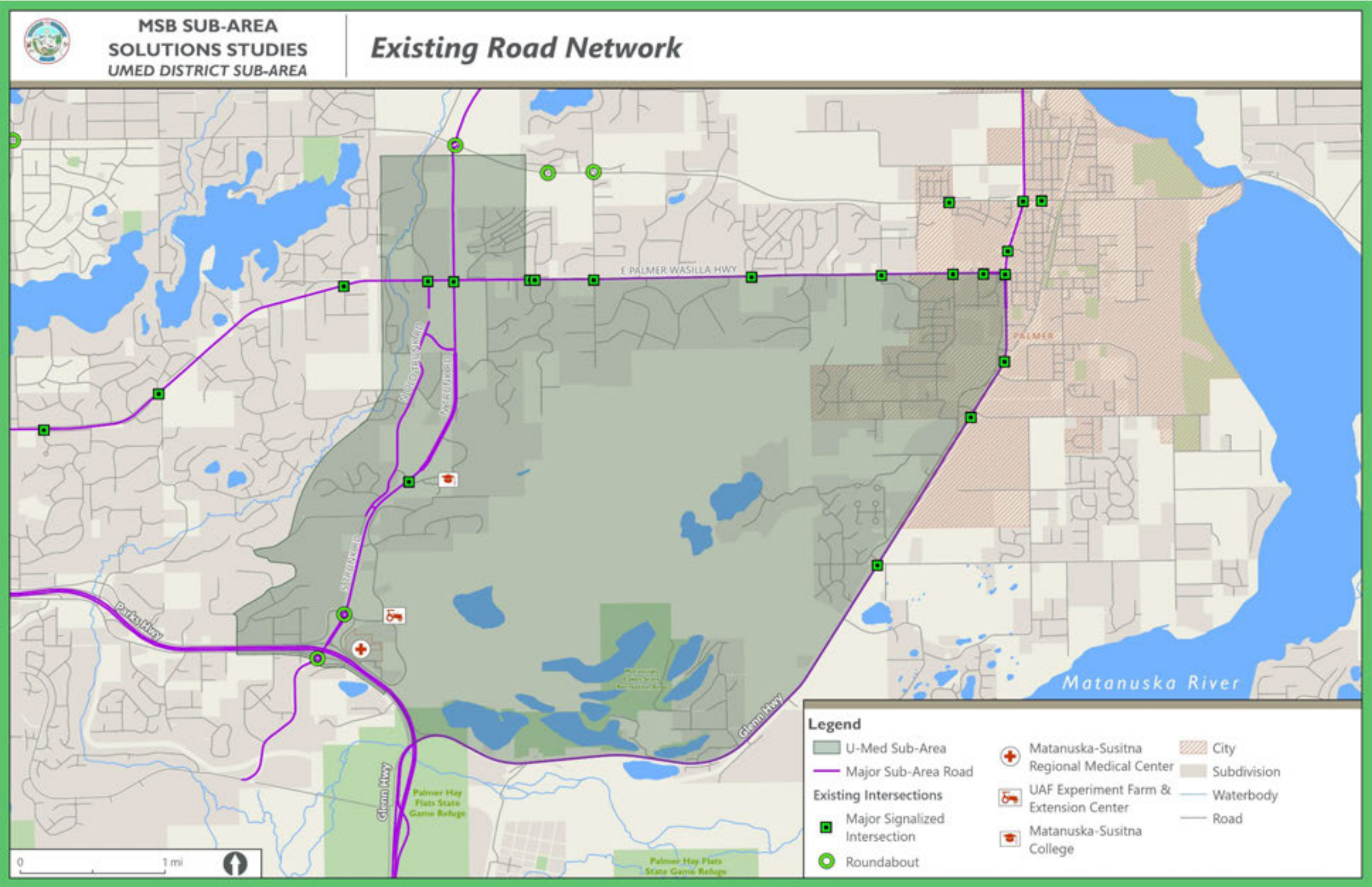


The Palmer-Wasilla Highway is an example of how not to manage access to an arterial roadway. The innumerable number of direct-access driveways and local road intersections impacts its function and safety, especially at peak traffic times.



Future expansion of the Palmer-Wasilla Highway to four or five lanes is hindered by its limited right-of-way and the many major utilities located within the corridor. High right-of-way acquisition and utility relocation costs added to construction costs may make any future expansion difficult to fund.

Figure 24. Existing Road Network



10.1.1.3 Glenn Highway

The Glenn Highway comprises the eastern and southern boundary of the sub-area from its intersection with the Palmer-Wasilla Highway in Palmer to the Glenn/Parks Highway Interchange. The Glenn Highway is undergoing a major reconstruction that will expand it to a divided, four-lane, limited-access highway with shoulders, a frontage road on the western side, and a separated pathway along the frontage road. The first phase of this project was recently completed from South Inner Springer Loop/Cienna Avenue to the Old Glenn Highway in Palmer.

The next phase between the Glenn/Parks Highway Interchange and South Inner Springer Loop/Cienna Avenue is funded and scheduled to begin construction in 2023. These improvements address capacity and safety issues.

10.1.1.4 Parks Highway

Approximately 1 mile of the four-lane, controlled-access Parks Highway between the Glenn/Parks Highway Interchange and Pioneer Drive, as well as its frontage road (Blue Lupine), are in the sub-area. The Parks Highway/Trunk Road Interchange is the main access point for commuters returning from Anchorage.

10.1.1.5 Existing Signals and Roundabouts

High traffic volumes, combined with the many intersecting roads and driveways, have made it difficult to enter and exit the Palmer-Wasilla Highway due to a lack of breaks in traffic. Unprotected left-hand turning movements entering and exiting the Palmer-Wasilla Highway have been difficult, causing delays and safety issues.

The Alaska Department of Transportation and Public Facilities (DOT&PF) initially addressed these issues in the early 2000s by installing traffic signals along the Palmer-Wasilla Highway to create traffic breaks and allow traffic to funnel to signalized intersections from adjoining subdivisions. Not all subdivisions are connected to signalized intersections. These subdivisions benefited from the traffic breaks created by the signalized intersection, allowing better, but not ideal, access from side roads and driveways. Palmer-Wasilla Highway signalized intersections in the UMED Sub-Area include Old Trunk Road, New Trunk Road, Golden Hills Drive, 49th State Street, Equestrian Street, Hemmer Road, and the Glenn Highway. The recently added middle turning lane has also helped address left-hand turning movements to and from non-signalized intersections.

The New Trunk Road project established protected intersections using a roundabout at Georgeson Road to serve the high volume of traffic accessing the Mat-Su Regional Medical Center, as well as traffic signals at College Drive to serve UAA's Mat-Su Campus and at the Palmer-Wasilla Highway. The project included a left-turn pocket at the Old

Trunk Road intersection in anticipation of a new traffic signal once commercial development occurs.

The recently completed Glenn Highway project between Inner Springer Loop/Cienna Avenue and the Old Glenn Highway eliminated the majority of direct access intersections to the Glenn Highway from its western side by constructing a frontage road. Access to the Glenn Highway from this frontage road is now limited to the signalized intersections at East Harold Street, North Inner Springer Loop, and South Inner Springer Loop. Figure 24 shows all traffic signals and roundabouts within the UMED Sub-Area.

10.1.2 MSB Roads

The majority of MSB roads within the UMED Sub-Area are located in the South Colony Road Service Area (RSA-16). MSB roads along the western boundary of the sub-area are in the Midway Road Service Area (RSA-9). Property owners are taxed to fund Road Service Area (RSA) activities. MSB roadways are primarily local subdivision roads that connect to collector roads, which connect to arterials.

The RSAs have made significant headway to pave and upgrade MSB-owned collector and arterial roads using state funds and MSB road bonds. Local roads have been paved using RSA revenues or by neighborhoods forming a local Improvement district. Developers of new subdivisions often pave their subdivision roads to attract buyers, then transfer road ownership to the MSB and maintenance to the local RSA.

10.1.3 City of Palmer

The City of Palmer owns and maintains roads within the city portion of the sub-area. There is better connectivity among these local roads, with options to enter the Palmer-Wasilla Highway at signalized intersections. The upgraded Glenn Highway in Palmer provides signalized access via new frontage roads to subdivisions and businesses located to the west of the highway. These subdivisions have north-south connectivity via Felton Street, which serves as a collector road. Most subdivision roads within Palmer's city limits are paved.

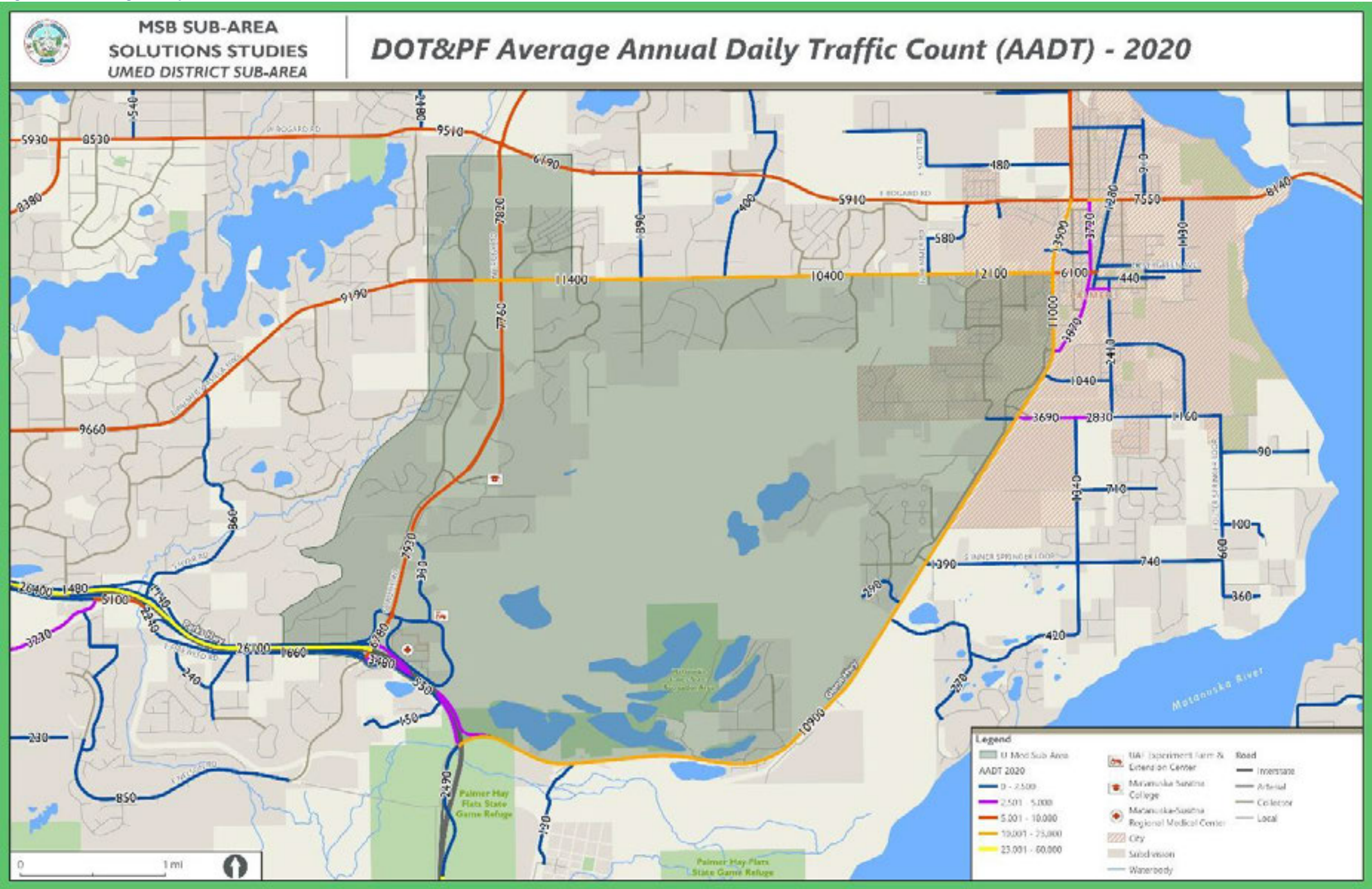


Many subdivision roads in the MSB are not connected to each other. This requires drivers to use an arterial road to travel a short distance to visit a neighbor or local business, adding to congestion and safety concerns on the arterials.

10.2 Traffic Volumes

As shown in Figure 25, 2020 daily traffic volumes on UMED Sub-Area arterials vary, with the lowest volumes on Trunk Road and the highest volumes on the Parks Highway. Traffic volumes are one indication of a roadway's function and capacity. The Parks Highway, Trunk Road, and the recently improved segment of the Glenn Highway have four travel lanes and can carry significantly more traffic than a three-lane facility such as the Palmer-Wasilla Highway. The planned completion of the Glenn Highway between the Glenn/Parks Interchange and South Inner Springer Loop/Cienna Avenue will greatly increase its function and capacity.

Figure 25. Average Daily Traffic Count, 2020



Source: DOT&PF 2022

10.3 Crashes

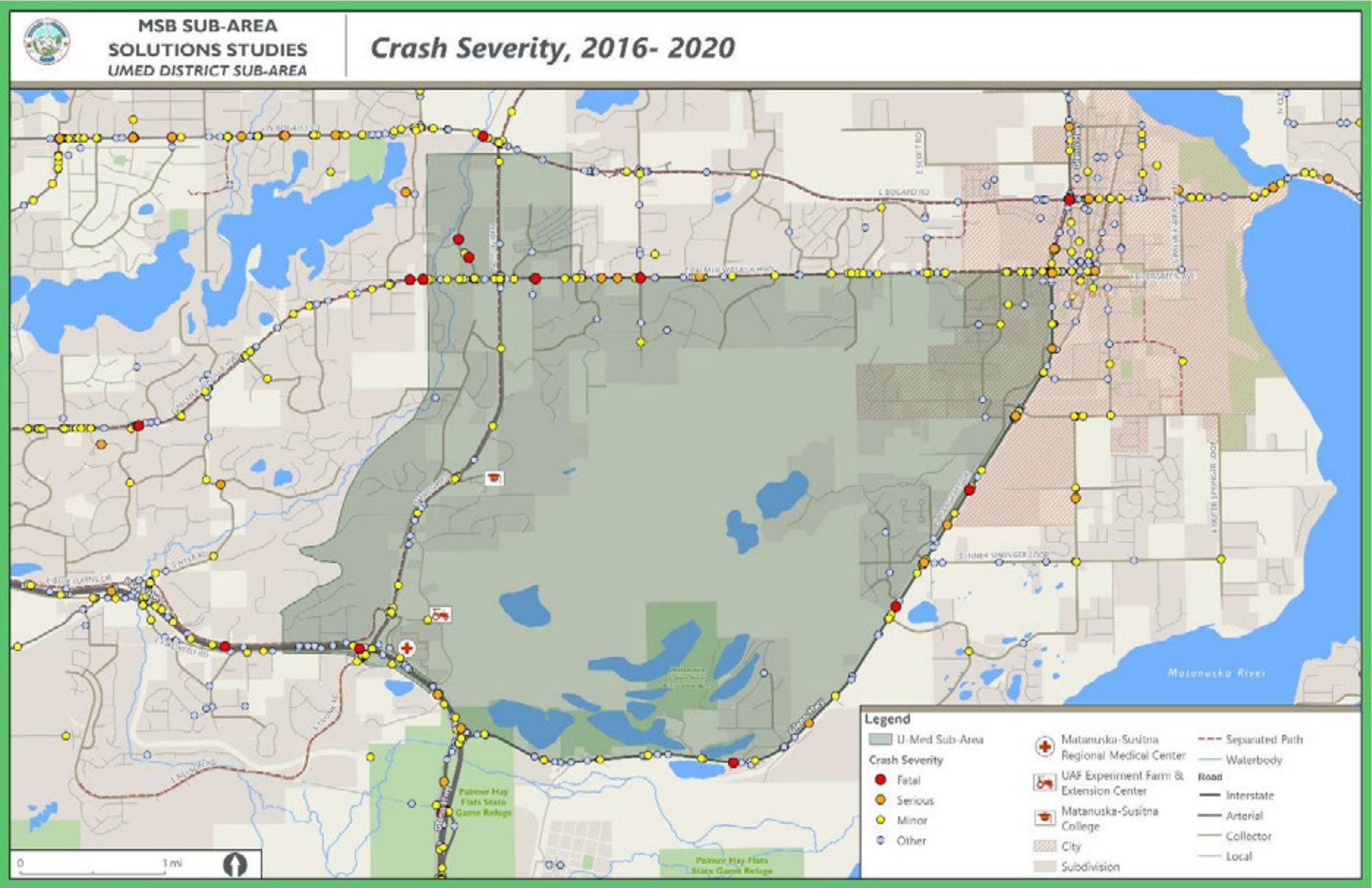
The 2016–2020 crash data²⁶ is summarized in Table 2 and shown on Figure 26. Since 2016, a total of 444 crashes have occurred in the sub-area; however, the number has decreased every year. In general, most of the serious crashes occur on the Parks, Glenn, and Palmer-Wasilla Highways.

Table 2. UMED Sub-Area Crash Severity Summary Table, 2016–2020

Year	UMED Sub-Area Crash Severity				Total Number of Crashes
	Fatal	Serious Injury	Minor Injury	Other	
2016	4	2	29	81	116
2017	0	4	32	65	101
2018	2	3	31	72	108
2019	0	1	17	47	65
2020	2	1	16	35	54

²⁶ Crash data was provided by DOT&PF based on Alaska Department of Motor Vehicle reports and is the best-known information available to DOT&PF Central Region as of August 2022.

Figure 26. Known Crashes in UMED Sub-Area, 2016–2020



10.4 Transit²⁷

Valley Transit is a non-profit organization that provides transit service in the MSB. They offer a fixed route between the MSB and Anchorage, as well as demand-response service within the MSB. They provide transit services Monday through Saturday. One fixed route transit stop is within the UMED sub-area at the Parks Highway/Trunk Road Park and Ride.

Chickaloon Area Transit System, operated by the Chickaloon Native Village, offers demand and response services within the Glenn Highway area between the Palmer area and Chickaloon community, at Mile 70 of the Glenn Highway.

Sunshine Transit services the Susitna Valley communities of Trapper Creek, Talkeetna, Sunshine, Willow, and Houston with twice-weekly service to Wasilla and demand-response services for Medicaid-eligible patients to medical facilities in the UMED Sub-Area, as well as other Palmer and Wasilla locations.

Mat-Su Senior Services also offers transportation in the Mat-Su Valley and Anchorage area to eligible individuals. As of September 2022, rides are limited to medical needs only.²⁸

10.5 Non-Motorized

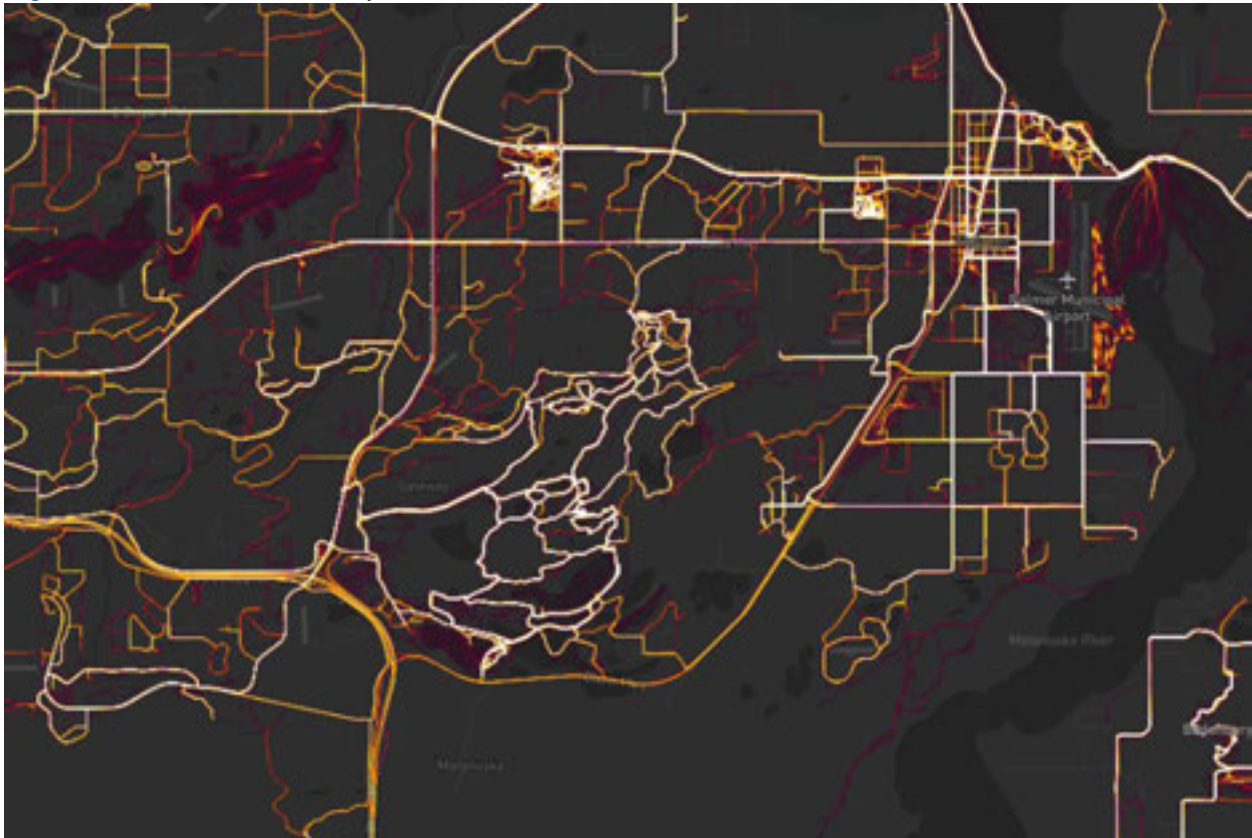
The UMED Sub-Area has separated non-motorized pathways along the Glenn Highway from Palmer to the South Inner Springer Loop/Cienna Avenue intersection, Trunk Road, and Palmer-Wasilla Highway. The next phase of the Glenn Highway project (Parks Highway to South Inner Springer Loop) will include a separated trail from the Matanuska Lakes State Recreation Area to South Inner Springer Loop on the western side of the Glenn Highway. The Palmer-Wasilla Highway pathway transitions to sidewalks as it enters the City of Palmer's commercial district prior to Felton Street.

Strava is a fitness-tracking and social media app designed to allow users to track their fitness activities. Strava produces heat maps that show the most active areas for Strava users over the past year. These heat maps reflect aggregated, public activities recorded by Strava (see Figure 27). Lighter colors indicate more users than darker colors on the map. As the heat maps report only Strava users, they underestimate non-motorized use in the sub-area; however, the maps can provide a general estimate of where people are walking and biking compared to other areas.

²⁷ Transit service in the MSB is likely to change in the future when the Metropolitan Planning Organization (MPO) is formed. The MPO is likely to take over transit service because of the way transit is funded.

²⁸ Mat-Su Senior Services, <https://www.matsuseniors.com/transportation>

Figure 27. Strava Heat Map



Source: Strava, 2022, <https://www.strava.com/heatmap#12.25/-149.21173/61.59092/hot/all>

The MSB is in the process of developing a Bike and Pedestrian Plan that will identify and prioritize needed non-motorized infrastructure throughout the MSB. The plan is anticipated to be completed by June 2023.

10.6 Aviation

The MSB has the highest concentration of public and private airports in the United States. No public airports are within the UMED Sub-Area. Two private airstrips are within the sub-area. Two private heliports, one at the Mat-Su Regional Medical Center and one off North Stringfield Road near its intersection with Prince William Circle, are within the sub-area.

10.7 Rail

One railroad operates within the MSB. The Alaska Railroad is owned by the State of Alaska and operated as a state-owned corporation. It provides regular freight and passenger services between Seward and Fairbanks. No rail lines occur within the UMED Sub-Area. The train station closest to the sub-area is the historic depot in Wasilla.

10.8 Planned Improvements

10.8.1 Alaska Statewide Transportation Improvement Program

The Alaska Statewide Transportation Improvement Program (STIP)²⁹ is the state’s 4-year program for transportation system preservation and development. The STIP must include all surface transportation improvements for which partial or full federal funding is anticipated and those expected to occur during the STIP’s 4-year duration. The 2020–2023 STIP projects in the UMED Sub-Area are listed in Table 3.

Table 3. STIP Projects in the UMED Sub-Area

Project	Cost Estimate	Functional Classification	Status	Description
Glenn Highway: Parks Highway to South Inner Springer Loop/Cienna Avenue	FFY 2022 Construction \$47,300,000 Utilities \$13,000,000 After 2023 \$54,854,910	Interstate	In construction	Reconstruct to divided, four-lane highway with pathway; shoulders; frontage road; and traffic, safety, and intersection improvements as necessary and feasible
Hemmer Road Upgrade and Extension (pending the adoption of STIP Amendment 4)	FFY 2022 \$430,000 After 2023 \$5,575,000	Collector	In design	Provide a north-south connection between the Palmer-Wasilla Highway and Bogard Road with a pedestrian pathway and signals at the Palmer-Wasilla Highway and Bogard Road; construction after 2023

Source: DOT&PF, 2022, <https://dot.alaska.gov/stwdplng/cip/stip/>

Notes: FFY = Federal Fiscal Year; completed STIP projects are not listed in this table.

10.8.2 2021 MSB Transportation Infrastructure Package

The MSB funds many road improvement projects using road bonds. The roads in the UMED Sub-Area that are included in the MSB’s 2021 Transportation Infrastructure Package are listed in Table 4.

²⁹ DOT&PF, Alaska Statewide Transportation Improvement Program, 2022, <https://dot.alaska.gov/stwdplng/cip/stip/>

Table 4. 2021 MSB Road Bond Projects in the UMED Sub-Area

Project	Cost Estimate	Functional Classification	Status	Description
Trunk Road Connector/Katherine Drive	\$2,530,000	Minor Collector	Design	Design and construct a collector road from Springfield Road to Trunk Road and Trunk Road to Manhattan Way, providing access to a new school site and the large Midtown Estates Subdivision
Hemmer Road Extension South	\$4,500,000	Major Collector	Design	Improve safety and traffic access to the Valley Pathways School and a large residential subdivision by extending Hemmer Road south of the Palmer-Wasilla Highway

Source: MSB Ordinance Serial Number 21-076, adopted August 17, 2021

10.9 Plans and Studies

10.9.1 MSB 2035 Long Range Transportation Plan

The MSB's *2035 Long Range Transportation Plan*³⁰ (LRTP) update is a fiscally constrained policy document that established transportation goals and objectives to guide the MSB's multi-modal transportation system, including road, bike and pedestrian, trail, transit, aviation, and port improvements through 2035. It established the following goals:

- Goal One: Improve Transportation and Land Use Connection
- Goal Two: Provide Transportation Choices
- Goal Three: Improve Connectivity
- Goal Four: Improve Mobility
- Goal Five: Make Transportation Safer
- Goal Six: Support Economic Vitality
- Goal Seven: Enhance Environmental Quality

Table 5 lists the LRTP-recommended roadway projects within UMED Sub-Area.

Table 5. LRTP-recommended Roadway Projects within the UMED Sub-Area

Project Name	Project Status
Glenn Highway MP 34 to 42: Parks to Arctic Renovation: 4-lane divided highway, shoulders, and separated non-motorized trail	Fully funded; section from Springer Loop to Arctic completed; Parks Highway to Springer Loop awaiting construction
Palmer-Wasilla Highway: Highway Safety Improvements	Project completed; added middle turning lane to entire route and intersection improvements
Glenn Parks Interchange: Hospital Access Improvements	No activity
Katherine Drive Connection to Trunk Road	In design

³⁰ MSB, *2035 Long Range Transportation Plan*, December 2017, <https://matsugov.us/docs/general/13985/Combined-Document.pdf>

Project Name	Project Status
Valley Pathways School Access Improvements: France Road to Hemmer	In design
Glenn Parks Interchange – Hospital Access Improvements: Develop second access to Mat-Su Regional Medical Center from Glenn Highway; improve Dutchess Drive access	No activity

Source: MSB, 2035 Long Range Transportation Plan, December 2017, <https://matsugov.us/docs/general/13985/Combined-Document.pdf>
Notes: MP = Milepost

The LRTP also identified the potential fixed transit routes along Trunk Road between the Parks and Palmer-Wasilla Highways, as well as along the entire length of the Palmer-Wasilla Highway.

The LRTP identified the following non-infrastructure strategies to complement roadway improvements:

- Create a transportation partnership with other transportation providers, including the DOT&PF, cities, and Tribes.
- Create safety education school and adult education programs with the Highway Safety Office, Public Safety Agencies, and cities to promote defensive driving as well as pedestrian and bike safety.
- Promote a well-functioning and connected Collector Road Network in part by updating Platting Regulations and the *Subdivision Construction Manual*³¹ to preserve corridors and the construction of collector roads.
- Establish an Asset Management Program to preserve the roadway system condition and its performance. This includes developing a system to manage and monitor driveway and roadway access to major collectors and arterials to improve safety, preserve functionality, and protect the public's investment in the roadway system.
- Develop an ongoing Palmer-Wasilla Highway Action Plan to address traffic, safety and congestion issues on the highway. This includes addressing land use and subdivision decisions that will improve subdivision connectivity and identifying parallel collector routes, shared access points, driveway permitting, and other policies that will help address the many safety and capacity issues facing the Palmer-Wasilla Highway.

Other non-infrastructure codes and policies are contained in Appendix A.

³¹ MSB, *Subdivision Construction Manual*, 2020, <https://matsugov.us/49-documents/21522-2020-subdivision-construction-manual>

10.9.2 Coordinated Human Services Transportation Plan

The *MSB Coordinated Human Services Transportation Plan 2018–2022*³² coordinates transit agencies and other transportation providers to better meet the needs of older adults, people with disabilities, and low-income households. It is required to access specific funding programs offered through the Federal Transit Administration.

The plan assessed transportation needs in the MSB by combining information about densities of the older adult population, households below the poverty line, and zero-vehicle households to create an overview of which transit needs are greatest. The results are presented in Figure 28. In the UMED Sub-Area, the needs are some of the highest in the MSB.

³² MSB and Mat-Su Health Foundation, *MSB Coordinated Human Services Transportation Plan 2018–2022*, 2018, https://dot.alaska.gov/stwdplng/transit/pub/Coorplan-MSB_2018.pdf

Figure 28. Transportation Needs Index

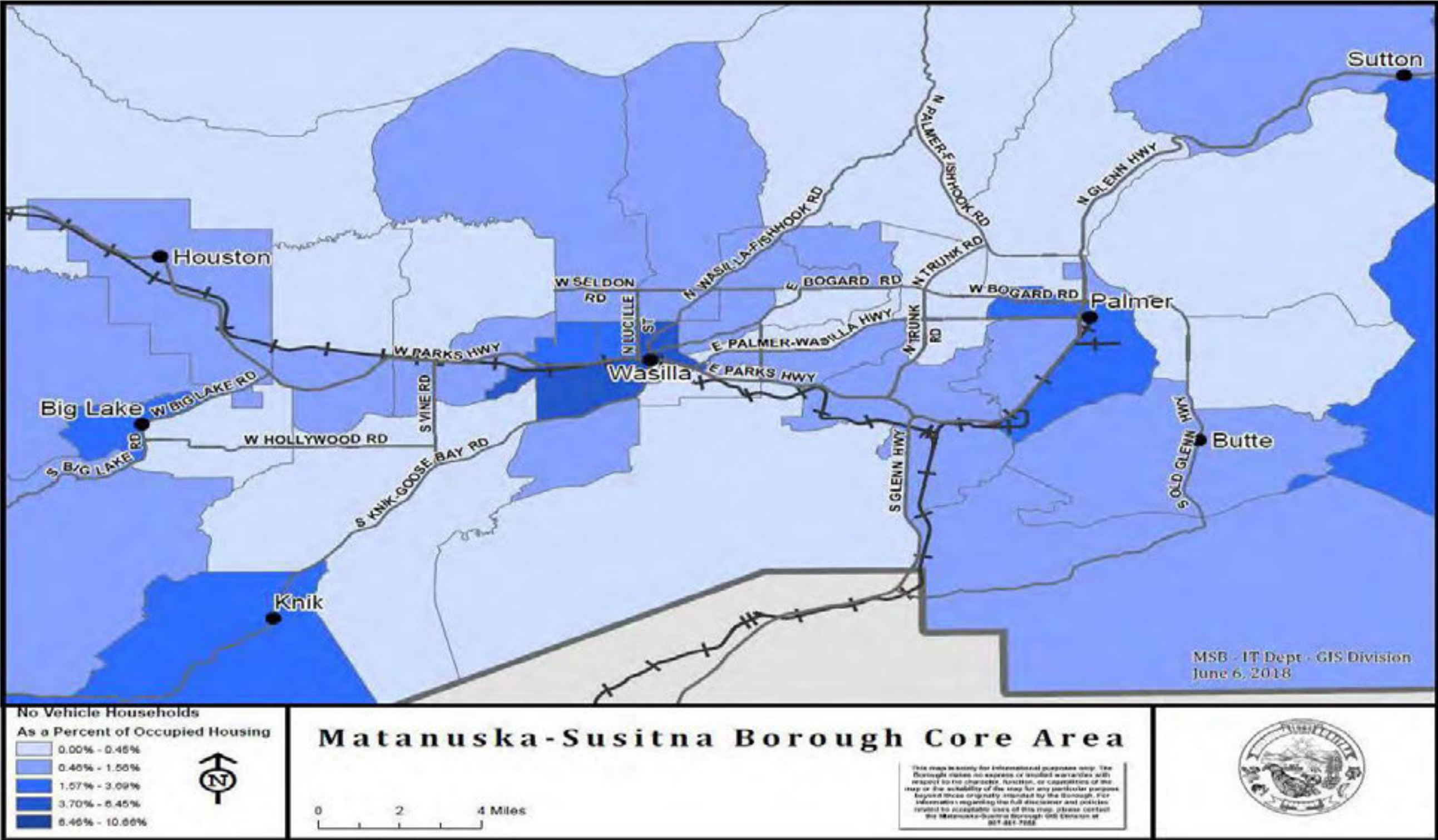


Figure 28. MSB Core Area No Vehicle Households

Source: MSB and Mat-Su Health Foundation, MSB Coordinated Public Services Transportation Plan 2018–2022, 2018, https://dot.alaska.gov/stwdplng/transit/pub/Coorplan-MSB_2018.pdf

The plan identified several ways to improve coordination and services, including:

- Centralize mobility management services
- Reduce operations costs while maintaining service levels
- Determine the appropriate combination of transit services
- Generate new revenue
- Improve information access and quality
- Improve the Medicaid approval process for providers and recipients
- Improve service availability
- Improve marketing

For additional information, please see the *MSB Coordinated Public Services Transportation Plan 2018–2022*³³.

10.9.3 Draft MSB 2022 Official Streets and Highway Plan

The MSB is updating its OS&HP³⁴. The OS&HP is a planning tool for the MSB to identify and reserve future road corridors and future road network improvements to help provide transportation infrastructure that supports residential, commercial, institutional, and industrial developments. The OS&HP is not fiscally constrained and does not establish project priorities. The goal is to establish a proposed hierarchical



The OS&HP and the platting process need to work in tandem to reserve and protect collector and arterial corridors as part of subdivision development.

road network where local roads connect to collector roads, which in turn connect to arterial roads that ultimately connect to the Interstate Highway System. A well-connected road network improves safety, reduces travel time, improves emergency response times, provides safe evacuation routes, and reduces carbon emissions.

The draft OS&HP identifies where current roadway connectivity deficiencies exist or where future arterial and collector roadways are needed to create a viable and safe road network to serve the residents of the MSB. The draft OS&HP identifies the following roadway connections within the UMED Sub-Area (see Figure 29):

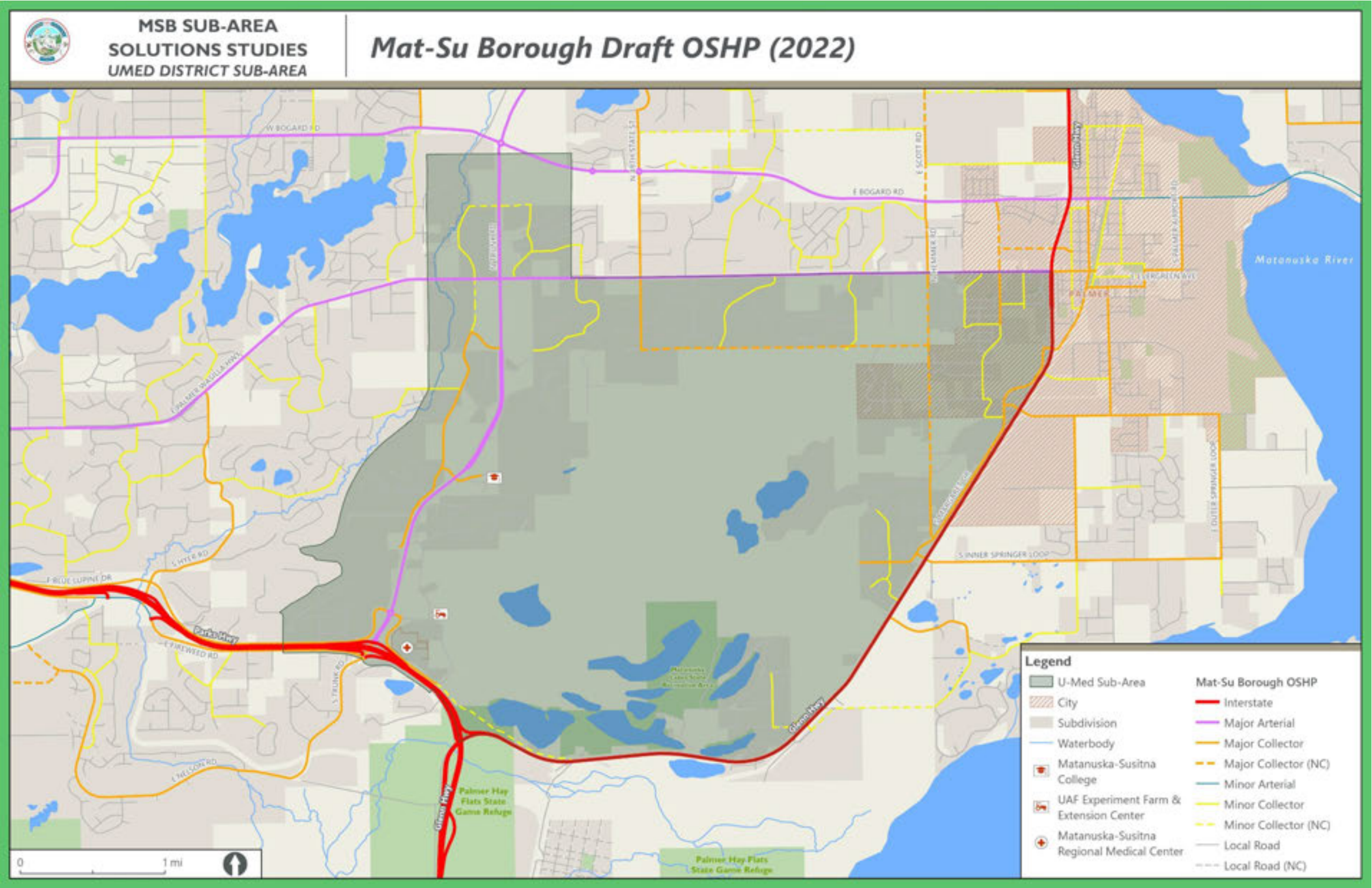
- Reconnect the Old Trunk Road north to the Palmer-Wasilla Highway

³³ MSB and Mat-Su Health Foundation, *MSB Coordinated Human Services Transportation Plan 2018–2022*, 2018, https://dot.alaska.gov/stwdplng/transit/pub/Coorplan-MSB_2018.pdf

³⁴ MSB, Official Streets and Highway Plan website, 2022, <https://oshp-msb.hub.arcgis.com/>; MSB, *Official Streets and Highway Plan, Technical Report and Implementation Plan*, Draft, May 2022

- Develop a “backage” road to connect residential subdivisions south of the Palmer-Wasilla Highway between 49th State Street and Hemmer Road
- Extend Hemmer Road south from the Palmer-Wasilla Highway to connect with Blunck Street and ultimately to the Glenn Highway
- Provide a second connection to the Mat-Su Regional Medical Center from the Glenn Highway
- Extend East Cottrell Campus Drive to connect with College Drive on the eastern side of Trunk Road
- Extend East Bradley Lake Drive east to the Glenn Highway

Figure 29. Draft OS&HP Projects



10.10 Safe Route to School Plans

The purpose of the Safe Routes to Schools Program is to improve safety and mobility for children and enable them to walk and bike to school. The *Matanuska Susitna Borough Safe Routes to School Walk Zone Inventory and Recommendations*³⁵ makes the following recommendations for Pioneer Peak Elementary School, which is within the UMED Sub-Area:

- Construct a 600-foot, paved, lighted, multi-use path along the eastern side of Old Trunk Road from the Palmer-Wasilla Highway to the school entrance
- Construct a 750-foot sidewalk along the school entrance road from Old Trunk Road to the existing school sidewalk
- Construct a new bus-only entrance and exit on the northern side of the school from the proposed Trunk Road connector
- Construct a multi-use path on the southern side of the proposed Truck Road Connector between the new school entrance and New Trunk Road; include a new pedestrian facility for crossing New Trunk Road with access to the subdivision to the east

As of August 2022, none of these recommendations have been implemented.

11 Utilities

11.1 Water and Sewer

The UMED Sub-Area is served by all major utilities. Unique to the sub-area is that the City of Palmer has extended piped sewer and water to serve the Mat-Su Regional Medical Center and surrounding medical facilities. Piped water has been extended along the eastern side of New Trunk Road to a point opposite its intersection with Old Trunk Road.

³⁵ PDC Inc. Engineers, *Matanuska Susitna Borough Safe Routes to School Walk Zone Inventory and Recommendations*, December 2014, https://matsugov.us/docs/general/16869/msb-srts_final-inventoryrecommendations_final_14y12m02d_smaller.pdf

Most residences, businesses, and institutions within the Palmer city limits are connected to the city's piped water and sewer system. Providing water and sewer services to existing large-lot residential subdivisions elsewhere in the sub-area is not considered viable due to the high costs to the residents.



Access to water and sewer determines density and are key to higher density development. Developers can opt to provide community water with on-site septic that allows single family residential development on 20,000-square-foot (0.5-acre) lots. Multi-family developments require larger septic systems and well capacity. In lieu of being able to connect to a water and sewer utility or community water systems, single-family residential homes are limited to 40,000-square-foot (1-acre) lots to achieve minimum separation distances between individual well and septic systems.



Palmer's water and sewer systems have the potential to provide additional connections and extension to new developments in the sub-area. This would allow higher density development, for example, at the large, 100-acre commercial property located west of New Trunk Road and south of the Palmer-Wasilla Highway. Expansion would be contingent on developer assistance in funding the costs.

11.2 Other Utilities

Other utilities provide more than sufficient service to existing developments in the sub-area and have the capacity accommodate continued existing development patterns or a change to higher density development. Solid waste disposal is through the MSB-owned and operated central landfill. The landfill has adequate space to accommodate additional development in the MSB. In the long term, there is a desire to develop a second access point off Trunk Road. Utility providers are summarized in Table 6.

Table 6. Utility Providers

Utility	Provider
Electric	Matanuska Electric Association
Natural Gas	ENSTAR
Telecommunications	A variety of providers, including Matanuska Telephone Association, GCI, AT&T, Verizon, etc.
Internet and Broadband	A variety of providers
Solid Waste	Matanuska Susitna Borough Central Landfill
Water and Sewer	City of Palmer (limited)
Storm Water System	City of Palmer (limited)

12 Economy

12.1 Plans and Studies

12.1.1 2010 MSB Economic Development Strategic Plan

In 2010, the MSB engaged TIP Strategies to develop an economic development strategic plan to help position the MSB for long-term economic vitality. The 2010 MSB *Economic Development Strategic Plan's*³⁶ vision statement is that “The Mat-Su Borough is the premier destination for quality development and jobs in Alaska,” which is supported by five main goals:

1. Position the MSB for sustainable economic growth and vitality
2. Build capacity to conduct economic development within the MSB
3. Expand the MSB’s economic development infrastructure
4. Attract, retain, and engage talent
5. Raise awareness of economic development opportunities

The plan identified seven priority strategies with varying degrees of specificity. The top strategy was to establish a university-medical district within the MSB to attract high-level jobs and facilities. The Mat-Su Regional Medical Center is located within the UMED Sub-Area and is discussed further in Section 12.3, Major Employers. In addition, there has also been a cluster of new healthcare offices and clinics outside the UMED Sub-Area along the Seward-Meridian Parkway since 2010.

Other goals of the 2010 plan included building greater awareness of the MSB as a destination for new investment among Anchorage employers; establishing an MSB-wide economic development partnership; facilitating communication between business, workforce training, and educational communities; investing in tourism infrastructure and marketing; developing multi-modal transportation infrastructure at Port MacKenzie; and updating the MSB planning code.

12.1.2 Fiscal Year 2023–2028 Borough Strategic Plan

The recently released *Matanuska-Susitna Borough Strategic Plan*³⁷ contains a variety of goals around economic growth and diversification. One of the three focus areas within the plan is to implement the vision of the MSB as “the greatest community in Alaska to live, work, and play.” The economic goals include protecting affordable housing, developing a regionally driven economic development planning process, promoting an apprenticeship

³⁶ TIP Strategies, Inc., *Matanuska-Susitna Borough, Alaska, Economic Development Strategic Plan*, April 22, 2010, <https://matsugov.us/plans/economic-development-strategic-plan>

³⁷ MSB, *Matanuska-Susitna Borough Strategic Plan*, February 15, 2022, <https://portmackenzie.org/docs/general/22341/FY-2023-2028-Strategic-Plan-FINAL.PDF>

program, developing future port prospects, supporting development of Hatcher Pass tourism opportunities, and hosting the 2024 Arctic Winter Games.

12.2 Existing Economic Conditions and Trends

The MSB has traditionally been seen as a “bedroom community” of Anchorage, with between 30 to 35 percent of its residents commuting to Anchorage for employment. Table 7 shows the commuting patterns to and from Anchorage for MSB residents. Approximately 60 percent of MSB residents both live and work in the borough, and approximately 30 percent of MSB residents commute to Anchorage for work. Conversely, only a small number of Anchorage residents commute to the MSB for work (approximately 4 percent of all MSB employees).

Table 7. MSB and Anchorage Commuting Patterns, 2015 and 2019

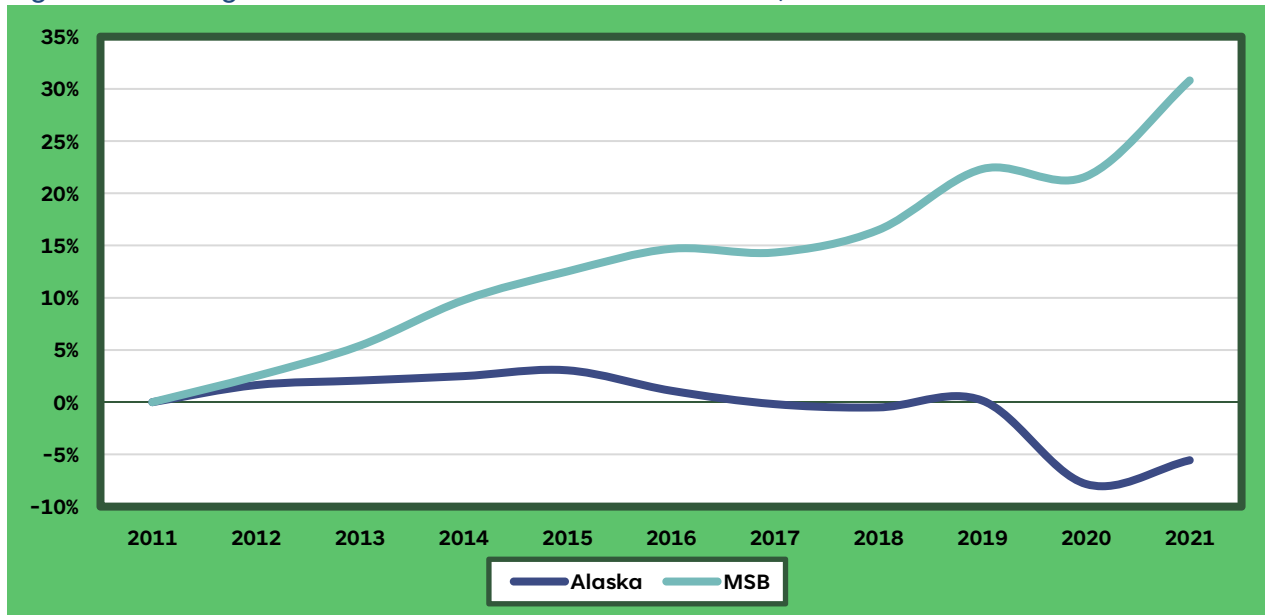
Commuting Direction	2015	2019	% Change
Live in Anchorage, Work in MSB	2,045	2,288	12
Live and Work in MSB	23,558	25,237	7
Live in MSB, Work in Anchorage	12,720	12,819	1

Source: DOL&WD data provided by Neal Fried, State Economist, 2022

As the MSB’s population has grown, the number of jobs in the MSB itself has increased, defying all statewide economic trends, including the Alaskan recession of 2017–2019. As shown in Figure 30, the number of jobs statewide was relatively stagnant between 2011 and the onset of the COVID-19 pandemic in 2020. By contrast, the MSB added jobs every year except 2017, at the onset of Alaska’s recession, and even the dip in jobs caused by the COVID-19 pandemic was relatively minimal. As of 2021, the MSB had over 30 percent more jobs than a decade prior. This suggests that the MSB is rapidly maturing from a bedroom community to developing more substantial economic activity. Wages in the MSB increased 13 percent from 2010 to 2020, in line with statewide trends, to an average of \$48,420 in 2020. The job sectors that have seen the most growth, shown in Figure 31, vary in average wages. Healthcare and construction jobs are higher-earning, paying between \$65,000 and \$80,000, whereas retail and food service jobs are less lucrative, with salaries in the \$25,000 to \$30,000 range.³⁸

³⁸ Fried, Neil, Average wages grew over decade, *Alaska Economic Trends*, March 2022

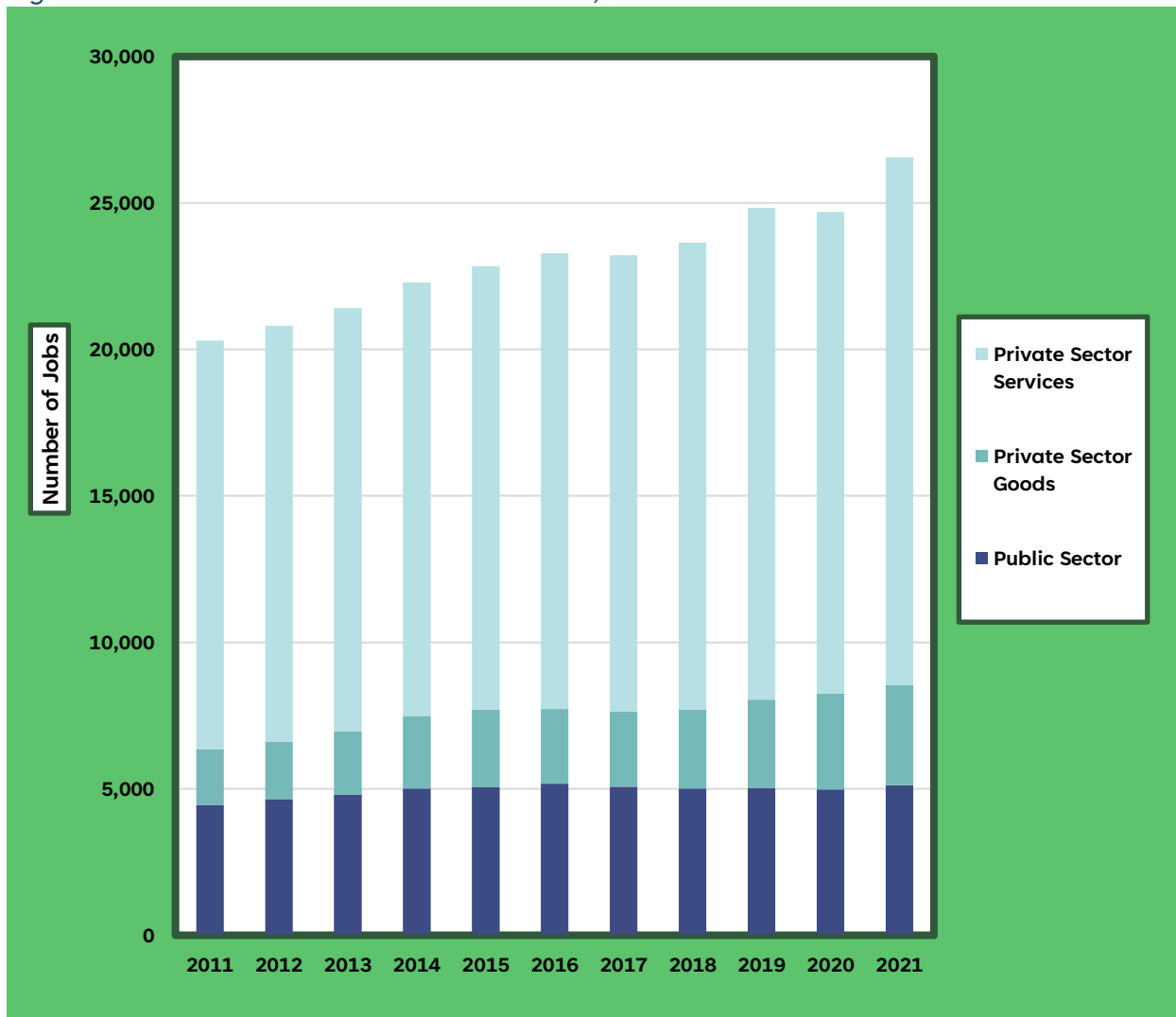
Figure 30. Change in Number of Jobs in MSB and Alaska, 2011–2021



Source: DOL&WD; Quarterly Census of Employment and Wages, 2011–2021; 2022;
<https://live.laborstats.alaska.gov/qcew/index.html>

The DOL&WD reports that approximately 5,000 jobs in the MSB are public sector jobs, approximately half of which are in local government and the remainder in state and federal governments. The number of public sector jobs has not appreciably changed in the past decade, but the number of private sector jobs has substantially increased, particularly in service-oriented jobs, as shown in Figure 31. As of 2021, there were 18,003 service jobs (retail, health care, management, knowledge industries, etc.), 3,426 goods-producing jobs (manufacturing, agriculture, mining, etc.), and 5,127 public jobs in the MSB.

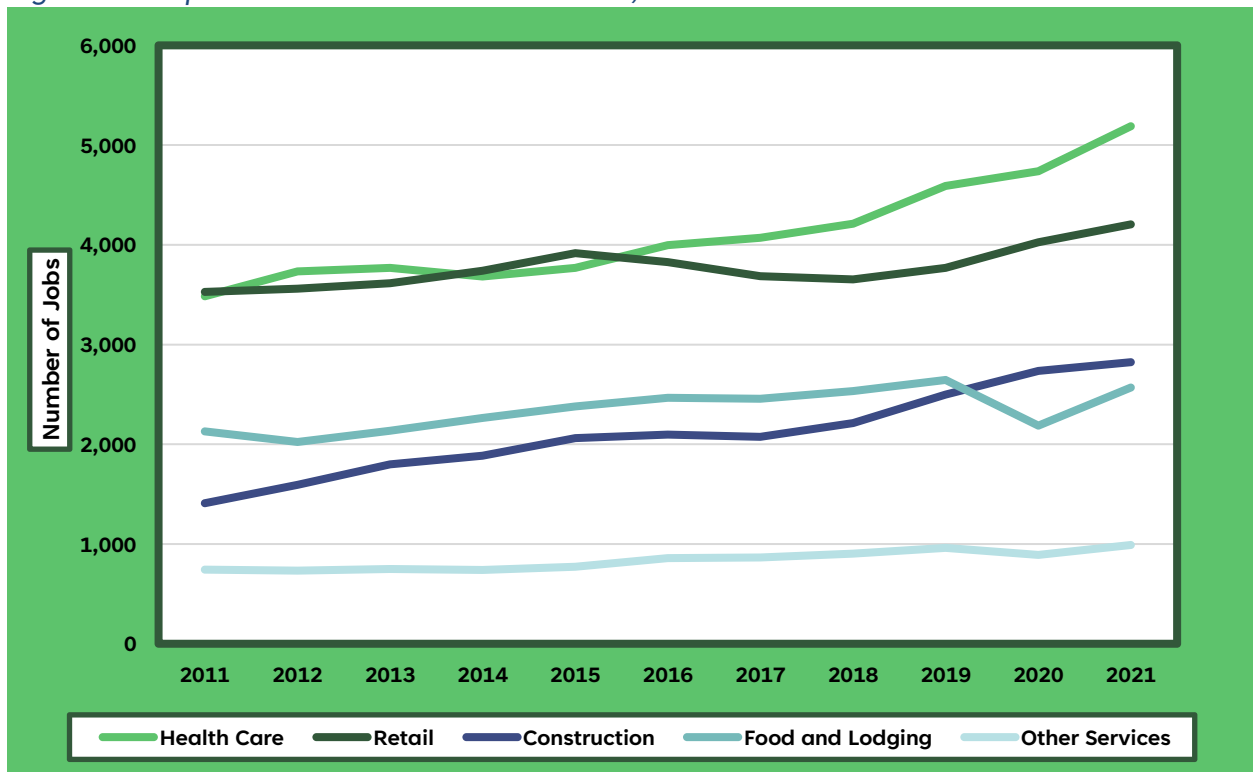
Figure 31. Public and Private Jobs in the MSB, 2011–2021



Source: DOL&WD, Quarterly Census of Employment and Wages, 2011–2021, 2022,
<https://live.laborstats.alaska.gov/qcew/index.html>

Figure 32 shows the top five job sectors in the MSB and their change over time. The health care and construction industries have seen the greatest growth in the past decade, with a 49 percent increase in health care jobs and a doubling in the number of construction jobs from 2011 to 2021. This reflects the explosive housing growth in the region. The food and lodging industries took an unsurprising hit from the COVID-19 pandemic but have since rebounded significantly as tourism has returned to the MSB. Retail jobs have also been relatively steady, despite the serious setbacks for the industry posed by both e-commerce and the COVID-19 pandemic over the past decade.

Figure 32. Top Private Job Sectors in the MSB, 2011–2021



Source: DOL&WD, Quarterly Census of Employment and Wages, 2011–2021, 2022,
<https://live.laborstats.alaska.gov/qcew/index.html>

The growth of health care employment in the MSB parallels the rise of the industry as the leading sector statewide and one of the leading economic drivers nationally. Other major industries in Alaska that have seen notable growth in recent decades are also reflected in the MSB, such as restaurants and tourism-related jobs.³⁹ From the perspective of the economic future of MSB residents, these are promising trends. Health care jobs in Alaska pay more than in any other state, as of 2018, with an average salary of \$98,020.⁴⁰ Notwithstanding a future pandemic or other catastrophe, tourism in Alaska looks to remain a strong sector, and community members interviewed by the Study project team specifically spoke about new recreational and tourism opportunities opening up in the Hatcher Pass area. The MSB was recently awarded a grant for the construction of the new Mat-Su Gateway Visitor Center, which will help increase tourism employment.

12.3 Major Employers

The UMED Sub-Area has two major employers: the Mat-Su Regional Medical Center and UAA’s Mat-Su College. The medical center is a 125-bed facility that provides a wide range of surgical, specialty, and hospital services, employing more than 800 health care

³⁹ Fried, Neal, Industry winners and losers, *Alaska Economic Trends*, February 2019.

⁴⁰ Zaguirre, Aiko, How healthcare wages in Alaska rank, *Alaska Economic Trends*, December 2018.

professionals.⁴¹ South of the medical center is a smaller health care facility operated by Providence as well as another building housing several medical offices.

The Mat-Su College is a UAA campus located within the UMED Sub-Area. Originally established as an agricultural experiment facility, the college now offers 2-year degrees with courses in accounting, arts, nursing, business, veterinary medicine, and other subjects to more than 2,000 students.⁴² The college employs 21 full-time faculty, 43 full-time staff, 10 student workers, and approximately 120 adjunct faculty.⁴³

Other major employers in the UMED Sub-Area include a retail cluster in the northeast of the sub-area within Palmer, including Fred Meyer, Carrs-Safeway, and other smaller stores. Additionally, the sub-area is served by Colony Middle and High Schools and Palmer Middle and High Schools, though they are located outside the sub-area boundary. Pioneer Peak Elementary School is located within the sub-area boundary. The MSB School District is the borough's largest public employer, with more than 2,000 employees across all its schools.⁴⁴

13 Environmental

This section summarizes the existing environmental conditions and resources in the UMED Sub-Area. Understanding the existing environmental conditions and cultural resources are important for several reasons: they help determine which improvements may be challenging or more expensive to construct, which level of environmental documentation is needed, where additional agency coordination may be needed, and where there are opportunities for avoidance and mitigation.

13.1 Cultural Resources

A July 2022 review of the Alaska Heritage Resources Survey database indicated 40 cultural resources located in the UMED Sub-Area. Of these, two are eligible for listing in the National Register of Historic Places. The remaining sites are either not eligible, unevaluated, or an evaluation is pending. Several laws and regulations, such as regulations implementing Section 106 of the National Historic Preservation Act⁴⁵, govern the process to be followed if a cultural resource may be impacted as the result of a federal undertaking. Potential impacts to cultural resources should be considered as part of the project development process because it may increase the project cost and schedule.

⁴¹ Mat-Su Regional Medical Center, About Us, 2022, <https://www.matsuregional.com/hospital-about-us>

⁴² Mat-Su College, Director's Message, 2022, <https://matsu.alaska.edu/about/directors-message.cshtml>

⁴³ Email communication with Talis Colberg, Mat-Su College President, August 26, 2022

⁴⁴ MSB School District, About Us, 2022, <https://www.matsuk12.us/domain/3379>

⁴⁵ 36 Code of Federal Regulations Part 800

13.2 Wetlands

Figure 33Figure 33 shows the location of wetlands identified within the UMED Sub-Area based on the MSB wetlands GIS data.

13.3 Floodplains

Floodplains are land areas of low-lying ground adjacent to a waterbody that are subject to inundation by floodwaters during times of heavy rain, snowmelt, or high tides (for coastal areas). They can act as reservoirs that temporarily store waters, slowing down their speed and reducing the impact of erosion downstream. They typically are important habitats for fish, birds, and wildlife. Managing development or encroachments to floodplains reduces the impacts of flooding on the built environment, sustains healthy ecosystems, and supports local economic and recreation opportunities.

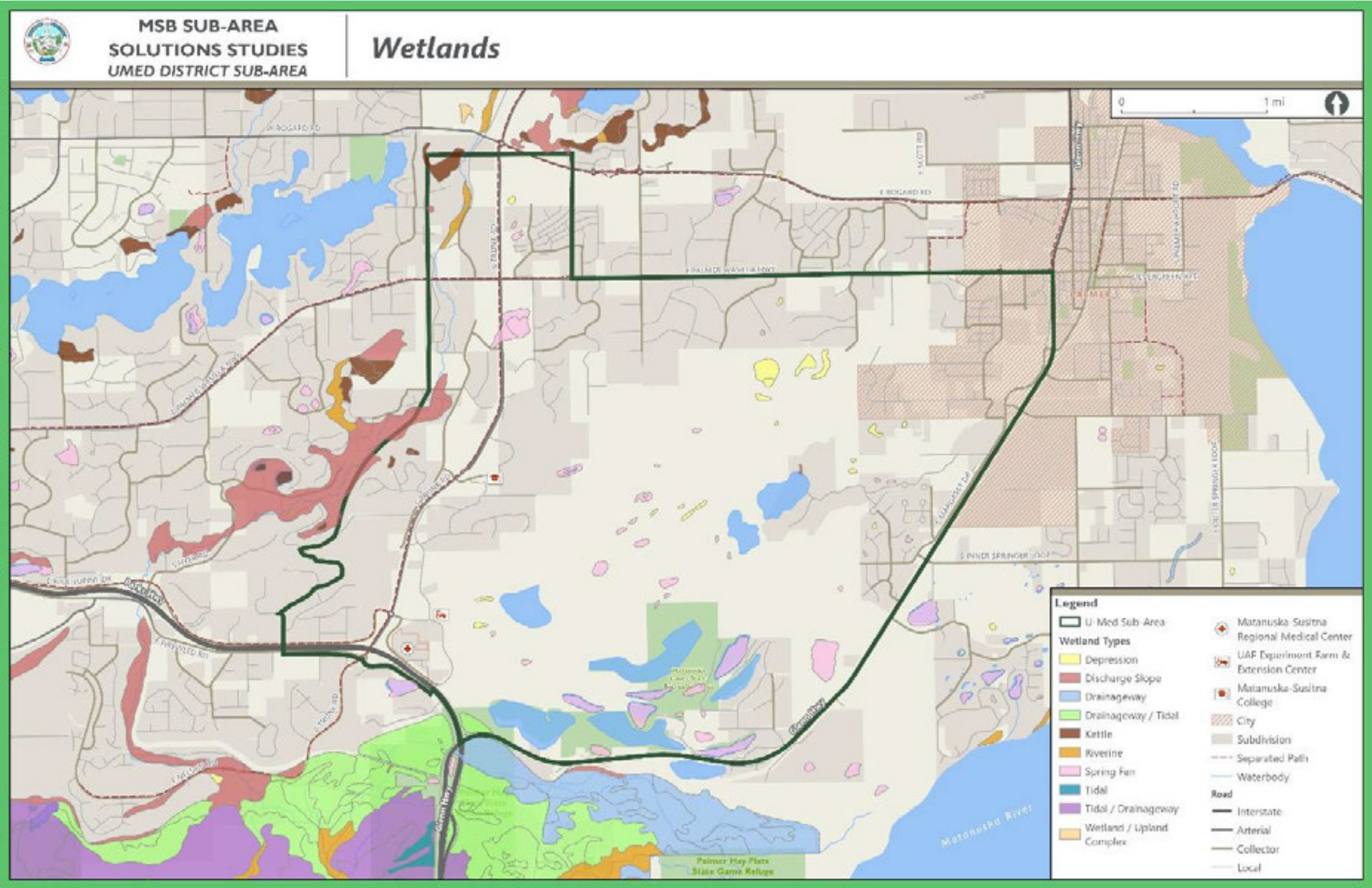
In the MSB Sub-Area, floodplains occur along Wasilla Creek (see Figure 34Figure 34). Construction within the floodplains would have to comply with appropriate floodplain regulations.

13.4 Contaminated Sites

A July 2022 review of the Alaska Department of Environmental Conservation (ADEC) Contaminated Sites Database⁴⁶ indicated no known active contaminated sites in the UMED Sub-Area. There are multiple sites that have been previously addressed (see Figure 35).

⁴⁶ ADEC, Contaminated Sites, 2022, <https://dec.alaska.gov/spar/csp.aspx>

Figure 33. Wetlands



Source: MSB GIS, 2022

Figure 34. Floodplains

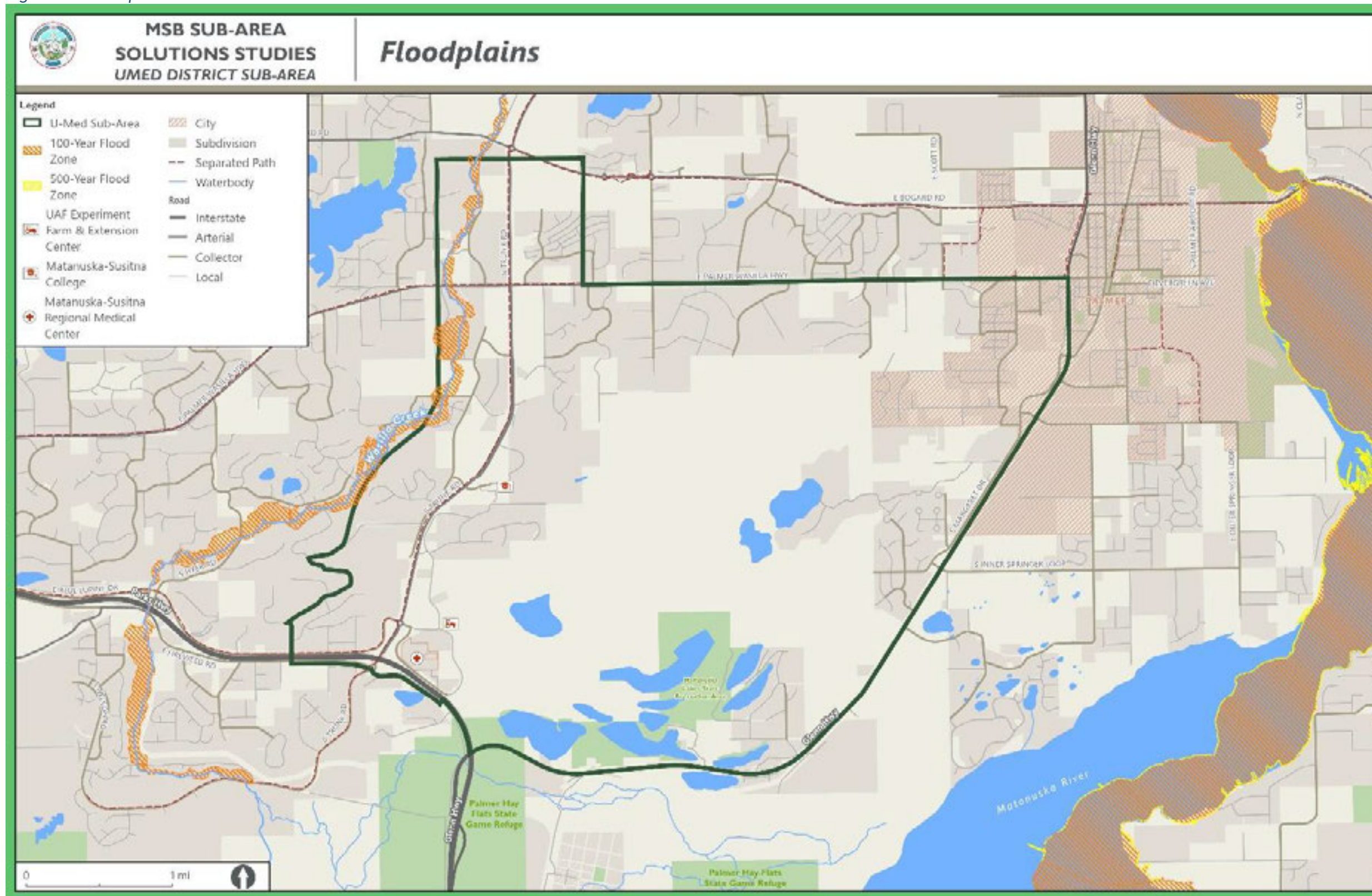
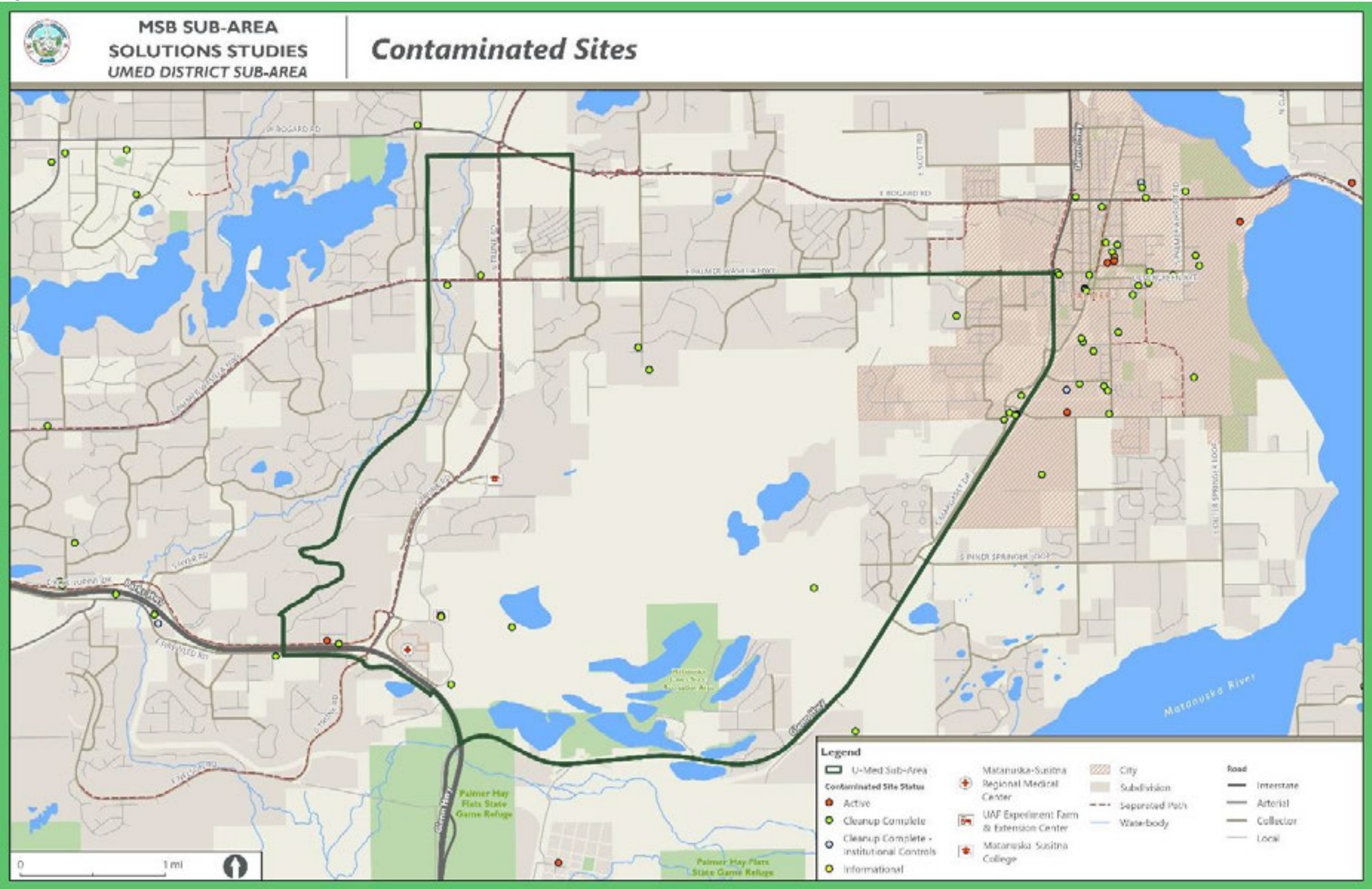


Figure 35. Contaminated Sites



Source: ADEC, Contaminated Sites, 2022, <https://dec.alaska.gov/spar/csp.aspx>

Appendix A Existing Non-Infrastructure Policy and Codes

A.1 Subdivision Construction Manual

The Matanuska Susitna Borough (MSB) Assembly approved the updated *Subdivision Construction Manual* (SCM)⁴⁷ by adopting Ordinance 20-15 that amended MSB 43.05.015(b)(3) to replace the SCM in Borough Code. The SCM provides design standards to developers for the design and construction of roads whose ownership will be transferred to the MSB for long-term maintenance, repair, and upgrade. It is important that all roads constructed by developers meet appropriate standards prior to the transfer of ownership to the MSB.

The SCM goals are to:

1. Establish standards for the design and construction of transportation networks throughout the MSB
2. Provide information and guidelines for the design, construction, and upgrade of roads, drainage facilities, and utilities within rights-of-way
3. Develop and maintain a safer and more efficient transportation system
4. Minimize operation and maintenance efforts

Issue: The SCM annual average daily traffic levels defining local roads are much higher than national standards, leading to the potential under design of local roads.

A.2 Title 43 Subdivisions (see MSB Code⁴⁸ for all code requirements contained in this Title)

MSB Code Title 43 Subdivisions regulates the development of subdivisions within the MSB. This Title identifies subdivision design standards and the responsibilities of property owners, developers, and the MSB. These regulations establish the Platting Board and define members responsibilities. It addresses plat approval, abbreviated plats and vacations, existing plat status and validation, reconsideration and appeals, and subdivision agreements.

Issue: Platting decisions have historically defined land use within the MSB without assessing impacts to the existing and future road networks.

Most of the property within the University Medical District (UMED) Sub-Area is in the unincorporated area of the MSB. These lands comprise a portion of what is known as the

⁴⁷ MSB, *Subdivision Construction Manual*, 2020, <https://matsugov.us/49-documents/21522-2020-subdivision-construction-manual>

⁴⁸ MSB Code, Title 43, <https://www.codepublishing.com/AK/MatanuskaSusitnaBorough/#!/MatanuskaSusitnaBorough43/MatanuskaSusitnaBorough4305.html#43.05.015>

Core Area of the MSB, where the majority of the MSB's population is located. The *Core Area Comprehensive Plan*⁴⁹ established planning goals and objectives within the Core Area. These goals and objectives are implemented in part by MSB Code Section 17.61 Core Area, with certain developments or activities requiring a Conditional Use Permit and/or a Traffic Impact Analysis with Mitigation prior to project initiation.

A.3 Applicable MSB Development Codes

Additionally, all areawide code requirements are applicable within the UMED Sub-Area, including the following Titles that address residential, commercial, institutional, and industrial development:

- **MSB Code Title 8 Health and Welfare**⁵⁰: Title 8 identifies health and safety standards related to construction by formally adopting the International Mechanical Code, International Building Code, Uniform Plumbing Code, National Electrical Code, International Fire Code, and International Fuel and Gas Code for all construction within the MSB. It also establishes standards for sewer and septic systems, including sizing and separation from wells and water bodies. Sewer and septic systems must meet Alaska Department of Environmental Conservation requirements.
- **MSB Code Title 11 Roads, Streets, Sidewalks and Trails**⁵¹: Title 11 establishes standards for roads, streets, sidewalks, and trails. These standards are implemented through the MSB's *Subdivision Construction Manual*⁵², which contains all relevant standards. This Title also defines encroachments and remedies. It establishes driveway standards and permits, and states when Traffic Impact Analyses and Traffic Impact Mitigations are required.
- **Title 15 Planning**⁵³: Title 15 establishes the role and function of the MSB Planning Commission as an advisory body to the MSB Assembly with respect to proposed ordinances and plans, and that serves in a quasi-judicial function related to the approval or denial of Conditional Use Permits. This Title establishes MSB Assembly functions related to zoning, comprehensive planning, lake management plans, and

⁴⁹ MSB, Core Area Comprehensive Plan, 2007 Update, <https://matsugov.us/docs/plans/14442/sandy-formatted-core-area-comp-plan1.pdf>

⁵⁰ MSB Code, Title 8, <https://www.codepublishing.com/AK/MatanuskaSusitnaBorough/#!/MatanuskaSusitnaBorough08/MatanuskaSusitnaBorough08.html>

⁵¹ MSB Code, Title 11, <https://www.codepublishing.com/AK/MatanuskaSusitnaBorough/#!/MatanuskaSusitnaBorough11/MatanuskaSusitnaBorough11.html>

⁵² MSB, *Subdivision Construction Manual*, 2020, <https://matsugov.us/49-documents/21522-2020-subdivision-construction-manual>

⁵³ MSB Code, Title 15, <https://www.codepublishing.com/AK/MatanuskaSusitnaBorough/#!/MatanuskaSusitnaBorough15/MatanuskaSusitnaBorough15.html>

amending state management plans affecting MSB lands. Chapter 15.30 establishes the Official Streets and Highway Plan as the official map that shows the location of present and future road construction projects throughout the MSB. This Title establishes the Board of Adjustment and Appeals as a process for residents to appeal decisions made by the MSB Administration, Boards, and Commissions.

- **Title 17 Zoning⁵⁴:** Title 17 establishes areawide and special use district zoning requirements throughout the MSB:
 - Establishes 13 Special Land Use Districts throughout the MSB that require additional development standards or limitations to address community or agency goals.
 - Requires conditional use permits for a variety of activities prior to their initiation, including a public process.
 - Establishes setbacks from lot lines, water courses, water bodies, rights-of-way, and screening easements.
 - Addresses flood damage prevention.
 - Provides regulations and permit requirements related to materials extraction and the establishment of Interim Material Districts.
 - Establishes standards for multifamily development and mobile home parks.
 - Provides a process to establish single-family and large-lot, single-family districts.
 - Regulates adult businesses, waste incinerators, nonconforming structures, racetracks, and tall structures.
 - Establishes conditional use permit requirements and noise, traffic, and hazardous materials standards within the Core Area of the MSB.
 - Establishes a public and permit process for the placement of essential service utilities within the MSB.
 - Establishes procedures to address variances.
 - Establishes fees.

The Cities of Palmer, Wasilla, and Houston as well as the Port MacKenzie Special Use District are often exempted from Title 17 regulations, and a thorough review of the regulations are needed to determine applicability.

⁵⁴ MSB Code, Title 17,
<https://www.codepublishing.com/AK/MatanuskaSusitnaBorough/#!/MatanuskaSusitnaBorough17/MatanuskaSusitnaBorough17.html>

APPENDIX B:

CODE CHANGES

APPENDIX B: CODE CHANGES

The following describes revisions that should be made to Title 43 code and the Subdivision Construction Manual (SCM).

Text that should be added is in red, while deletions are in ~~strikeout~~.

Title 43 Code Changes:

- **Modify 43.05.015(B) Purpose and Scope:** Change (B) to read: The **most current version of the** following list of documents are to be incorporated within this title as if fully set forth in this title:
 - (1) BLM manual of survey instructions; ~~and~~
 - (2) *[Repealed by Ord. 17-033, § 40, 2017]*
 - (3) **2022the most recently adopted** Subdivision Construction Manual¹; **and**
 - (4) **the most current Long Range Transportation Plan; and**
 - (5) **the most current Official Streets and Highways Plan; and**
 - (6) **adopted Access Management Plans; and**
 - (7) **Special Land Use Districts.**
- **Modify 43.20.130(A) Major Road Corridors:** Change (A) to read: “(A) Subdivisions of any lots abutting or within 100 feet of a national, state, or borough road classified as a **major collector or higher** in the MSB Long Range Transportation Plan, **and the Official Streets and Highway Plan** are subject to the provisions of this section.”
- **Modify 43.20.130(B) Accessways:** Change (B) to read: “(B)The distance between direct accessways onto national, state, or borough roads ~~classified as highways or arterial roads~~ shall be maximized, **and shall be 650 feet or greater for roads classified as major collectors, and 1,320 feet or greater for roads classified as arterials or higher**, when measured at centerline unless preexisting conditions and preexisting nonconforming lots do not allow. Access shall be by collector street, frontage road, or shared driveways, where feasible. A property adjacent to a road described in subsection (A) of this section shall not be denied access where an existing road or driveway causes an access to have less than 650 feet of separation.”

¹ When the Subdivision Construction Manual, Long Range Transportation Plan, and Official Streets and Highways Plan are updated, the new version should be incorporated into Title 43.

- **Modify Title 43.20.060(D):** Change (D) to read: “(D) Subdivisions shall provide through connecting rights-of-way of residential **sub**-collector standard minimum (as defined in the MSB Subdivision Construction Manual) to all adjoining stub rights-of-way and unsubdivided parcels, where feasible, to improve interconnectivity and public safety. If it is shown by the applicant to be unnecessary for future development and/or public safety, then a reduction to a lesser road right-of-way standard or an elimination of the requirement to provide access shall be applied to all of (or a portion of) the right-of-way that is being considered for a reduced standard.”
- **Modify Title 43.20.060(B):** Change (B) to read “(B) When accepting roadway dedication, the platting authority shall conduct a public hearing. **For plats that agree to dedicate right-of-way, when it would otherwise be an abbreviated plat, Manager may waive the preliminary plat fee in excess of the abbreviated plat fee.**
- **Modify Title 43.20.281(A)(1)(f)(ii):** Clarify if this includes GW-GM, GP-GM, SW-SM, and SP-SM. Add to (f)(ii): “clearly shown to be GM-~~or~~, SM, **GW-GM, GP-GM, SW-SM, or SP-SM** under the Unified Soils Classification System by a sieve analysis; or”
- **Modify 43.15.040 Section Line and State Recognized RS-2477 Easement Vacations (B)(5):** Change (B)(5) to read “Plat copies as needed, of a section line or RS-2477 vacation plat **or Record of Survey**, drawn to the requirement of the State of Alaska.
- **Modify 43.15.025 Abbreviated Plats(B):** Change (B) to read “Plats to remove lot lines on **parcels created through the subdivision process** are exempt from provisions of the code which require:
- **Modify 43.15.051 Final Plat; Submitted(I):** Change (I) to read “
- **Modify 43.15.051 Final Plat; Submitted(J):** Change (J) to read " All distances shall be shown in feet and to the nearest one-hundredth foot, and in accordance with the definition of a United States survey foot adopted by the United States Bureau of Standards. All measurements shall refer to the horizontal plane, **Alaska State Plane bearings and distances shall not be allowed. The area for each parcel created shall be shown to the nearest 1/100 of an acre and to the nearest square foot.**
- **Modify 43.20.300 Lot and Block Design (3):** Strike (3) from code in its entirety..
- **Modify 43.05.005 Definition of terms (A):** Change the definition of “flag lot” to read “means a parcel of land shaped like a flag, with a **straight**, narrow staff or pole extending to a road right-of-way or other access way.
- **Modify 43.15.049 Final Plat; General Provisions(G)(2)(h):** Change (h) to read “Location of phase lines may be changed, **or split into additional phases**, provided the plat remains in compliance with this title and does not conflict with previously approved platting board conditions.

- **Modify 43.20.060 Dedication To Public(A):** Change (A) to read “All roads shall be dedicated to the public, except as provided in MSB 43.20.100(C); provided, that a subdivider shall be required only to provide the designated right-of-way width within the subdivision, and one-half of the designated right-of-way width of the street on the exterior boundary of the subdivision with the dedication secured from the adjacent property owner before final plat approval. **Roads dedicated to the public within cities shall be dedicated and accepted by and to the cities on the plat.**
- **Modify 43.15.032 Elimination or Modification of Utility, Drainage, Sanitation, Slope, Snow Storage, Buffer, and Screening Easements(A)(1):** Add (b) to read “(b) consent to vacate may be made a condition of approval.”
- **Modify 43.20.100 Access Required (B):** change (B) to read “Upon finding that no practical means of providing road access to a proposed subdivision exists and upon a showing that permanent public access by air, water, or railroad is both practical and feasible, the platting board shall waive the road requirements of subsection (A) of this section. If other than road access is approved, the mode of access shall be noted on the plat. **Further subdivision of 4 lots or less from subdivisions with an approved alternate access are not required to be brought before the Platting Board for approval of the alternate access.**”
- **Modify 43.15.012(7) Forty-Acre Exemption(7):** Delete (7).
-

Subdivision Construction Manual Revision Recommendations

Clarify document organization
The document should be re-organized to improve clarity. Currently, it has two sections labeled “A” (one is Acronyms & Abbreviations and the other is Street Design) and two sections labeled “D” (one is Construction Requirements and the other is Drainage). The numbering of the headings and subheadings should be corrected to make it easier to refer to the correct section and reduce confusion.
Correct labeling for Definitions pages and add the following terms to Definitions
a) Access Management b) Functional Classification

Revise Section A01 Street Design
Add the following two provisions: (7) implement access management principles to maintain the function of the MSB road network (8) protect public and private investment in the MSB's transportation system
Change table A-1 Design Criteria: - Average Daily Traffic to forecasted Average Daily Traffic (ADT) - Change Residential ≤ 400 to ≤ 280 - Change Residential Sub-Collector ~~401–1,000~~ to 281–700 - Change Residential Collector ~~1001–3000~~ to 701–2000
Revise Table A-1: Design Criteria
Change ROW Width for Residential Collector from ~~60 feet~~ to 80 feet
Revise Section A03 Street Classification
Revise the first sentence to: “Roads within the MSB fall within one of the following functional classifications, in accordance with the Long Range Transportation Plan (LRTP) and Official Streets and Highways Plan (OSH): Interstate, Principal Arterial, Minor Arterial, Major Collector, Minor Collector, and Local Road.”
Modify Section A03.5 to add the following paragraph: Pioneer Roads require a turnaround meeting A.07. Existing roads being certified to Pioneer Road standard do not need a constructed turnaround meeting A.07 at the end of the segment being certified if the road continues on in a similar standard.
Revise Section A04.1 Residential Street
Modify Section A04.1(b) to: (b) The anticipated average daily traffic (ADT) forecasted annual average daily traffic (ADT) volume on Residential streets shall not exceed ~~400~~ 280. A loop street shall be designed such that the anticipated ADT forecasted ADT at each terminus of the loop street does not exceed ~~400~~ 280, see Figure A-1.

Revise Section A04.2 Residential Subcollector Street
(a) A Residential Subcollector street provides access to abutting properties and may also move traffic from Residential streets that intersect it. Residential Subcollector streets are required when the ~~ADT~~ forecasted ADT ~~anticipated~~ on the street will exceed the limits for Residential. (b) The ~~anticipated ADT~~ forecasted ADT on Residential Subcollector streets shall not exceed ~~1000~~ 700. A loop street shall be designed such that the ~~anticipated ADT~~ forecasted ADT at each terminus of the loop street does not exceed ~~1000~~ 700, see Figure A-2.
Revise Section A04.3 Residential Collector Streets
Revise title to read: A04.3 Residential Collector Streets
Modify A04.3(a) to: “A Residential Collector street carries residential neighborhood traffic, but restricts or limits direct residential access. Residential Collector streets are required when the ~~anticipated ADT~~ forecasted ADT on the street will exceed the limits for Residential Subcollectors.”
Modify Section A04.3(f) to: (f) If the ~~anticipated ADT~~ forecasted ADT will exceed ~~3000~~ 2000, the street shall be classified at a higher level than Residential Collector by DPW.
Revise Section A04.4 Access through Existing Streets:
Modify Section A.04.4 to: “Existing streets need to be upgraded to the street classification as determined by the forecasted average daily traffic. The ~~ADT~~ forecasted ADT on existing Residential Streets used to access a proposed subdivision may exceed ~~400~~ 280, but shall not exceed ~~800~~ 490, if: (a) alternate road corridors are not available or feasible; (b) Horizontal geometry curve radii or access density prohibits upgrade to a higher standard road; and (c) The traffic impacts are mitigated”

Change SCM A04.5 Traffic Impact Mitigation for Access through Existing Streets
(a) Traffic control devices (signage, striping) on segments where potential ADT ~~forecasted ADT~~ exceeds 440 308; (b) LED street lighting, speed feedback signs, widened shoulders, inside corner widening for offtracking, or all-way stop intersections on segments where potential ADT ~~forecasted ADT~~ exceeds 600 420.
Modify Section A04.6 Commercial Uses on Residential and Residential Subcollector Streets
“Exceptions to the ADT ~~forecasted ADT~~ limits on Residential and Residential Subcollector streets, as set forth in A04.1 and A04.2, respectively, may be allowed for commercial uses that access the first 600 feet of such streets that intersect a Collector standard road or higher classification, as measured from the intersection point. The affected portion of the street and intersection shall be constructed to a higher standard as needed to accommodate the anticipated commercial traffic.”
Revise Section A08 Stub Streets
Replace the text in Section A08.1 with the following: “~~No construction is required if physical access is provided to all lots by adjoining streets as required by MSB or other applicable code.~~ Stub Streets shall be constructed by the developer to foster connectivity to adjacent subdivisions, improve safety, enhance emergency response, and efficient emergency evacuation.
Add text to Section A08.2: “Stub streets requiring construction that exceed 200 feet in length or that intersect a minor collector road or higher will meet the requirements of A07.1 or A07.2.
Modify A09.1
Add between (c) and (d) as a new item (d), readjusting lettering of remaining items in the list: (d) A sight distance evaluation is required at access points.

Revise Section A15 Average Daily Traffic
Modify Title for Section A15 to read: ~~Average Daily Traffic~~ to “Trip Generation Rates”
Change SCM A15(a) to: “The following formula shall be used to determine the required classification of streets: ~~ADT = Number of lots x 10 for single-family residential use~~ to forecasted Average Daily Traffic (ADT) = 7 per dwelling unit.” 0
Add another sub-item to A15 after A15(c): (d) “Standard to account for existing uses of lots other than single-family residential in the forecasted ADT calculation.”
Revise Section A09.2 Intersection Spacing
Revise Section A09.2 Intersection Spacing to address spacing requirements on major roads: • Replace Section A.09.2(a)(4) to read: “See Section B”
Insert a new Section A16 prior to Design Deviations and renumber Design Deviations to A17
Add: A16 Traffic Impact Analysis (A) Subdivisions expected to generate more than 50 vehicle trips in the peak hour, 350 trips per day, or that access directly onto a major road corridor shall: (a) Have painted stop bars when accessing a paved roadway where the driveway crosses bike paths or sidewalks; (b) Relocate pathways and sidewalks in front of stop bars in accordance with ADOT&PF Central Region Standard Detail CR-T-1.20; (c) Install right turn lanes if warranted by the 1985 “National Cooperative Research Program Report 279”, Figure 4-23 (Transportation Research Board); and (d) Install left turn lanes if warranted by the 1967 “Highway Record 211” (Highway Research Board).Subdivisions expected to generate more than 100 vehicle trips in the peak hour, 700 vehicle trips per day, or that access

directly onto a major road corridor (see Section B) require a traffic impact analysis performed by a qualified professional civil engineer licensed in the State of Alaska

(B) Driveways that access a parcel that is anticipated to generate traffic in excess of 100 vehicle trips during the peak hour require a traffic impact analysis which examines critical movement level of service (LOS) at the driveway and nearby roads and intersections.

(a) A traffic impact analysis for developments that generate less than 100 vehicle trips per hour may be required if the borough determines that the traffic generated will detract from the safety of the roadway.

(1) In determining whether the access will detract from safety of the roadway the borough shall consider:

- (i) sight distance;
- (ii) accident history;
- (iii) bus stops;
- (iv) road width;
- (v) functional area; and
- (vi) other traffic and safety related factors.

(2) A determination that the access will detract from safety of the roadway shall be issued in writing by the borough.

(b) The traffic impact analysis and driveway design shall be prepared by a professional civil engineer registered by the state of Alaska under AS 08.48.

(c) Level of service and operational analysis for a traffic impact analysis prepared under this section must be performed in accordance with the "Highway Capacity Manual, 6th Edition" (Transportation Research Board).

(d) The minimum acceptable LOS at intersections and on road segments both on the development's anticipated opening date and in the design year is:

(1) LOS C, if the LOS on the date of application is LOS C or better; or

(2) LOS D, if the LOS on the date of application is LOS D or poorer; however, if the LOS is poorer than LOS D, a lower minimum LOS is acceptable if the operation of the roadway does not deteriorate more than ten percent in

terms of delay time or other appropriate measures of effectiveness from the LOS before the development's anticipated opening date.

(e) A traffic impact analysis prepared under this section must address:

(1) intersections on roadways where traffic on any approach is expected to increase, as a result of the proposed development, by at least five percent of the approach's capacity;

(2) segments of roadways between intersections where total traffic is expected to increase, as a result of the proposed development, by at least five percent of the segments' capacity;

(3) roadways and intersections where the safety of the facilities will deteriorate as a result of the traffic generated by the development;

(4) each driveway that will allow egress from or ingress to a roadway for the proposed development;

(5) parking and circulation routes within the proposed development, to the extent necessary to ensure that traffic does not back up onto a roadway;

(6) pedestrian and bicycle facilities that are part of the roadway to which a permit applicant seeks access; and

(7) the anticipated opening date of the development.

(f) A traffic impact analysis prepared under this section must consider:

(1) projected traffic at the development's anticipated opening date, excluding the traffic generated by the development; and

(2) projected traffic at the development's anticipated opening date, including the traffic generated by the development.

(g) A traffic impact analysis prepared under this section for a development expected to generate 250 or more vehicle trips during the peak traffic hour of the adjacent roadway must, in addition to the projected traffic volumes before and after the completion of the proposed development, consider:

(1) the projected traffic in the design year for the proposed development, excluding traffic generated by the development; and (2) the projected traffic for the design year for the proposed development including the traffic generated by the development. (C) Residential developments should use one trip per dwelling unit per peak hour. Other types of developments should use the latest ITE trip generation manual.
Update Section B.03 Frontage, Backage, and Collector Street Standards
Add two additional conditions to Section B.03: (h) When they are identified in the OSHP. (i) When they are recommended by an approved Corridor Access Management Plan.
Section B. Major Road Corridors <i>(in the meantime, while DCM is still being created)</i>
Add the following text: Access management is critical to maintaining the safety and function of higher classified roads such as major collectors and arterials. Proper access management reduces congestion, improves traffic flow, and results in fewer accidents. Subdivision design and their internal road system must abide the guidance and recommendations of adopted CAMPs. Adopted CAMPs are listed in Title 15. Where adopted CAMPs do not exist and the proposed development is accessing a major collector or higher classified roadway, the MSB Department of Public Works will work with the developer and, when necessary, other roadway authorities to determine appropriate subdivision access points and spacing. Roadway intersections, driveways, frontage and backage roads locations will be based on generally accepted access management principles and guidelines and the functional classification of the roadway their subdivision is accessing.
Revise Section B.04
Rename Section ~~B.04 Access Standards~~ to B.04 Intersection and Access Standards
Add Section B.04.1 Intersection Spacing

On major road corridors, intersection spacing shall adhere to a corridor access management plan or meet the spacing listed below when a corridor access management plan does not exist.

Intersection Spacing in Miles

Intersection Type	Arterial Minimum	Major Collector Minimum
Signalized/Roundabout Intersection	2	1
Unsignalized Intersection (<i>no median</i>)	1/2	1/4
Directional Median Opening	1/4	1/4
Right-In/Right Out with non-traversable median	1/4	1/8

MSB Engineers will consider factors such as speed, traffic volume, existing medians, OSHP, etc. in approval of minimum spacing.

Rename Section B04 to **B.04.2 Access Standards**

Modify Table B-1: Right-of-Way Surface Widths

Change Minimum ROW Widths to the following:

- Major Collector: ~~80~~ to **100 feet**
- Arterial: ~~100~~ to **130-140 feet**

Modify Section C02.5 Embankment Construction

Add the following as C02.5(b) and move everything else down:

(b) Construct roads centered in right-of-way unless otherwise approved by Dept. of Public Works.

Update Section D01 General

Add the following text to the end of this section:

All roadways and drainage facilities shall be built as part of the subdivision construction to ensure that the entire roadway network and its attendant drainage facilities are built. This will result in a fully functioning roadway network and drainage system.

Modify Section D Drainage

Modify Section D.07 Soil Infiltration Facilities by adding the following text:

1. Soil infiltration may be used to reduce stormwater flow and volume with the following criteria:
 - a) Perform field testing to determine soil infiltration rates using ASTM D3385 (Standard Test Method for Infiltration Rate of Soils in Field Using Double-Ring Infiltrometer) or the Falling Head Percolation Test Procedure (EPA) at or below the proposed bottom of the infiltration facility.
 - b) The design infiltration rate shall be no more than 50% of field-measured rate.
 - c) Where the field measured infiltration rate exceeds eight inches per hour, evaluate potential for groundwater contamination and provide appropriate measures to reduce rate of infiltration or provide pre-treatment.
 - d) Soil infiltration facilities are not recommended in locations where the field measured infiltration rate is less than one inch per hour.
 - e) In compliance with 18 AAC 80, facilities must be located a minimum distance of 200 feet from Public Water System wells. Water lines cannot be located in or under soil infiltration facilities.
 - f) Consider ground water hydraulics and the proximity of soil infiltration facilities to private drinking water wells.
 - g) Underground soil infiltration facilities shall not be located in utility easements.
 - h) Minimum separation distance between the seasonal high groundwater table elevation and the bottom of soil infiltration facilities is two feet.
 - i) Soil infiltration facilities shall be located such that water is not held against the structural section and are generally not allowed in the roadside ditches.
 - j) Construction of soil infiltration facilities should occur after all contributing areas have been stabilized to limit premature clogging through sediment deposition.
 - k) Soil infiltration facilities within Borough rights-of-way or drainage easements should be designed such that they are not considered Class V injection wells. See Appendix A for the EPA's June 2008 memorandum addressing the subject.

2. Private drainage facilities that are considered Class V injection wells require conformance with EPA regulations.
Modify Section F01.1 Preliminary Plat Submittal
Revise Section F01.1(a) to: (a) ~~ADT~~ forecasted ADT calculations per A15;

APPENDIX C:

DEVELOPMENT NODE ANALYSIS & RECOMMENDATIONS

June 2023

Community Growth Solutions Study Appendix C:

Development Node Analysis and Recommendations



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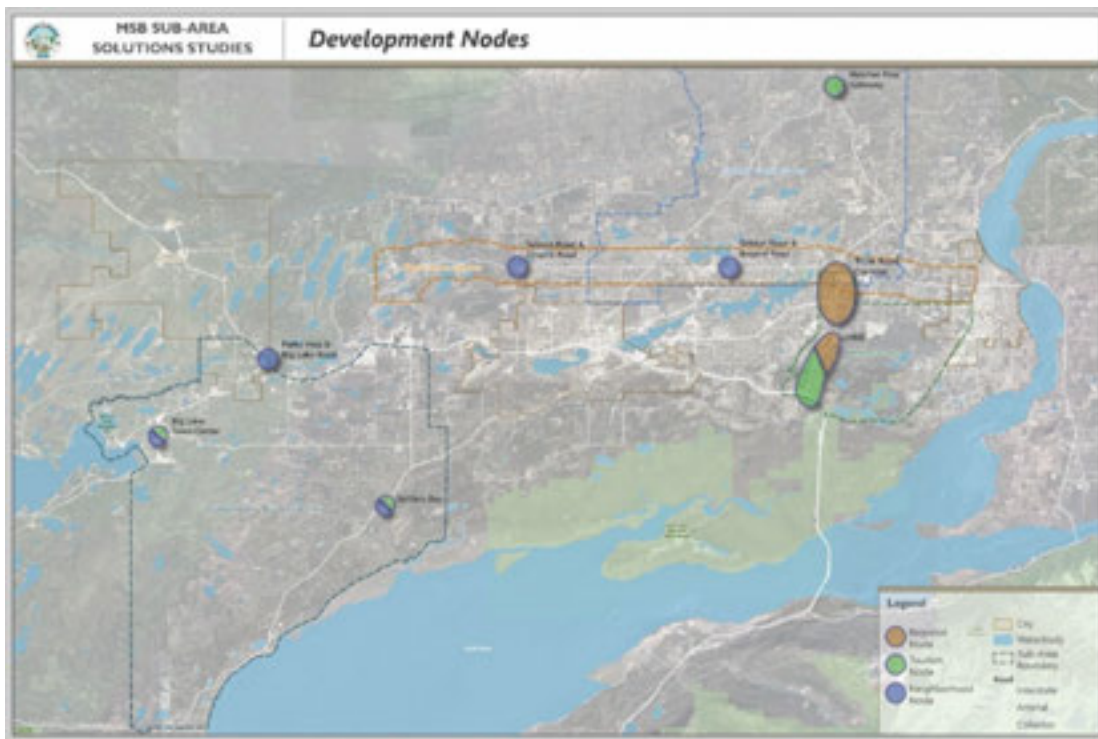
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Introduction

This report presents an **analysis of development opportunities** throughout the Mat-Su Borough and recommends **strategies to manage growth in a way that encourages economic development** at key locations. It draws upon existing MSB plans including the Official Streets & Highways Plan (OSHP) and several Community Comprehensive Plans, observed development, recent trends in population and employment, and interviews with community stakeholders, developers, and real estate professionals conducted by the Community Growth Solutions Study (formerly the 'Sub-Area Solutions Study'. Hereafter referred to as 'Study') project team in 2022. The report first outlines eight major development nodes at important intersection and corridor areas, classifying these nodes into three typologies – regional, tourism, and neighborhood nodes. The report then discusses each node in detail, including a vision statement, analysis of trends, and implementation considerations for the node. Finally, the report presents strategies for the MSB to encourage development in these areas. The eight major development nodes in the MSB are shown in Figure 1 below:

Figure 1. Development Nodes in the MSB



Source: Leland Consulting Group, 2023

A proactive economic development strategy in these nodes will help implement the mission of the MSB's *FY2023-2028 Strategic Plan* **"to efficiently and effectively deliver responsive services to the public and to cultivate opportunities for commercial enterprise to prosper."** Although some see continuous housing development as economic progress, holistic economic development also considers the needs of the growing population for diverse employment opportunities within the MSB to create a more well-rounded community with housing, jobs, and effective services delivered to the population through a diverse tax base. Directing new development and business activity towards these areas will help to streamline planning for public services including utilities, school locations, roads, and intersections. Concentrating commercial activity creates certainty for developers that their investments will be protected from undesired adjacent uses as well as demonstrating the MSB's commitment to ensuring ease of access for both customers and employees. As the MSB's

population and economy grows, concentrated commercial activity centers will help the MSB efficiently meet its future employment and service needs while providing a variety of housing opportunities in these areas.

Node Typologies

The eight nodes discussed in this report fall into three categories (regional nodes, tourism nodes, and neighborhood nodes) based on their location, potential development types, and the populations they will eventually serve when developed. These categories are intended to focus planning and visioning and to facilitate future MSB decision making regarding implementation and investments. These efforts should be coordinated with future updates to the MSB and community council comprehensive plans. Each node category is described in more detail below.

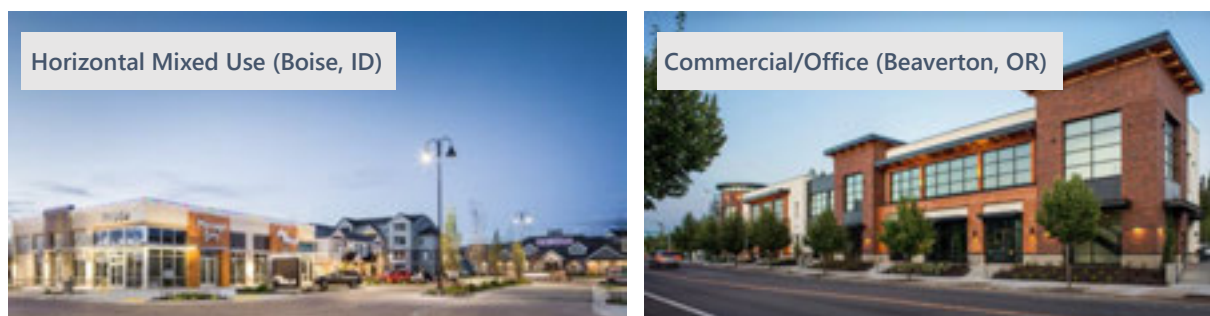
Regional Nodes

Regional nodes are intended to serve the total population of the MSB as well as visitors to the area. These areas would contain **specialized services such as medical facilities, large-format or destination retail stores, office space to provide employment hubs, and denser types of housing than typically found elsewhere in the MSB, such as townhomes or apartments.**

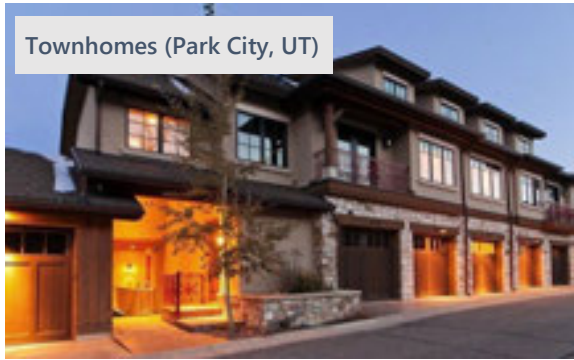
Regional nodes are envisioned to contain a mix of uses, mostly in adjacent buildings, and should also incorporate pedestrian and bike accessibility to facilitate a **park-once environment**. Access management tools such as frontage roads and shared parking would promote safe and efficient access. These nodes are located along **major transportation corridors**, and are either currently connected, or planned to connect, to **piped municipal water and sewer systems** to facilitate denser development.

The two proposed regional nodes, discussed in further detail below, are the **Trunk Road Corridor** and the **UMED Node**. Example images of this type of development node are shown below. These images can help policymakers and the public conceptualize and understand the node typology and guide the vision for the areas. Precedents shown include “horizontal” mixed-use development with freestanding retail adjacent to housing, retail development with office on the second floor, medical offices, and a range of housing types such as townhomes, duplexes, senior, and cottage-style housing, all in a pedestrian “village” development.

Figure 2. Precedent Imagery for Regional Nodes



MSB Community Growth Solutions Study | APPENDIX C Development Node Analysis & Recommendations



Townhomes (Park City, UT)



Cottage Development (Anchorage, AK)



Duplexes (Eagle River, AK)



Senior Housing (Eagle River, AK)



Medical Office (Deadham, MA)



Retail/Dining/Village Development (Lake Oswego, OR)

Sources: TOK Commercial Real Estate, Scott Edwards Architecture, Costar, HUD PD&R Edge Magazine, Smook Architecture, Kruse Village

Tourism Nodes

Tourism Nodes are primarily geared towards visitors drawn to the MSB's natural beauty and outdoor recreational activities. These nodes would contain **a mix of lodging, dining, and recreation-oriented uses for visitors, connected with skiing, boating, hiking, hunting, fishing and other outdoor activities**. Although less dense than Regional Nodes, these areas would contain some degree of density through hotel, cabin, or lodge developments, and could also incorporate small amounts of housing. Like Regional Nodes, traffic, parking, and access management would be managed to emphasize the pedestrian experience after arrival and to allow for a park-once model. In a park-once model, visitors can patronize multiple businesses without the need to move their car to multiple parking lots. The proposed Tourism Nodes are located at the intersection of major transportation corridors. The three proposed Tourism Nodes, discussed individually below, are the

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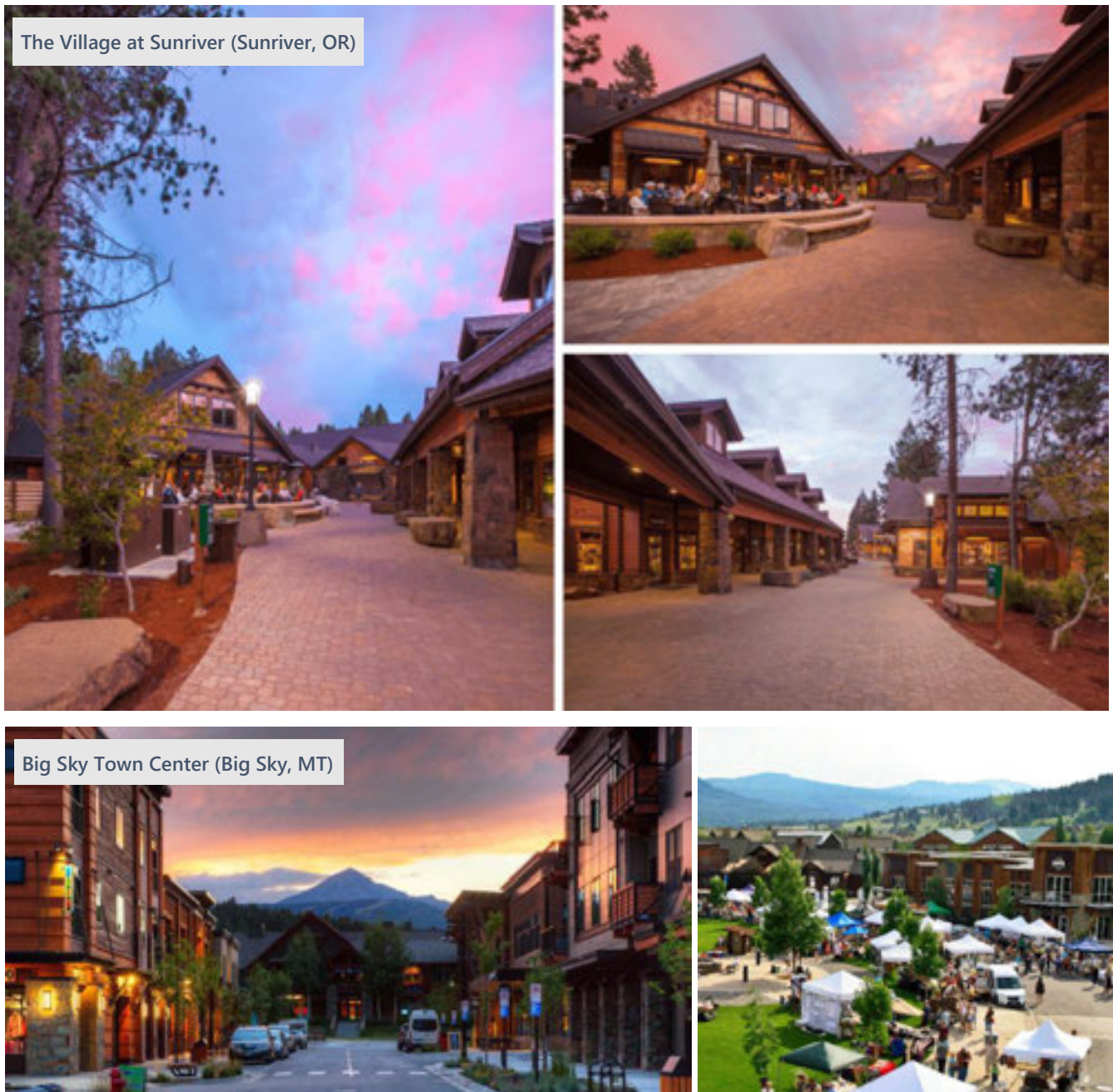
Development Node Analysis & Recommendations

Hatcher Pass Gateway Node, the **Settlers' Bay Node**, and the **Big Lake Town Center Node**. The latter two nodes are also envisioned to function as Neighborhood Nodes, as they have characteristics that may serve both visitors and residents.

Two recent examples of tourism-based redevelopment provide good case studies for the MSB tourism nodes: the Village at Sunriver, Oregon and the Big Sky Town Center in Big Sky, Montana. A shopping center from the 1960s which was extensively remodeled in the 2010s, **The Village at Sunriver** is accessible to year-round recreational activities and the nearby ski area at Mt. Bachelor. The Village has a variety of restaurants, shops, and services organized around a central pedestrian thoroughfare with landscaping inspired by the Central Oregon surroundings. A larger-scale project is the **Big Sky Town Center** in Big Sky, Montana, a master-planned community that encompasses 165 acres of former ranch land near the highway leading to the Big Sky resort and ski area. The development will eventually contain 500 housing units, 150 lodging units, 375,000 square feet of commercial development, and a significant amount of open space. The central commercial area contains 2-3 story commercial buildings surrounding a central park which also doubles as an event and farmers' market space.¹ Although on a larger scale than the tourism nodes in the MSB, the mix of restaurants, shops, and lodging with regionally appropriate architecture demonstrate how a unified concept can be achieved through effective planning and partnerships. Photos from these two developments are shown below.

¹ "Big Sky Town Center Project." Big Sky Town Center, Montana. <https://www.bigskytowncenter.com/big-sky-town-center-project/>

Figure 3. Example Imagery for Tourism Nodes



Sources: Lenity Architecture, Big Sky Town Center, Delger Real Estate

Neighborhood Nodes

Neighborhood nodes are primarily geared towards residents of the MSB and are locally focused, with **services for nearby residents such as grocery stores, retail, dining or coffee shops, and potentially a small amount of office space**. These nodes would be considerably less dense than the other node types, but would still require access management, particularly along the Bogard-Seldon corridor. Neighborhood nodes are primarily found at key intersections in the MSB where small amounts of commercial development already exist, lending themselves to further expansion as the population of nearby

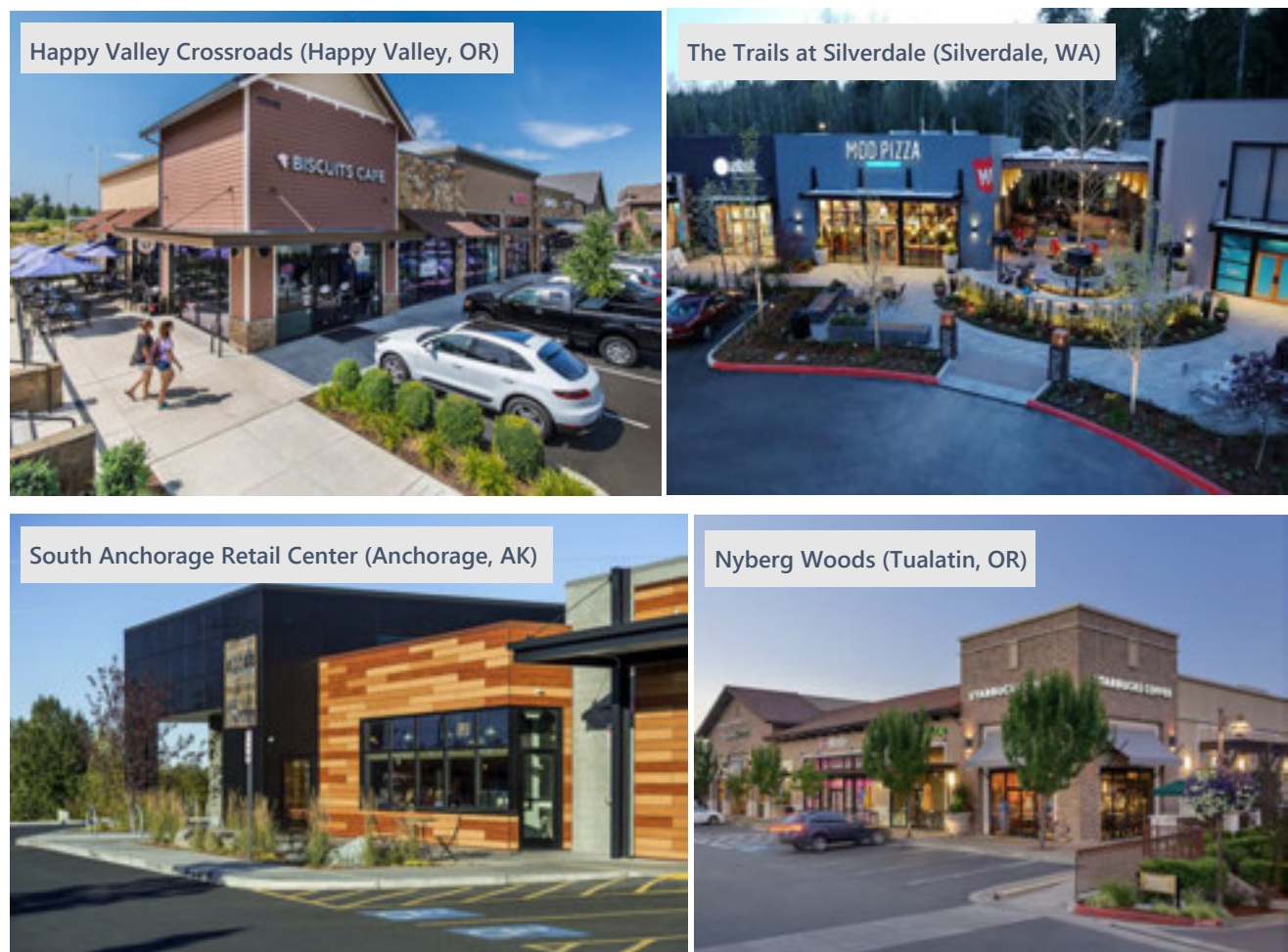
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Development Node Analysis & Recommendations

subdivisions increases. These nodes would likely not be served by piped sewer or water but could feature small-scale community water or sewer systems. Some neighborhood nodes could also incorporate “pocket parks,” using small areas within or between development to create public open spaces with park features such as small playgrounds, pavilions, or paths. Some of these nodes would also function as tourism nodes as discussed above. The five proposed neighborhood nodes, discussed individually below, are the **Seldon Road & Church Road Node**, the **Seldon Road & Bogard Road Node**, the **Parks Highway & Big Lake Road Node**, the **Big Lake Town Center Node**, and the **Settlers’ Bay Node**.

Some images of “Neighborhood Center” developments in Alaska, Oregon, and Washington are shown below. These developments include surface parking and pedestrian connectivity within the developments, as well as connections to nearby trails. All feature attractive landscaping while maintaining a relatively low profile in comparison to the developments envisioned for Regional Nodes. Some examples of “pocket parks” on waterfront and former rail line locations in Alaska are also shown.

Figure 4. Example Imagery for Neighborhood Nodes



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The Shoppes at Sun Mountain (Wasilla, AK)



The Shoppes at Sun Mountain (Wasilla, AK)



Branson Pavilion and Evan Casey Skate Park (Seward, AK)



Palmer Depot Community Center (Palmer, AK)

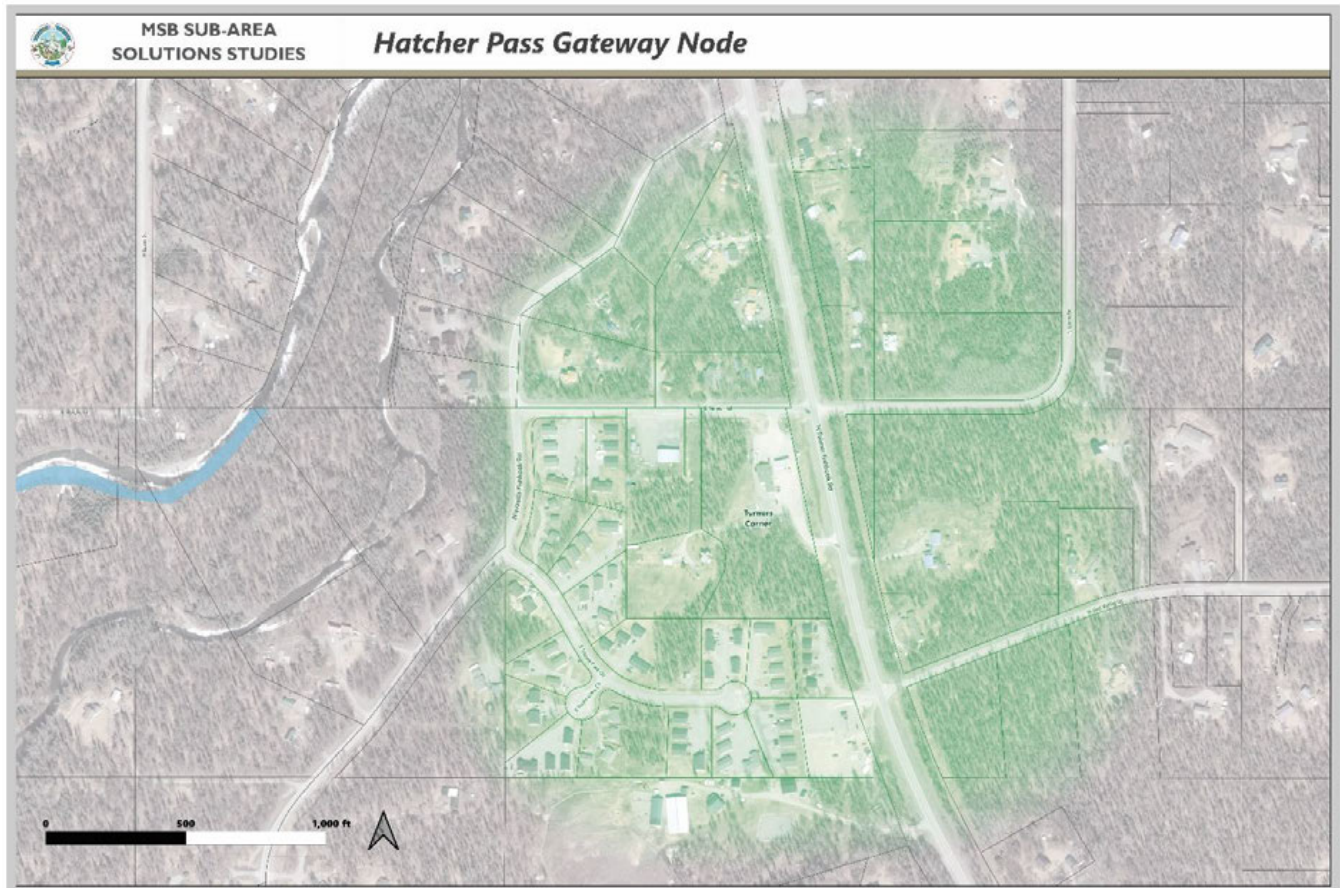


Sources: Gramor Development, CenterCal Properties, JLL Properties, The Shoppes at Sun Mountain, Google Street View

Development Nodes in the MSB

This section details each of the eight development nodes identified during the Study planning process, including a map, vision statement, analysis of current conditions and future opportunities in the node, and implementation strategies and actions for each node area. The vision statements were drawn from ideas gathered at a stakeholder charette held by LCG and HDR in November 2022.

Hatcher Pass Gateway



Type of Node: Tourism

Vision

A gateway to year-round outdoor recreation activities at Hatcher Pass, the Government Peak Recreation Area, and the Moose Range, including skiing, hiking, berry picking, gold panning, and snowmachining, with a variety of attractive commercial development including small shops, lodging, and dining options for MSB residents and tourists alike.



Potential Uses:

- Outdoor recreation-focused stores and gear rental shops
- Dining, food and drink establishments
- Hotel, cabin and other lodging
- Gas station
- Art galleries
- Farmers' market

Analysis

The Hatcher Pass Gateway node is located at the northern point of the Fishhook Triangle, at the intersection of N Wasilla Fishhook Road and N Palmer Fishhook Road. This node emerged as a result of recent development and increased popularity of the ski area in Hatcher Pass, nearby recreational opportunities (snowmachining, hiking, camping, berry picking, wildlife viewing, hunting, fishing, etc.), and nearby housing development.

Currently, there is a commercial development at Turners Corner which serves both tourists and local residents. Its location accommodates those who must travel north to the apex of the Fishhook Triangle in order to move between subdivisions which lack connectivity farther south. However, as connectivity within the Triangle improves over time, and with increased potential for tourism-driven development, this node will likely become more tourist focused in the future. To this end, charette participants envisioned a "ski village" area around this node, with the potential for restaurants, retail, lodging and ski shops, as well as an improved bike and pedestrian trail along Palmer Fishhook Road to connect these businesses.

The Hatcher Pass Gateway node also demonstrates a disconnect between the MSB's platting regulations and development patterns. Although the subdivisions in this area were platted as single-family lots, they were later developed as detached multifamily four-plexes, since developers are not required by the MSB code to disclose their intended land use. While these units have managed to meet the requirements for separation of well and septic systems, there are concerns over traffic impacts and the potential for future water contamination given the density of development in the area. Advance planning for the node would ensure safe septic system development for the appropriate density as well as realistic forecasts of transportation impacts of development. The platting-land use disconnect is discussed further below in "Recommendations/Strategies."

Implementation

- Continue to carry out the goals and objectives of the **Fishhook Community Comprehensive Plan**, which contains goals of promoting recreational activities and uses as well as a goal to concentrate commercial development in the area where the two Fishhook roads meet, roughly corresponding to the node area envisioned here. This plan also expressed community desires for more amenities in the area, including restaurants, shopping centers, and art galleries.
- Consider adding **gateway features** to welcome visitors.
- Proactively invest in **pedestrian and bike infrastructure** and facilities in the node. This will improve connectivity between future uses, including implementation of projects identified in the MSB Bicycle and Pedestrian plan. For example, the separated pathway to Government Peak (Project #5) and a separated pathway along Palmer Fishhook Road (Project #6). A pathway to the Moose Range could also be considered
- Develop a **plan for shared utilities** such as community water or sewer systems to facilitate development of denser uses such as hotels in the node.

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Development Node Analysis & Recommendations

- Consider establishing a **zoning district** for the node to ensure desired land uses develop as envisioned and to meet the MSB Assembly's stated goal of managing growth. A more detailed discussion of zoning can be found in the "Recommendations / Strategies" section below on Page 32.
- Engage in **key partnerships**:
 - o Partner with **Hatcher Pass Resort, Government Peak Recreation Area**, and other recreational providers to integrate lodging and other tourism services the node with their recreational activities.
 - o Partner with the **Mat-Su Visitor Foundation, Mat-Su Convention & Visitors Bureau, Mat-Su Trails and Parks Foundation** and other private and government agencies to brand and market the node and surrounding recreational areas as a tourist destination.
 - o Partner with other large landowners such as **Chickaloon Native Village** to further develop vision for this node and to collaborate on development projects.

Seldon Road & Church Road



Type of Node: Neighborhood

Vision

A mix of commercial and light industrial uses, serving the residents of the planned Alaska Mental Health Trust subdivisions and possible future schools in the node with neighborhood-level food and retail options as well as commercial and light industrial employment.



Potential Uses:

- Services (banking, insurance, salons, auto repair, etc.)
- Food (grocery, coffee shops, limited dining)
- Medical (dentist and doctors' offices)
- Light Industrial (small-scale non-toxic manufacturing, contractors' offices, makers' spaces)



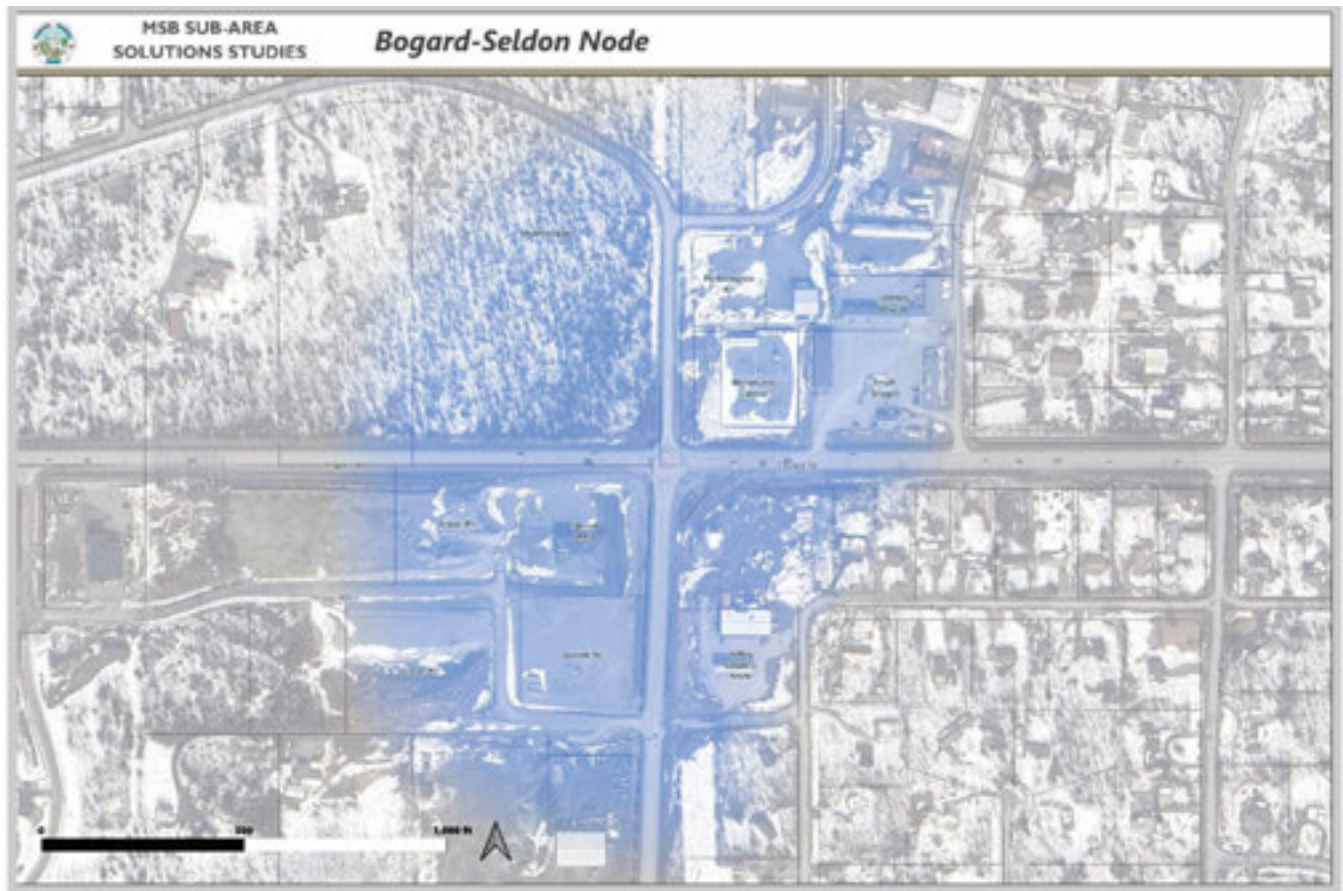
Analysis

The intersection of Seldon Road and Church Road is mostly undeveloped at present, with a gas station and grocery store, residential uses, and a gravel pit on the southeast corner, residential on the northeast corner, and undeveloped land on the western side of Church Road. However, the forthcoming redesign of Seldon Road to the east of Church Road will greatly increase traffic flow through this intersection. Additionally, the Alaska Mental Health Trust is planning a subdivision development of over 600 units on their property on the southwest corner of the intersection which could also contain some commercial or industrial uses. Finally, according to interviews conducted by the Study project team in mid-2022, there has been discussion of siting a new school near the northwest corner of the intersection. Charette participants also expressed concern over access management along Church Road south of Seldon Road, particularly if development increases in the vicinity.

Implementation

- **Update the Meadow Lakes Community Comprehensive Plan** to include the entire node area (currently only the area west of Church Road is included), with the following considerations:
 - o Articulate a **community vision** for the uses and types of development in the node.
 - o Plan for effective **access management and pedestrian accessibility** in development areas, particularly considering the potential for a school on the MSB parcel.
 - o Coordinate **shared water or sewer systems** with property owners.
 - o Monitor market conditions and when favorable, **recruit a developer or developers** to build out the area consistent with the vision in the plan.
- Consider establishing a **zoning district** for the node to ensure desired land uses develop as envisioned and to meet the MSB Assembly's stated goal of managing growth. A more detailed discussion of zoning can be found in the "Recommendations / Strategies" section below on Page 32.
- This node contains several **large parcels with single ownership** – one owned by the MSB and one owned by the Alaska Mental Health Trust. These large single-ownership areas have special opportunities:
 - o On these parcels, a more detailed **market analysis and feasibility study** would supplement and ensure the economic viability of the vision articulated in the community plan and help catalyze development.
 - o On the Mental Health Trust parcel, the MSB should coordinate **shared infrastructure and costs** with the Trust as appropriate.
- Proactively invest in **pedestrian and bike infrastructure** and facilities in the node to improve connectivity between future uses, including implementation of projects identified in the MSB Bicycle and Pedestrian plan in the node such as the separated bike path on Bogard/Seldon (Project #8). Plan for a **future transit stop and shelter** in the node area. The MSB 2035 Long Range Transportation Plan calls for increased density around future transit routes, and identifies Seldon as a potential future bus route. If the MSB considers expanding bus service as its population grows, providing a comfortable and safe transit shelter in node areas will be important.

Bogard Road & Seldon Road



Type of Node: Neighborhood

Vision

A mix of residential and mixed-use areas connected with a pedestrian path and improved access management on and near the corridor to serve the needs of residents of the surrounding residential areas.

Potential Uses:

- Services (banking, insurance, salons, auto repair, etc.)
- Food (grocery, coffee shop, limited dining)
- Medical (dentist and doctors' offices)

Analysis

The intersection of Bogard and Seldon roads currently has a mix of undeveloped land, gravel pit, an electric substation, and the Valley Country Store. The gravel pit on the southwestern corner is transitioning to a commercial development, which currently has one office building with a



dental office. There is also an airpark, runway, airplane mechanic, and float plane base nearby to the north. Given the road improvements being made to the Bogard-Seldon corridor, increasing population in the Fishhook Triangle, and proximity of several schools, this intersection is likely to be an attractive place for future neighborhood-level commercial development.

Implementation

- Engage in a **community plan** for development in the node area, including the following considerations:
 - o Define the **boundary** of the node area.
 - o Articulate a **community vision** for the uses and types of development in the node.
 - o Plan for effective **access management and pedestrian accessibility** in development areas, particularly considering the proximity of several schools. This includes implementation of projects identified in the MSB Bicycle and Pedestrian plan in the node such as the separated bike path on Bogard/Seldon (Project #8) and the Safe Routes to School project for Teeland Middle School (Project #46).
 - o Coordinate **shared water or sewer systems** with property owners
 - o Monitor market conditions and when favorable, **recruit a developer or developers** to build out the area consistent with the vision in the plan.
- This node contains several **large undeveloped parcels and gravel pits with single ownership**. Coordination with these property owners around future plans for their parcels and timeline for gravel pit exhaustion will be important to catalyze desired development in the area. A more detailed discussion of gravel pits can be found in the "Recommendations / Strategies" section below.
- Consider establishing a **zoning district** for the node to ensure desired land uses develop as envisioned and to meet the MSB Assembly's stated goal of managing growth. A more detailed discussion of zoning can be found in the "Recommendations / Strategies" section below on Page 32.
- Plan for a **future transit stop and shelter** in the node area. The MSB 2035 Long Range Transportation Plan calls for increased density around future transit routes and identifies Seldon as a potential future bus route. If the MSB considers expanding bus service as its population grows, providing a comfortable and safe transit shelter in node areas will be important.

Trunk Road Corridor



Type of Node: Regional

Vision

A major hub for commercial activity in the MSB, including mixed-use residential and commercial development, a school, lodging, office, and retail designed with access management and pedestrian/bike amenities, connected to piped water and sewer systems to enable denser development.

Potential Uses:

- Regional-serving commercial and retail
- Multifamily housing
- Services (banking, insurance, salons, auto repair, etc.)
- Medical (dentist and doctors' offices)
- Small offices
- Food (restaurants, coffee shops, brewpubs, grocery)



Analysis

The Trunk Road corridor from just north of Bogard Road extending south several parcels beyond the Palmer-Wasilla Highway is a node with a large potential for redevelopment and concentrated commercial activity. A great deal of development is already occurring in this area, including the current and planned opportunities listed below:

- A local developer is building 80 subsidized affordable apartments on the southwestern corner of Bogard and Trunk roads. This development is planned in two phases of ten fourplexes, each with communal areas, and will be targeted at residents earning 30 to 60 percent of the area median income. Market rate and affordable senior units will also be included in the development, as well as a gas station.
- Cook Inlet Region, Inc. (CIRI) owns a large parcel at the southwestern corner of N Trunk Road and the E Palmer-Wasilla Highway, on which Three Bears is building a new warehouse store/supermarket, based on recent access permit requests in April/May 2023. There is potential for other development on the CIRI site in the future.
- The large gravel pit on the southeastern corner of N Trunk and E Bogard Roads is nearly fully expended and was identified in stakeholder interviews as another potential development location in the coming decade. There is also a smaller expended gravel pit on the northeast corner of N Trunk Road and the E Palmer-Wasilla Highway which could be redeveloped in the future.
- On the northwest corner of N Trunk Road and the E Palmer-Wasilla Highway, behind the existing commercial uses, is Pioneer Peak Elementary and the future site of the Mat-Su Central School. The addition of a second school to this node will result in increased traffic at drop-off and pick-up times. This will create a need for effective access management and potential pedestrian connections between both schools and the new housing development at the N Trunk and E Bogard intersection as well as any future housing developments south of the E Palmer-Wasilla Highway. This could be accomplished through development and implementation of the Safe Routes to School priorities for the area.

This corridor is less developed than other high-traffic intersections in the MSB, but its central location on commuting routes to Anchorage provides an opportunity for concentrated development. Currently, no municipal piped sewer and water

utilities are in place, so development must depend on individual or community on-site systems. However, this node is close to Palmer's piped water service, which may be extended to include this area in the future. Some of the developments are installing their own community water and sewer systems.

Implementation

- Prepare a **community plan** for development in the node area, including the following elements:
 - o Define the **boundary** of the node area.
 - o Articulate a **community vision** for the uses and types of development in the node.
 - o Plan for **access management**, particularly along the two major arterials (N Trunk Road and E Palmer Wasilla Highway), and internal connections for vehicles.
 - o Consider the need for **pedestrian connections** behind the main arterials, particularly from Pioneer Peak Elementary to the forthcoming housing development to its north, to potential future housing development on either side of Trunk Road, and to existing adjacent residential neighborhoods. A path from Pioneer Peak School to Bogard along Old Trunk Road/Stringfield Road has been identified as a medium-term project in the MSB Bicycle and Pedestrian Plan (Project #32).
 - o Work with the City of Palmer to create a **plan for extending piped sewer and water to this area, assuming that future development will sufficiently increase demand for services**. The City of Palmer has also expressed interest in some contributions to this project from future developers.
- Consider establishing a **zoning district** for the node to ensure desired land use develop as envisioned and to meet the MSB Assembly's stated goal of managing growth. A more detailed discussion of zoning can be found in the "Recommendations / Strategies" section below on Page 32.
- This node contains several **large undeveloped parcels and gravel pits with single ownership**. Coordination with these property owners, including CIRI, around future plans for their parcels and timeline for gravel pit exhaustion will help catalyze desired development in the area. A more detailed discussion of gravel pits can be found in the "Recommendations / Strategies" section below on Page 32.
- Plan for a **future transit stop and shelter** in the node area. The MSB 2035 Long Range Transportation Plan calls for increased density around future transit routes and identifies Trunk as a potential future bus route. If the MSB considers expanding bus service as its population grows, providing a comfortable and safe transit shelter in node areas will be important.

UMED



Type of Node: Regional / Tourism

Vision

A gateway to the MSB and home to its primary health care hub, providing tourists with services, lodging, and the forthcoming Mat-Su Visitor Center, while also providing MSB residents with health care facilities, educational facilities, office and retail opportunities, and access to the parks and trails to the east.

Potential Uses:

- Medical Uses
 - Mat-Su Regional Medical Center Expansion
 - Clinics and Medical Office Buildings
- Enhanced Education and Research to support the valley's agrarian economic sector at:
 - UAA Mat-Su College
 - UAF's Matanuska Experiment Farm and Extension Center
- Lodging (hotels for visitors and hospital needs)
- MSB Visitor Center
- Trailheads, Open Space and Recreational Access
- Retail
- Housing
 - Student Housing
 - Multifamily Housing
- Food (restaurants, coffee shops, etc. to serve tourists, hospital and school users)
- Conference Facilities

Analysis

The UMED node is located at the intersection of the E Parks Highway and S Trunk Road and encompasses the Mat-Su College, the Mat-Su Regional Medical Center, adjacent health care facilities, and the UAF Experiment Farm, as well as a portion of the Matanuska Greenbelt at the center of the UMED Sub-Area. A portion of the southern area surrounding the Mat-Su Regional Medical Center was the subject of a 2021 master planning process lead by the Mat-Su Health Foundation. The master plan envisioned a larger hospital campus surrounded by multifamily and senior housing as well as townhomes, retail, and a hotel. The master plan also called for substantial road improvements, bike and pedestrian connectivity, and open space provisions.² Health care is one of the fastest-growing employment sectors in the MSB and is one of the leading economic drivers nationally. Health care jobs in Alaska pay more than in any other state, as of 2018, with an average salary of \$98,020.

Charette participants in the Study planning process envisioned a wide variety of potential uses in this node, including medical, office, and hotel development around Mat-Su Regional and access to trails and open space in the center of the



² Mat-Su Health Foundation. "Conceptual Terrain: A 50 year plan for the peoples of Mat-Su." 2021.

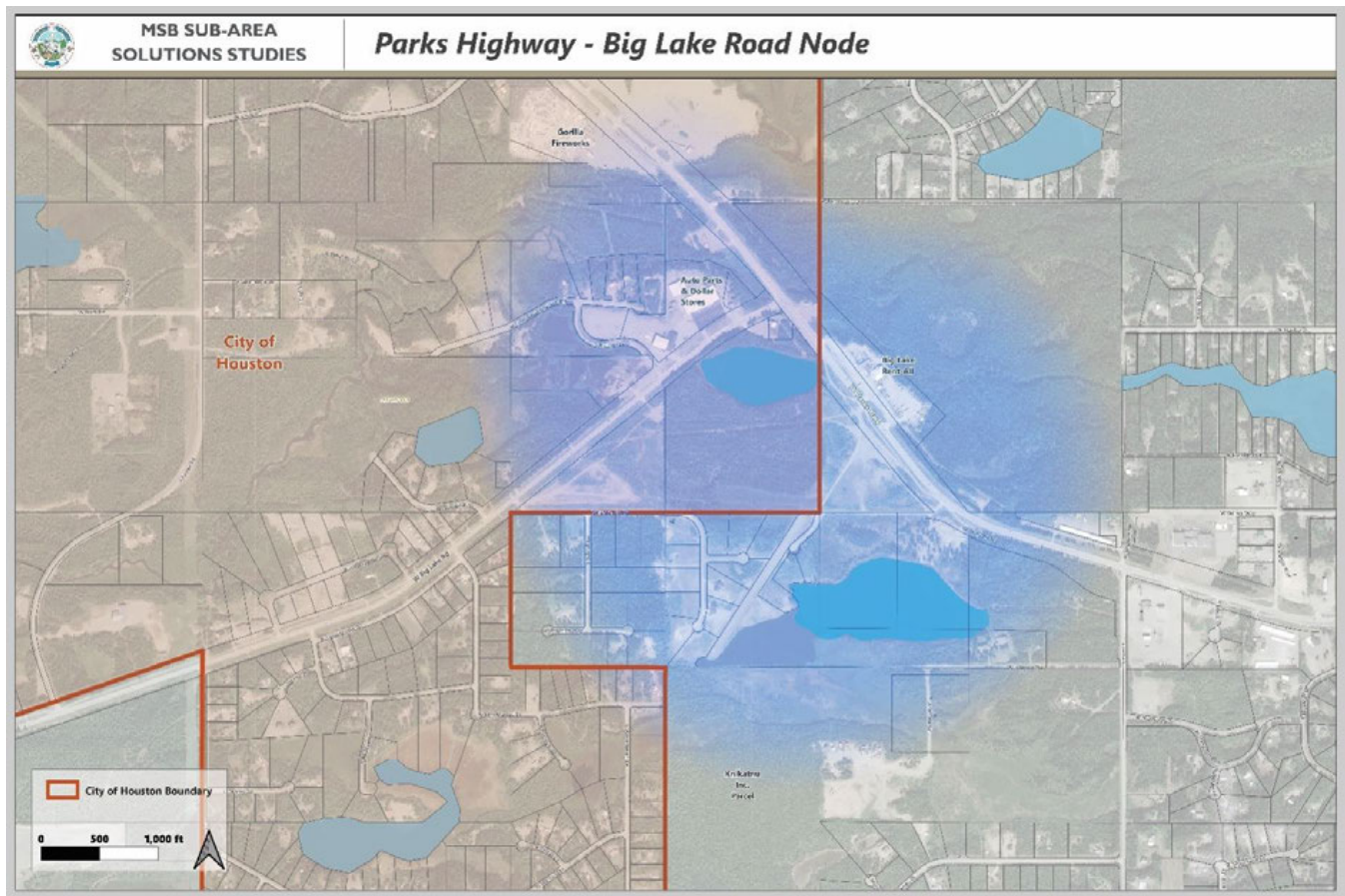
Sub-Area. Other ideas included new road connections to the health center area and innovative ideas such as charging infrastructure for electric vehicles and indoor produce-growing facilities.

The UMED area is the only development node in this analysis which is currently served by piped water and sewer services from the City of Palmer. There is also a major electric substation serving the hospital and surrounding area. This presents a significant advantage in terms of development and density potential in this area. The MSB should capitalize on this existing infrastructure by working with Mat-Su Regional, the Mat-Su Health Foundation, UAF, and UAA to incorporate uses that cater to employees and patients at Mat-Su Regional, students at the nearby College, and residents in the emerging residential subdivisions south of the node. This could include dining and lodging, both of which are absent in the area, and potential expansion of the health care facility itself. Additionally, there should be enhanced research opportunities through the UAF and UAA to increase food resiliency and production and support the MSB's agricultural sector. This node is also a logical area for townhomes or apartments, since denser housing is more feasible to build with the available piped utilities. These denser housing types would provide an alternative to the lower-density housing found elsewhere in the MSB, providing housing at a variety of price points and for specific populations such as seniors and hospital staff. The new Mat-Su Valley Visitor Center will also be located near this area, providing an opportunity to integrate lodging and dining options with the node as a "Gateway" to the MSB.

Implementation

- MSB to partner with the Mat-Su Health Foundation, UAA Mat-Su Campus, University of Alaska Fairbanks, Alaska DOT&PF, and City of Palmer to create in a **community plan** for development in the node area, including the following elements:
 - o Define the **boundaries** of the node area.
 - o Articulate a **community vision** for the uses and types of development in the node.
 - o Assuming a new location can be found, planning for redevelopment of the **Park & Ride Site** at the intersection of the E Parks Highway and S Trunk Road to include a mix of residential and commercial uses.
 - o Provisions for the preservation of the **UAF Experiment Farm** and to allow for its growth and expansion of its facilities and research mission.
 - o Plan to strengthen and enhance the UAA **Mat-Su Campus**
 - o Plans for expansion of the **Mat-Su Regional Medical Center**
 - o Coordination with the City of Palmer to ensure access to **piped water and sewer utilities** for new developments in the node area.
 - o Improved **transportation connectivity** in the area, specifically secondary access to Mat-Su Regional, improved access to the College, and improved connections to the neighborhoods to the west of the node. Additionally, plan for future **transit stop and shelters at key locations** (i.e. hospital, college, etc) in the node area. The MSB 2035 Long Range Transportation Plan calls for increased density around future transit routes, and identifies a potential future bus route from Palmer to Wasilla through the UMED area. If the MSB considers expanding bus service as its population grows, providing a comfortable and safe transit shelter in node areas will be important.
 - o
- Consider establishing a **zoning district** for the node to ensure desired land uses develop as envisioned and to meet the MSB Assembly's stated goal of managing growth. A more detailed discussion of zoning can be found in the "Recommendations / Strategies" section below on Page 32.
- Consider adding **gateway features** such as signage to demarcate the node area to visitors, in coordination with the new Mat-Su Visitor Center.

Parks Highway & Big Lake Road



Type of Node: Neighborhood

Vision

A neighborhood center containing grocery, retail, and other services for residents of the Big Lake area, areas farther east along the W Parks Highway including Houston and Willow, and adjacent medium-density residential development. Development should be designed with walkability in mind while preserving wetlands and natural areas.



Potential Uses:

- Services (banking, insurance, salons, auto repair, etc.)
- Light industrial uses
- Small-scale commercial (retail, small office, etc.)
- Food (grocery, coffee shop, limited dining)
- Medical (dentist and doctors' offices)



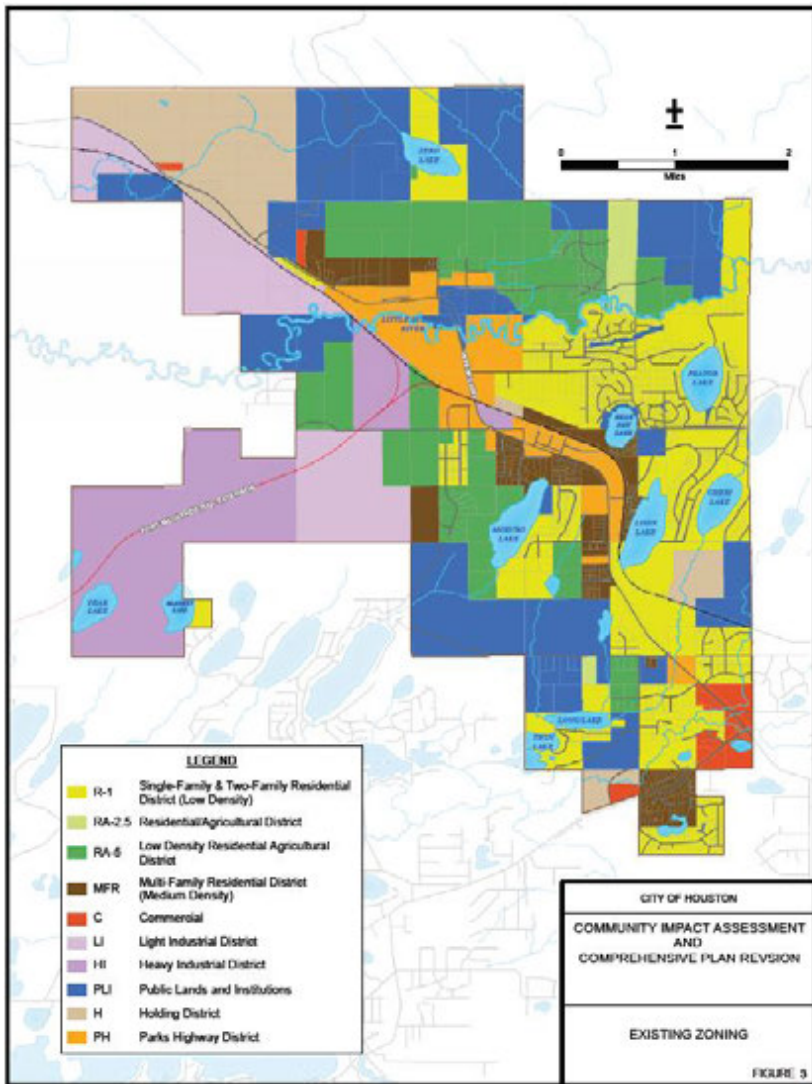
Analysis

The area around the W Parks Highway and W Big Lake Road intersection is not currently highly developed. There is an automotive parts store on the east side of the intersection and a church across W Big Lake Road. There are also several lakes in this node area which would prevent development on the immediate southern part of the intersection. However, charette participants indicated that this could be a potentially beneficial area for future commercial development to serve populations living in the Big Lake area. Development in this area could also serve those living in Houston, Willow, and other areas farther north along the W Parks Highway who would prefer to avoid driving all the way to Wasilla to shop.

The western portion of this node is within the City of Houston and is governed by the Houston Municipal Code Title 10: Land Use Regulations. The City has zoned this area "C – Commercial," which is intended "to provide a broad range of goods and services to meet the needs of the population of the City as well as the traveling public utilizing the W Parks Highway."³ As shown below in Figure 5, this is one of the only areas in Houston which is zoned for commercial use. The zoning code allows a broad range of commercial uses but also requires generous setbacks and 25-foot native vegetation buffers between commercial uses and the highway. This requirement would not preclude neighborhood-level commercial development in this node but would reduce its immediate appearance as a commercial area to travelers along the Parks Highway. The Houston Comprehensive Plan also identifies this area as "Commercial Mixed Use" in its Land Use Plan which is not a zoning code but instead designed to guide future land use decisions. This land use encompasses commercial and residential uses with safe and efficient access management.

³ Houston Municipal Code 10.03.070 <https://www.codepublishing.com/AK/Houston/#1/Houston10/Houston1003.html#10.03.070>

Figure 5. City of Houston Zoning Map

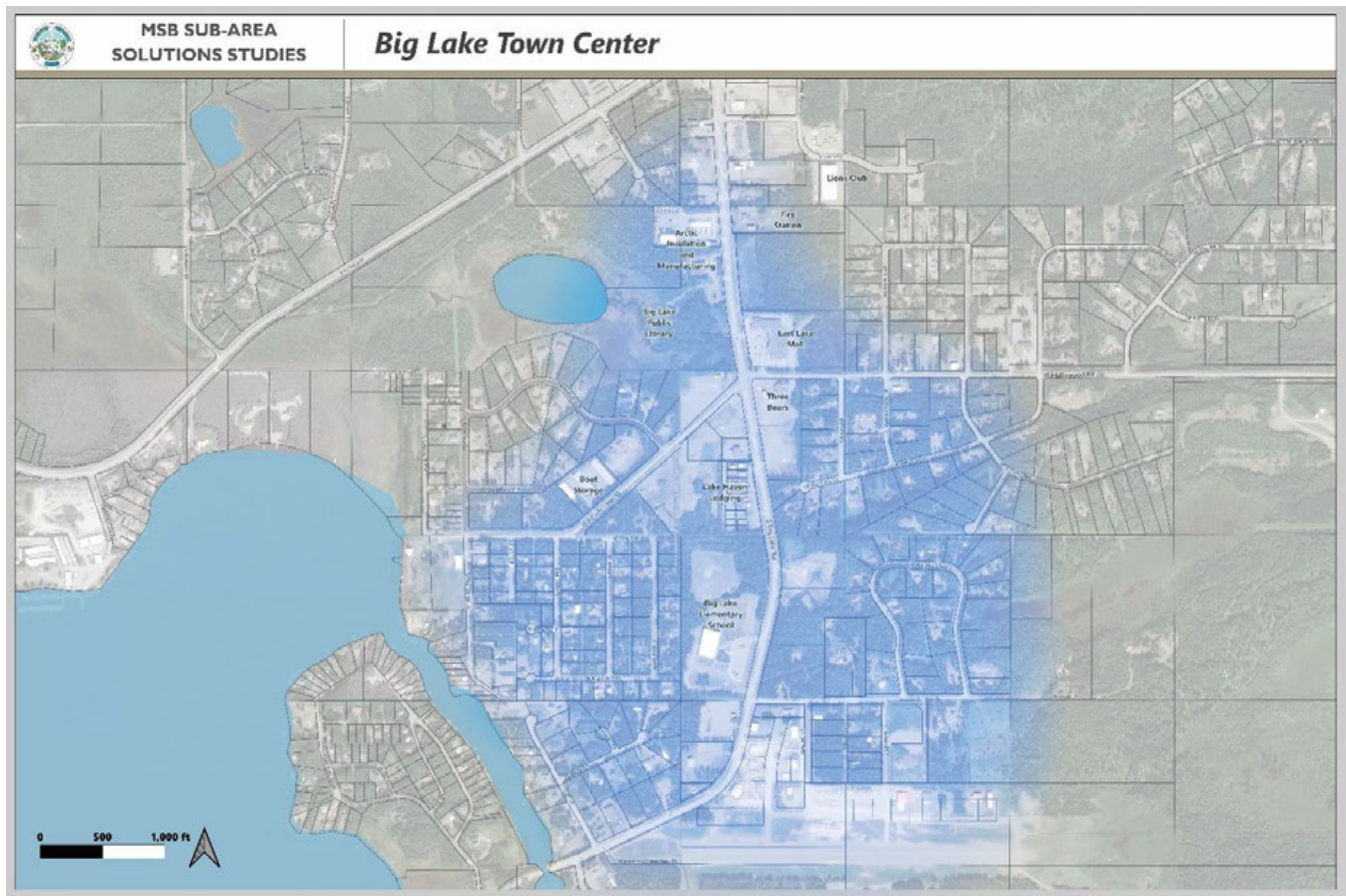


Source: City of Houston Comprehensive Plan

Implementation

- **Work with the City of Houston** to encourage consistent planning for the area across jurisdictional boundaries and conduct outreach to developers and landowners to attract commercial development to the area of the type envisioned in Houston's zoning code.
- Plan for effective **transportation improvements and access management** to ensure safe circulation and access to the major intersection.
- Add **gateway features** such as signage to demarcate the entrance to the Big Lake area to travelers using the W Parks Highway.
- Consider establishing a **zoning district** for the area of the node **outside** of the City of Houston to compliment the adjacent land use guidelines in Houston's zoning district and help meet the MSB Assembly's stated goal of managing growth. A more detailed discussion of zoning can be found in the "Recommendations / Strategies" section below on Page 32.

Big Lake Town Center



Type of Node: Neighborhood / Tourism

Vision

A walkable commercial, neighborhood, and tourist center for the Big Lake Community, featuring community amenities such as stores, a community center, library, and medical facilities as well as tourist-oriented services such as lodging, dining, and recreational businesses.

Potential Uses:

- The community's desired uses for this area were well articulated in the Big Lake Community Comprehensive Plan:
 - o Mixed use: shops, food, retail goods and services; housing, including higher density housing, within walking distance of shops and services.
 - o A central area for library, schools, fire station, community center, parks, etc.
 - o Pedestrian friendly, walking access.
 - o An alternative to strip commercial development
 - o A hub for recreation activities at the lake



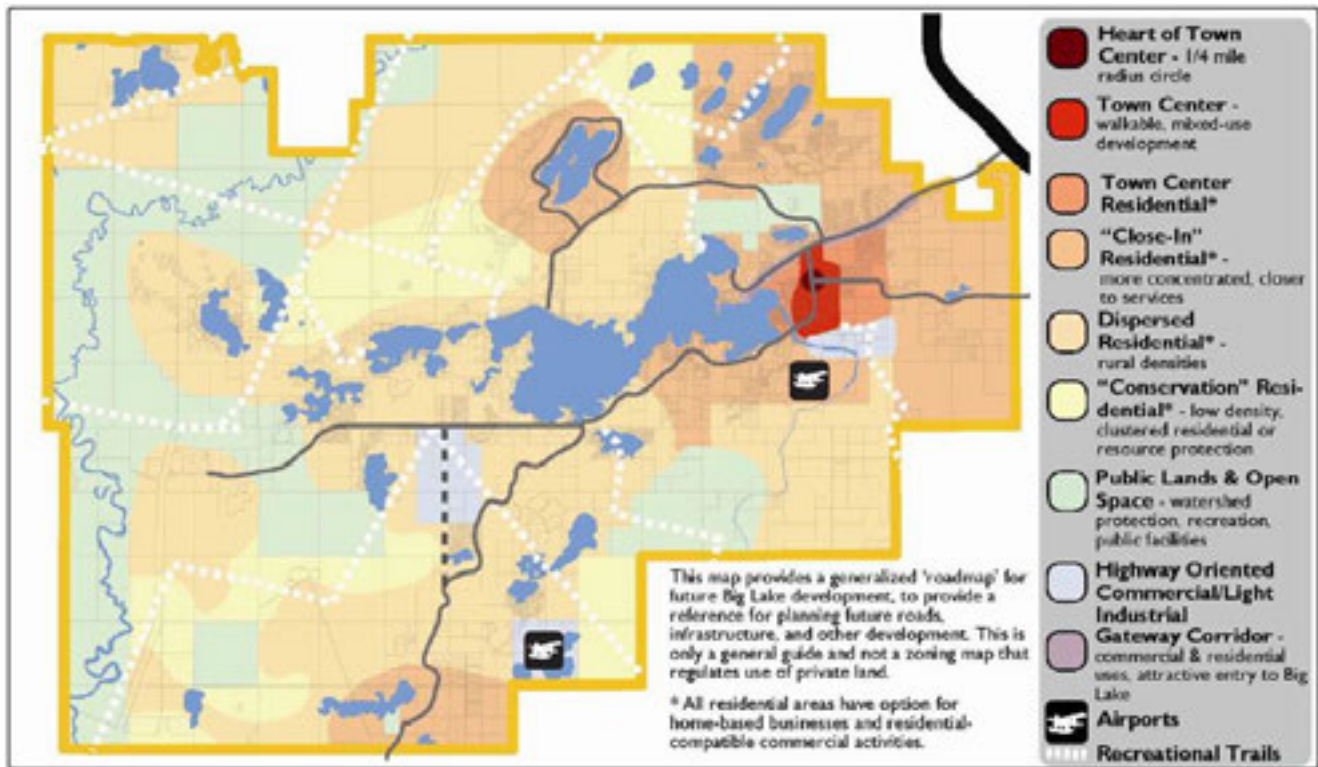
Analysis

The Big Lake Road and Hollywood Road intersection lies at the heart of the Big Lake community. It currently contains a concentration of commercial uses including a Three Bears grocery and warehouse store, several commercial businesses, an elementary school, a public library, a fire station, and the Big Lake Airport which provides access to the community. The area was envisioned in the 2009 Big Lake Community Comprehensive Plan as an important center to Big Lake life and a pedestrian-friendly "alternative to strip commercial development." The Big Lake Comprehensive Plan shows a quarter-mile radius around the "Heart of Town Center" area and a larger "Town Center" region as shown on the "Big Lake – Guidemap" in

Figure 6 below. Similar to the Houston Comprehensive Plan discussed in the "Parks Highway & Big Lake Road Node," this is not intended as a prescriptive zoning map but rather as a vision of what the community would like to see in this area.

Charrette participants identified several creative possibilities for this area including increased access to all of the lakes in the area and a bike and pedestrian path leading from the town center to Big Lake itself. Other ideas included electric vehicle charging stations, future transit stops, senior or affordable housing development, and expanded cabins or other lodging near Big Lake.

Figure 6. Big Lake Guidemap



Source: Big Lake 2009 Community Comprehensive Plan

Implementation

- Continue to carry out the vision articulated in the **Big Lake Community Comprehensive Plan** and consider updating the plan, which was last updated in 2009.
- Engage in strategic investments around **active transportation infrastructure and placemaking**, including better walkability in the town center area, pedestrian/bike access to Big Lake, priority school route improvements, and improved signage and/or streetscapes.
- Plan for future use of the **MSB-owned land adjacent to the Public Library** for commercial development, housing, and/or to improve access to Big Lake.
- Engage proactively with **Three Bears** to clarify their plans for the store and adjacent parcel.
- Promote the **Big Lake Airport** as an aircraft service center and as a tourism and recreation access point.
- Consider establishing a **zoning district** for the node to ensure desired land uses develop as envisioned and to meet the MSB Assembly's stated goal of managing growth. A more detailed discussion of zoning can be found in the "Recommendations / Strategies" section below.

Settlers' Bay



Type of Node: Neighborhood / Tourism

Vision

A commercial area which serves both current and future nearby multifamily residential development and single-family development southwest along S Knik Goose Bay Road as well as tourists visiting the lodge, golf course, and adjacent natural areas.

Potential Uses:

- Lodging
- Services (banking, insurance, salons, auto repair, etc.)
- Recreational retail (hunting supplies, golf stores, hiking apparel, etc.)
- Food (dining, brewpub, coffee shop, etc.)



Analysis

The Settlers' Bay node is located along S Knik Goose Bay Road in an area of the MSB which is seeing a large amount of single-family residential development. This area is also experiencing more multifamily development than many other areas

of the MSB, including a large row of attached duplex condominiums next to the Settlers' Bay Lodge, attached townhomes farther north along the road, and forthcoming housing development by the Knik Tribe.⁴ The Settlers' Bay Lodge has also been recently renovated by a local developer, increasing the potential for tourism in the area. Additionally, the Great Land Trust recently donated 187 acres of undeveloped land to the MSB to be incorporated into Settlers' Bay Coastal Park for recreational and habitat protection uses.⁵ Other businesses near the lodge include a gas station, an early learning center, and an urgent care center. As the population of the area increases, there likely will be corresponding demand for more services, particularly for residents who wish to avoid driving all the way to Wasilla.

Unlike some of the other nodes in this report, there are no large parcels of publicly owned land in the vicinity, nor are there particularly large and highly-developable private parcels immediately adjacent to the main node. Across from the lodge is a large parcel owned by a residential developer, and many other parcels along S Knik Goose Bay Road itself are smaller or partially developed. The Settlers' Bay development has its own private water and sewer system, and the lodge is tied into this system.

Implementation

- Engage in a **community plan** for development in the node area, including the following considerations:
 - o Define the **boundary** of the node area.
 - o Articulate a **community vision** for the uses and types of development in the node.
 - o Coordinate with the **Settlers Bay Lodge, Knik Tribe**, nearby **multifamily housing developers, and other stakeholders** to plan for future needs in the area.
 - o Coordinate potential **shared water or sewer systems** with property owners.
- Consider establishing a **zoning district** for the node to ensure desired land uses develop as envisioned and to meet the MSB Assembly's stated goal of managing growth. A more detailed discussion of zoning can be found in the "Recommendations / Strategies" section below on Page 32.
- Proactively invest in **pedestrian and bike infrastructure** and facilities in the node to improve safety along S Knik-Goose Bay Road, as detailed in the MSB Bicycle and Pedestrian plan Project #16.
- Plan for a **future transit stop and shelter** in the node area. The MSB 2035 Long Range Transportation Plan calls for increased density around future transit routes and identifies S Knik-Goose Bay Road as a potential future bus route. If the MSB considers expanding bus service as its population grows, providing a comfortable and safe transit shelter in node areas will be important.

⁴ As described in stakeholder interviews conducted in 2022.

⁵ Great Land Trust. "Great Land Trust Purchases 187 Acres, Expanding the Popular Settlers Bay Coastal Park in the Mat-Su." <https://greatlandtrust.org/settlers-bay-coastal-park-success/>

Recommendations & Strategies

The MSB should consider a number of strategies to achieve the visions for the commercial node areas articulated above. One of the main functions of the Borough government is to provide infrastructure that communities need to support growth and economic development objectives. A careful balance of investments in **infrastructure, partnerships and negotiation** with property owners and developers, and reasonable **regulations** will ensure that development in the MSB can serve the increasing population and create the ***"best place in Alaska to live, work, and play"*** envisioned by the MSB Assembly. Many of the strategies discussed below have been explored in existing MSB plans, including the Official Streets and Highways Plan, the Bike and Pedestrian Plan, the Community Comprehensive Plans, and the forthcoming MSB Comprehensive Plan. The strategies set forth in these other plans should also be implemented alongside the recommendations from the Study planning process to facilitate economic development, accessibility, and manage growth effectively throughout the MSB.

Investment

One important way the MSB can facilitate development in the nodes is through investment in infrastructure. In addition to directly serving development, public infrastructure commitments send a market signal to the development community that the borough is prioritizing these districts.

Transportation

The MSB has recently been engaged in transportation planning through the OSHP, Bike and Pedestrian Plan, and this Community Growth Solutions Study process. To facilitate development in the nodes, the MSB can continue to refine planning for key intersection areas around the borough, particularly those which have been identified in this report. **In node areas, easy access to commercial development should be prioritized. Entrances to the node areas should not cause backups into key arterial intersections and access should be available from multiple sides, potentially through the use of frontage roads in these areas.** In addition, as described throughout this report, many of these areas, particularly Regional and Tourism Nodes, should have pedestrian and/or other active transportation connectivity.

Utilities

The MSB is well served by electricity, gas, and high-speed internet. However, piped water and sewer services are confined primarily to Palmer and Wasilla, each of which operates municipal systems. Most homeowners are dependent on individual wells and septic systems, and some commercial developments in the MSB have small community water or sewer systems. **The lack of piped water and sewer significantly restricts the potential density of development in the MSB.** The UMED Node is already served by piped water and sewer from the City of Palmer and therefore is well-positioned for denser commercial development without the expense of installing systems. The Trunk Road Corridor has the highest potential to transform into a commercial area with a wide variety of uses to serve residents from across the MSB and beyond. **The MSB has a significant opportunity to catalyze development in this area by investing in and promoting the extension of Palmer's piped water and sewer services along the Trunk Road area, as well as coordinating potential future contributions from development towards this utility extension project.**

Public-Private Partnerships & Development Agreements

Many of the nodes contain large parcels of land which are currently undeveloped or in use as gravel pits. Some of these areas are publicly owned, such as the two parcels on the west side of Trunk Road and a large parcel at the Bogard-Seldon intersection. Others, such as the gravel pits around the Trunk Road Corridor and at the Seldon Road & Church Road intersection, are privately owned. The MSB has various options for both scenarios to catalyze and influence the type of development in the nodes.

The MSB has the most opportunity to shape development on publicly owned parcels. By providing infrastructure improvements, particularly access roads, the site can be best prepared for the expected use. The borough could then establish a vision for the site and solicit a developer to achieve that vision. **Through a development agreement, the MSB can leverage its site control to achieve development that accomplishes several public objectives and is consistent with the community's vision for the area.** In a land sale to a private developer, the MSB could condition the sale by requiring the development to fulfill desired community objectives such as:

- Specific land uses
- Design standards
- Phasing
- Shared responsibilities for infrastructure funding and construction

Chapter 26 of the MSB Code contains a variety of economic development incentives which can be offered to support projects in the borough though have not been used frequently in the recent past. These incentives are found in **26.05.040 of the MSB Code** and include:

- **Site development assistance** – the MSB can pay for infrastructure or utility expenses for a new project
- **Industrial revenue bond financing or Tax Increment Financing** – Two mechanisms to raise funds for site acquisition, construction, machinery, equipment, and financing costs.
- **Fast-track permitting**
- Sale or lease of MSB land at **less than fair market value**
- **Property tax deferral** – 5-year deferral of property taxes to be repaid in the subsequent 5 years
- **Property tax exemption** – 50% in the first year, 25% in the second year, and 10% in the third year for projects that create at least 15 full-time positions.

The MSB should consider using these existing incentives to facilitate the type of job creation the Assembly wishes to attract to the area, and in exchange for the types of public objectives described above to ensure the MSB is receiving something in exchange for these incentives.

On privately owned parcels, the MSB could also work with property owners to encourage commercial development. Many of the nodes contain large parcels with a single owner, making this process considerably easier. In some instances, these parcels are adjacent to public land. Through a development agreement, the MSB can leverage its role as a regulatory agency and owner of public infrastructure to achieve development that accomplishes several public objectives and is consistent with the community's vision for the area.

Regulations

Although the MSB currently has limited zoning codified in Title 17 of the MSB Code, it does not have a significant effect on development outside of Palmer, Wasilla, Houston, and other areas with Special Land Use Districts. Outside of specific land uses with environmental or safety impacts such as resource extraction, fireworks displays, liquor sales, waterbody setbacks, or development in flood hazard areas, land use is driven primarily by subdivision and platting regulations. Some higher-impact uses such as high noise generating activities, excessive traffic generation, combustion of hazardous substances, and

uses that result in water contamination do require a conditional use permit in the MSB “Core Area” as codified in Chapter 17, Section 61 of the MSB code. The UMED, Trunk Road, Bogard-Seldon, and Church-Seldon Nodes are within the “Core Area.” **With the continued growth in population of the MSB, land use conflicts and traffic impacts of development are likely to increase over time.** Updating elements of the subdivision and platting regulations as described below and considering some changes to the zoning code are options that should be explored as ways to manage growth while providing high quality services and economic diversification – the three focus areas of the MSB Assembly’s *FY 2023-2028 Strategic Plan*.

Subdivisions and Platting Regulations

Subdivision and platting regulations are contained in Title 43 of the MSB code and with additional guidelines and policies contained in the *2022 Subdivision Construction Manual*. These regulations, guidelines, and policies govern street design, required easements, right-of-way widths, and other construction requirements when subdividing land. As part of this process, landowners are required to submit a plan to the Platting Board which has some jurisdiction over the design, easements, and street design in subdivisions. Historically, many of the decisions made during this process, particularly regarding road design and access, have not taken into account larger impacts to the MSB road system, resulting in issues with access management, congestion, and lack of connectivity between subdivisions that were platted separately. For example, interior roads in adjacent subdivisions may not connect even though they are only separated by a short distance in some instances, and in others there is an unsafe density of driveways onto arterial roads.

In addition, there are provisions for Subdivision Agreements in Title 43, Section 55 of the MSB code. These agreements are designed to regulate the construction of required roads and other infrastructure during the platting process and to ensure the developer’s portion of such improvements is carried out. However, Subdivision Agreements in the MSB are only used in practice in a very limited manner, where the MSB requires the developer to post a cash bond to ensure work that was not able to be completed in a given construction season is carried out in the next season allowing the subdivider to sell lots prior to the completion of the subdivision construction. Therefore, **they have little effect on the eventual built form of subdivisions in the borough.**

Since subdividing large parcels of land is the primary process through which the MSB has control over land use and transportation infrastructure, **it is important that this process involves a borough-wide view of the impacts of individual subdivisions, in addition to the anticipated traffic demand from within the new subdivision.** In addition, parcels within areas where the MSB would like to see a specific type of development other than single-family residential, such as the development nodes discussed in this report, should have **considerations for potential uses incorporated into the subdividing process. Such considerations may include:**

- Requirement that the property owner **discloses intended uses** when subdividing the parcel, or restrictions on those uses
- Requirement that **connections** be made to roads in adjoining subdivisions within a certain radius outside the new subdivision
- Requirement to dedicate some **right-of-way** for future road or frontage road expansion
- Construction of **frontage or backage roads when appropriate**

This would be particularly effective if paired with some form of zoning or land-use visioning for the nodes, as discussed below.

Gravel Pits

Gravel pits represent a major land use in the MSB. As discussed throughout this report, gravel pits are found near many of these development nodes. **The MSB can help ensure the type of commercial activity envisioned in these nodes**

through discussion of the future use of these gravel pits before mining is complete. Additionally, despite the relative ease of gravel pit mining in the MSB, there have been negative community impressions of these operations noted in the Fishhook Community Comprehensive Plan and a desire for increased regulation of gravel mining in the Knik-Fairview and Meadow Lakes Community comprehensive plans.

Given the amount of growth occurring in the area, it is reasonable to assume that the demand for gravel will remain high as new roads and subdivisions are built and as gravel continues to be exported to the Anchorage area. Chapter 17, Section 30 of the MSB Code governs earth materials extraction. Currently, a permit is required for extraction of 2,000 cubic yards per year of gravel or more. There are other, more stringent provisions for operations which will extract material below the high water table. The MSB requires that gravel pits be restored with topsoil and seeded with vegetation after use. Sites with planned development are exempt from this requirement. There is also a statewide requirement that gravel pit owners are charged \$750/acre to pay into a state bond to restore the site in the event that they abandon it. Given the current conversations around gravel pits and potential for this use to continue throughout the borough, the MSB should **add requirements to plan for the eventual type of development on gravel pits in node areas or along arterial roads when applying for a permit.** In these areas, more stringent "exit planning" would inform the degree of allowed slope and depth of the mining operation to allow post-closure uses that align with the uses envisioned for the node area. A plan for sourcing fill materials which would be of high enough quality and stability to support future commercial development could also be incorporated into the permitting requirements. The MSB could also require that the pit owner disclose if they plan to redevelop the site themselves after mining is complete or not. In node areas with existing gravel pits, the community planning process recommended for many of the nodes discussed in this report could specifically include envisioning potential future uses or even a master plan for the current pits in the node. This would provide some degree of long-term land use certainty around the many key sites in the MSB currently used or planned to be used for gravel mining.

Impact Fees

One common way for jurisdictions in the U.S., particularly fast-growing areas, to help pay for the costs of development is to **impose impact fees on new development.** These are charged to offset the increased impacts of the new development on a variety of municipal services, including transportation, schools, utilities, and parks. These fees are typically set based on the cost of projects identified in a capital improvement plan and prorated by the number of units built or estimated employment in the development. The MSB currently does not collect impact fees of this type for new development. Developers are responsible for the interior transportation systems, but transportation and other improvements exterior to the development are funded directly by the MSB through state or federal grants or through local transportation bonding, which effectively means that **all taxpayers are sharing the infrastructure costs of new development.**

The MSB could consider establishing a system to collect impact fees for new development, with the following considerations:

- Such a system would **increase the costs of development** to some degree, but the trade-off would be a **reduction in overall tax burden on MSB residents** and reduction of the MSBs responsibility to fund road and infrastructure expansions itself.
- Ensuring that the fees are **objectively tied to the actual amount of impact resulting from the development** is important when establishing such a system. This would need to be quantified through a capital improvement plan which estimates the costs of capital improvement projects proposed in the area and the expected impacts based on the size and type of development.
- An impact fee system would also have **spatial implications for development**, as it would provide a financial incentive for efficient location and planning of new developments. For example, new development near existing road infrastructure with capacity would incur fewer impact fees than a development along a smaller road which would need to be significantly upgraded to meet the needs of the increased traffic.

Overall, any form of impact fee system provides an opportunity for the MSB to be **more proactive rather than reactive in funding new infrastructure, particularly roads**. By asking developers to share in the cost of road improvements, the MSB will be less likely to have to play “catch-up” after traffic and other impacts of development have already taken place. This represents one way for the MSB to help achieve its mission to deliver services to the public in an efficient manner.

Zoning

Many, if not most, municipalities in the U.S. regulate their land use through some form of zoning. These codes range from highly restrictive ordinances regulating specifics of land uses, building heights, appearance and density to more flexible systems regulating the overall development form and proposed impacts of development. Regardless of the specifics, these zoning systems are all designed to help **manage growth, target locations for public investments, and ensure efficient use of public funds**. Zoning also helps **protect private investment by providing certainty to landowners** about what will happen on adjacent parcels and in the area, as well as potential future uses and value of their land. As a result, **zoning both protects and encourages private investments in communities**. Zoning can also have positive impacts on the transportation system by allowing for proper design of local and collector road systems that tie into arterial and interstate systems as a result of a greater level of certainty around future land uses.

Historically, the MSB has been averse to traditional zoning governing what property owners can do on their land. Although Title 17 of the MSB code governs specific uses and contains a number of zoning districts for specific areas such as wetlands and special use districts (including Palmer, Wasilla and Houston which have their own, more traditional zoning codes), the majority of the land is not highly regulated. There have been requirements enacted in the past for land use permits which have since been repealed. A voluntary land use permit process remains on the books but is not reported to be widely used. Information provided by stakeholders suggests that small-scale developers benefited from the land use permit process since it clarified what uses they needed specific permits for.

While acknowledging the desire of the MSB government to refrain from overly onerous land use regulations, the recent and projected continued growth of the borough’s population is having an increasing effect on the relationship between residents’ adjacent land uses. **Many MSB residents’ largest investment is in their home**, an investment they wish to safeguard, and many commercial developers or would-be developers interviewed by the Study project team in 2022 also indicated an interest in having **certainty around adjacent land uses** as a way to protect and ensure the longevity of their developments. The MSB’s strategic plan has a goal to “**reduce land use conflicts while promoting economic growth.**” Some form of zoning, particularly around the commercial nodes discussed in this report, would significantly improve the MSB’s ability to accomplish this goal. This would then help landowners, developers, and business owners feel secure in their investments, creating better conditions for future economic growth in the MSB.

The MSB could consider several options around zoning or land use regulation that would balance property rights with the community’s vision to cluster new commercial development, all while protecting residents’ investments and encouraging more diverse economic growth:

- The most direct way to ensure development of the nodes discussed in this report would be to **establish zoning districts around each node**. These could be special districts such as those which already exist in Palmer, Wasilla, and Houston or a more traditional approach to zoning.
- Such districts could potentially include discussions of the type of desired development as articulated above under “Node Typologies,” and could **require a permit for development in the nodes**, thus allowing the MSB to help influence these areas as they develop.
- Zoning districts need not incorporate the type of extensive use tables or restrictions seen in many zoning codes across the country, but could incorporate discussion of **general use categories, building types, or standards of impacts of development to adjacent uses** (such as the noise requirements already found in the MSB zoning code).

MSB Community Growth Solutions Study | APPENDIX C
Development Node Analysis & Recommendations

- The MSB could also consider a **more comprehensive zoning overhaul which would also zone the areas outside these nodes based on their current uses and/or future uses**, which could be articulated as part of the forthcoming Borough Comprehensive Plan process. Zoning other areas as residential with specific densities, for example, could help avoid confusion during the subdivision process that has in the past resulted in undesirable development, such as the “detached four-plexes” near Turners Corner. A “lighter-touch” approach may simply exclude some commercial uses from certain areas which would complement the establishment of commercial zoning in the development nodes.

Memo

Date: Thursday, June 05, 2025

Project: Mat-Su Borough Community Growth (formerly Sub-Area) Solutions Study

To: Julie Spackman, AICP - MSB

From: Will Hume, PE, Laurie Cummings, AICP CTP, ENV SP - HDR

Subject: **Sub-Area Roadway Segment Capacity**

Introduction

As part of the Community Growth Solution Study, segment capacity for roadways classified as collectors and higher within the Fishhook Triangle, UMED, and Knik Goose Bay-Big Lake sub-areas were estimated utilizing the current Draft Travel Demand Model (TDM) and the Florida Department of Transportation Quality (FDOT) Level of Service handbook. FDOT's Level of Service manual utilizes Highway Capacity Manual methodology to determine a planning level quality of service of motorized vehicles and roadway operations. By estimating the roadways segment capacity and level of service (LOS), MSB will be able to prioritize which roadway segments will need future improvements to provide sufficient capacity in the future.

Methodology and Analysis

To assess the segment capacity of the roadways within each sub-area, the existing roadway characteristics for each segment was determined. Based on the existing roadway, the following inputs were collected:

- Total travel lanes and directional travel lanes
 - This is used to determine the baseline threshold capacity
- Left turn treatments
 - Dedicated left turn lanes and two-way left turn lanes
 - 5-percent reduction in baseline capacity
 - No turn treatments
 - 20-percent reduction in baseline capacity
- State Highway Facility results in no reduction in baseline capacity
 - Non-state highway facilities result in a 10-percent reduction in baseline capacity

- 2045 Average Annual Daily Traffic (AADT)
 - o Extracted from the current draft Travel Demand Model

In addition to the inputs described above, several global assumptions were necessary to determine the adjusted threshold capacity and the future projected peak hour traffic volumes for each roadway segment, including:

- Target LOS D
- K-factor equal to 0.12
 - o The K-factor is the percentage of Average Annual Daily Traffic that is served during the peak hour. A 0.12 is a reasonable assumption based on available data from Alaska Department of Transportation and Public Facilities (AKDOT&PF) Drakewell website.
- D-factor equal to 0.60
 - o The D-factor determines the directional split of traffic during the peak hour. Similar to the K-factor, data from AKDOT&PF's Drakewell website was used to determine an appropriate assumption.
- Natural or rural land use context
 - o This assumption is based on the existing topography and development within each sub-area

Based on the inputs and assumptions above, the adjusted target segment directional capacity and peak hour directional capacity is calculated. These two outputs can be used to determine how much residual capacity a roadway segment has, or it can be used to provide a volume-to-capacity ratio, with anything below 1.0 having residual capacity and anything over 1.0 operating at or over capacity.

To determine the LOS and performance of the roadway segment, the peak hour directional volume must be adjusted to provide positive correlation between directional segment capacity and calculated directional volume. To calculate the adjusted peak hour directional volume, the peak hour directional volume is divided by the capacity adjustment percentage determined based on left turn treatments. The calculated adjusted directional volume and number of lanes is then compared to Table 1 to determine the LOS the roadway segment performs at.

Table 1. Peak Hour Directional Capacity – C1 Natural and C2 Rural

Number of Lanes/LOS	B	C	D	E
1 Lane	240	430	730	1,490
2 Lane	1,670	2,390	2,910	3,340
3 Lane	2,510	3,570	4,370	5,010

Sub-Area Segment Capacity Results

Below is a brief description of the roadway segment capacity results for each sub-area. For complete roadway segment results, refer to the Excel file for Appendix D.

Fishhook Triangle Sub-Area

A total of 61 roadway segments were identified within the Fishhook Triangle Sub-Area. However, AADT was not available for nine of the roadway segments. Most of the roadway segments analyzed are estimated to operate at LOS B in 2045. Table 2 below provides the roadway segments that are estimated to operate at LOS D or worse in 2045.

Table 2. Fishhook Triangle Sub-Area Roadways at/over Capacity in 2045

Roadway	Segment Extents	Peak Hour Directional Threshold Capacity	Adjusted Peak Hour Directional Threshold Capacity	AADT	Adjusted Peak Hour Directional Volume	LOS
N Palmer Fishhook	E Edgerton Parks & N Snowgoose	730	511	7374	758	E
N Trunk	N Palmer Fishhook & E Bogard	730	511	9000	926	E
E Bogard	E Grumman & Arabian	730	511	20171	2,075	F
N Engstrom	E Bogard & E Aspen Ridge	730	511	4502	463	D
N Engstrom	E Tex Al	730	511	4502	463	D
E Seldon	Lucille & E Grumman	730	511	16329	1,680	F
N Seward Meridian	E Seldon	730	511	11626	1,196	E
E Lakeview	E Seldon & Wasilla Fishhook	730	511	4483	461	D
E Schrock	E Seldon & E Burlwood	730	511	6363	654	D
Wasilla Fishhook	E Spruce & Palmer Fishhook	730	511	12020	1,236	E

Knik Goose Bay-Big Lake Sub-Area

A total of 58 roadway segments were identified within the Knik Goose Bay-Big Lake Sub-Area. However, AADT was not available for 14 of the roadway segments. Again, most of the roadway segments analyzed are estimated to operate at LOS B in 2045. Table 3 below provides the roadway segments that are estimated to operate at LOS D or worse in 2045.

Table 3. Knik Goose Bay-Big Lake Sub-Area Roadways at/over Capacity in 2045

Roadway	Segment Extents	Peak Hour Directional Threshold Capacity	Adjusted Peak Hour Directional Threshold Capacity	AADT	Adjusted Peak Hour Directional Volume	LOS
S Knik Goose Bay	Point MacKenzie & S Pinnacle Peak	940	658	20073	2,065	F
Vine	S Knik Goose Bay & Parks HWY	730	511	8584	883	E
W Hollywood	S Claiborne & Big Lake	730	511	4926	507	D
Big Lake	Echo Lake & Parks HWY	730	511	7851	808	E

UMED District Sub-Area

A total of 36 roadway segments were identified within the UMED District Sub-Area. However, AADT was not available for 5 of the roadway segments. Again, most of the roadway segments analyzed are estimated to operate at LOS B in 2045. Table 4 below provides the roadway segments that are estimated to operate at LOS D or worse in 2045.

Table 4. UMED District Sub-Area Roadways at/over Capacity in 2045

Roadway	Segment Extents	Peak Hour Directional Threshold Capacity	Adjusted Peak Hour Directional Threshold Capacity	2045 AADT	Adjusted Peak Hour Directional Volume	LOS
Parks HWY	Gershmel & Glenn HWY	1,800	1800	47536	3,423	F
S Woodworth	Trunk	730	511	10599	1,090	E
Palmer Wasilla HWY	N Stringfield & Glenn HWY	730	621	20658	1,750	F
N Hemmer	Palmer Wasilla & Maple Springs	730	511	4942	508	D
Ellen	Palmer Wasilla & W Fern	730	511	6825	702	D

Roadway Segment Capacity Tool

In addition to the results provided in Appendix D, an Excel based tool has been developed allowing MSB and AKDOT&PF the ability to update the calculated roadway segment capacity as new and more accurate data becomes available or if any other inputs or assumptions changed. Within the .XML file, a Read Me tab is provided that provides the user guidance on using the tool.

Recommendations

Based on this analysis, it is recommended to conduct feasibility studies for the roadway segments that operate at LOS E and F in 2045, prioritizing roadway segments operating at LOS F. This analysis only considered roadway segment capacity and did not include intersection analysis. The feasibility studies will determine the extents of roadway widening required, intersection control improvements, and other roadside enhancements. The feasibility studies will include traffic data collection, intersection capacity analysis, intersection alternatives analysis, and determine non-motorized needs while also considering environmental impacts.

APPENDIX D:

SUB-AREA ROAD SEGMENT CAPACITIES



Appendix D.

Sub-Area Roadway Segment Capacity Results

See Excel file: MSB Segment Capacities

This Roadway Segment Capacity Tool has been developed to determine roadway capacity and projected Level of Service based on Average Annual Daily Traffic, roadway context, left turn treatments, other traffic assumptions. The methodology of the tool is based in Highway Capacity Manual methodology and utilizes Florida Department of Transportation's Quality/Level of Service Handbook.

The following Color Coding is used to denote User Input, Calculation, and Reference Look Up

User Input
Calculation
Reference Look Up

The following color coded headings show which columns are user inputs, calculations, and reference look ups

E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
Peak Hour Directional Threshold Capacity	Non- State Hwy Adj	Facility Type	Total Lanes	Directional Thru	Median & Turn Adj		Total Adj	Adj %	Adjusted Peak Hour Directional Threshold Capacity	AADT	Assumed K-Factor	Assumed D-Factor	Assumed Peak Hour Directional Volume	Adjusted Peak Hour Directional Volume	LOS	Directional Thru Lanes Required for LOS D

Column Description

E	Single lane directional capacity from the Natural/Rural Generalized Motor Vehicle Capacity Table from FDOT Q/LOS Handbook shown on the right
F	Adjustment factor for non-State Highway facilities; -10%
G	Facility Type describes facility class
H	Total Lanes provided in both directions
I	Directional Thru is the total directional lanes provided
J-K	Median & Turn treatment description and Adjustment factor based on the left turn treatment; -5% for dedicated left turns/TWLT, and -20% for no left turn lanes
L	Total Adjustments is the aggregate of adjustment factors (Column F + Column K)
M	Adjustment % is the calculated adjustment factor (1 - Column L)
N	Adjusted Peak Hour Directional Threshold Capacity is to calculated capacity (Column E x Column N)
O	AADT either comes from traffic count data or a travel demand model
P	K-factor is either assumed or determined based on collected traffic count data
Q	D-factor is either assumed or determined based on collected traffic count data
R	Assumed peak hour directional volume is the AADT multiplied by the K and D factors (Column P x Column Q x Column R)
S	Adjusted peak hour directional volume inflates the assumed peak hour directional volume using the positive correlation between the Roadway Segment adjustment factors and roadway capacity (Column S/Column N)
T	This column compares adjusted peak hour directional volume from Column S to Peak Hour Directional Volume table described above for Column E
U	This column determines the number of lanes required to meet LOS D based on adjusted peak hour directional volume in Column S and Peak Hour Directional Volume Table described above for Column E

Adjustment Factors

The peak hour directional service volumes should be adjusted by multiplying by 1.2 for one-way facilities
The AADT service volumes should be adjusted by multiplying 0.6 for one way facilities 2 Lane Divided Roadway with an Exclusive Left Turn Lane(s): Multiply by 1.05
2 lane Undivided Roadway with No Exclusive Left Turn Lane(s): Multiply by 0.80

Exclusive right turn lane(s): Multiply by 1.05
Multilane Undivided Roadway with an Exclusive Left Turn Lane(s): Multiply by 0.95
Multilane Roadway with No Exclusive Left Turn Lane(s): Multiply by 0.75
Non-State Signalized Roadway: Multiply by 0.90

This table does not constitute a standard and should be used only for general planning applications. The table should not be used for corridor or intersection design, where more refined techniques exist.

*Cannot be achieved using table input value defaults. **Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached.

***LOS C thresholds are not applicable for C6 as C6 roadway facilities are neither planned nor designed to achieve automobile LOS C.

Adjustment Factors

2 Lane Divided Roadway with Exclusive Left Turn Adjustment: Multiply by 1.05
Multilane Undivided Highway with Exclusive Left Turn Adjustment: Multiply by 0.95
Multilane Undivided Highway without Exclusive Left Turn Adjustment: Multiply by 0.75

C1 & C2				
Peak Hour Directional				
	B	C	D	E
1 Lane	240	430	730	1,490
2 Lane	1,670	2,390	2,920	3,340
3 Lane	2,510	3,570	4,370	5,010



Fishhook Triangle Sub-Area

Roadway	Segment Extents	Peak Hour Directional Threshold Capacity	Non- State Hwy Adj	Facility Type	Total Lanes	Directional Thru	Median & Turn Adj		Total Adj	Adj %	Adjusted Peak Hour Directional Threshold Capacity	AADT	Assumed K- Factor	Assumed D- Factor	Assumed Peak Hour Directional Volume	Adjusted Peak Hour Directional Volume	LOS	Directional Thru Lanes Required for LOS D
N Palmer Fishhook	E Edgerton Parks & N Snowgoose	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	7374	12%	60%	531	758	E	2
N Mountain Trails	N Palmer Fishhook	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	0	12%	60%	0	0	N/A	1
E Edgerton Parks	N Mountain Trails & N Palmer Fishhook	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	507	12%	60%	37	52	B	1
Sun Valley	N Palmer Fishhook & E Wendt	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	817	12%	60%	59	84	B	1
E Wendt	Sun Valley	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	0	12%	60%	0	0	N/A	1
E New Hope	N Palmer Fishhook & N Raleigh Hill	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	265	12%	60%	19	27	B	1
N Raleigh Hills	E New Hope	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	267	12%	60%	19	27	B	1
E Boyd	N Palmer Fishhook	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	0	12%	60%	0	0	N/A	1
Falk	N Palmer Fishhook & Wetlin	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	468	12%	60%	34	48	B	1
Wetlin	Falk	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	468	12%	60%	34	48	B	1
N Peters	Wetlin	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	0	12%	60%	0	0	N/A	1
E Tex Al	N Palmer Fishhook	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	582	12%	60%	42	60	B	1
Bonnie	N Palmer Fishhook & N Nelchina	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	116	12%	60%	8	12	B	1
N Nelchina	Bonnie & N Tazlina	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	116	12%	60%	8	12	B	1
N Trunk	N Palmer Fishhook & E Bogard	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	9000	12%	60%	648	926	E	2
Old Trunk	N Trunk	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	59	12%	60%	4	6	B	1
N Snowgoose	N Palmer Fishhook & E Scott	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1106	12%	60%	80	114	B	1
E Tern	N Snowgoose & N Trunk	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	668	12%	60%	48	69	B	1
E Scott	N Snowgoose & N Arabian	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1106	12%	60%	80	114	B	1
N Arabian	E Scott & W Bogard	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1106	12%	60%	80	114	B	1
E Eminent Domain	N Arabian	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	2468	12%	60%	178	254	C	1
E Bogard	E Grumman & Arabian	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	20171	12%	60%	1,452	2,075	F	2
N Colony	E Bogard & E Manna	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	0	12%	60%	0	0	N/A	1
N 49th State	E Bogard & Seagull	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1016	12%	60%	73	105	B	1
N Green Forest	E Bogard	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	2596	12%	60%	187	267	C	1
N Engstrom	E Bogard & E Aspen Ridge	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	4502	12%	60%	324	463	D	1
N Engstrom	E Tex Al	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	4502	12%	60%	324	463	D	1
E Zephyr	N Engstrom & N Greentree	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	832	12%	60%	60	86	B	1
E Settlement	N Engstrom	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	0	12%	60%	0	0	N/A	1
Hart Lake	N Engstrom	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	989	12%	60%	71	102	B	1
N Greentree	E Bogard & E Zephyr	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	991	12%	60%	71	102	B	1
E King Salmon	N Greentree & E Pike	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	0	12%	60%	0	0	N/A	1
N Bear	E Bogard & N Charley	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	347	12%	60%	25	36	B	1
E Pike	N Bear & E King Salmon	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	0	12%	60%	0	0	N/A	1
N Charley	N Bear & E Mariah	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1228	12%	60%	88	126	B	1
E Foxtrot	N Charley	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	888	12%	60%	64	91	B	1
E Grumman	E Bogard & N Travelair	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1808	12%	60%	130	186	B	1
N Travelair	E Grumman & N Charley	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1492	12%	60%	107	153	B	1
E Seldon	Lucille & E Grumman	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	16329	12%	60%	1,176	1,680	F	2
Tait	E Seldon & E Bogard	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	942	12%	60%	68	97	B	1
N Seward Meridian	E Seldon	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	11626	12%	60%	837	1,196	E	2
E Lakeview	E Seldon & Wasilla Fishhook	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	4483	12%	60%	323	461	D	1
N Parkwood	E Seldon & Wasilla Fishhook	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1113	12%	60%	80	114	B	1
E Schrock	E Seldon & E Burlwood	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	6363	12%	60%	458	654	D	1
E Polar Bear	E Schrock & Wasilla Fishhook	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1399	12%	60%	101	144	B	1
N Bull Moose	E Schrock	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1092	12%	60%	79	112	B	1
N Hematite	E Seldon & E Mulchatna	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	67	12%	60%	5	7	B	1
Ravens Flight	E Seldon & E Mulchatna	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	34	12%	60%	2	3	B	1
E Mulchatna	Lucille & Wasilla Fishhook	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1623	12%	60%	117	167	B	1
Lucille	E Spruce & E Schrock	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	3534	12%	60%	254	363	C	1
E Burlwood	E Schrock	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	301	12%	60%	22	31	B	1
N Douglas	E Spruce & E Mulchatna	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	20	12%	60%	1	2	B	1
E Spruce	Lucille & Wasilla Fishhook	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	2165	12%	60%	156	223	B	1
Wasilla Fishhook	E Spruce & Palmer Fishhook	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	12020	12%	60%	865	1,236	E	2

Fishhook Triangle Sub-Area

Roadway	Segment Extents	Peak Hour Directional Threshold Capacity	Non- State Hwy Adj	Facility Type	Total Lanes	Directional Thru	Median & Turn Adj	Total Adj	Adj %	Adjusted Peak Hour Directional Threshold Capacity	AADT	Assumed K-Factor	Assumed D-Factor	Assumed Peak Hour Directional Volume	Adjusted Peak Hour Directional Volume	LOS	Directional Thru Lanes Required for LOS D

* Based on FDOT 2023 Quality/Level of Service Handbook

https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/planning/systems/systems-management/document-repository/qlos/fdot_qlos_handbook_v6-0_clean-june-2023.pdf?sfvrsn=198c6846_2

Adjustment Factors

The peak hour directional service volumes should be adjusted by multiplying by 1.2 for one-way facilities.
The AADT service volumes should be adjusted by multiplying 0.6 for one-way facilities.
2 Lane Divided Roadway with an Exclusive Left Turn Lane(s): Multiply by 1.05
2 lane Undivided Roadway with No Exclusive Left Turn Lane(s): Multiply by 0.80

Exclusive right turn lane(s): Multiply by 1.05
Multilane Undivided Roadway with an Exclusive Left Turn Lane(s): Multiply by 0.95
Multilane Roadway with No Exclusive Left Turn Lane(s): Multiply by 0.75
Non-State Signalized Roadway: Multiply by 0.90

This table does not constitute a standard and should be used only for general planning applications. The table should not be used for corridor or intersection design, where more refined techniques exist.

*Cannot be achieved using table input value defaults. **Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached.

***LOS C thresholds are not applicable for CS as CS roadway facilities are neither planned nor designed to achieve automobile LOS-C.

Adjustment Factors

2 Lane Divided Roadway with Exclusive Left Turn Adjustment: Multiply by 1.05
Multilane Undivided Highway with Exclusive Left Turn Adjustment: Multiply by 0.95
Multilane Undivided Highway without Exclusive Left Turn Adjustment: Multiply by 0.75

Peak Hour Directional



	B	C	D	E
1 Lane	240	430	730	1,490
2 Lane	1,670	2,990	2,990	3,340
3 Lane	2,510	3,570	4,370	5,010

(C1-Natural & C2-Rural)

Knik Goose Bay-Big Lake Sub-Area																		
Roadway	Segment Extents	Peak Hour Directional Threshold Capacity	Non- State Hwy Adj	Facility Type	Total Lanes	Directional Thru	Median & Turn Adj	Total Adj	Adj %	Adjusted Peak Hour Directional Threshold Capacity	AADT	Assumed K-Factor	Assumed D-Factor	Assumed Peak Hour Directional Volume	Adjusted Peak Hour Directional Volume	LOS	Directional Thru Lanes Required for LOS D	
Point MacKenzie	S Knik Goose Bay	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	2676	12%	60%	193	275	C	1
Lewis	Point MacKenzie	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	261	12%	60%	19	27	B	1
S Knik Goose Bay	Point MacKenzie & S Pinnacle Peak	940	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	658	20073	12%	60%	1,445	2,065	F	2
S Malemute Run	S Knik Goose Bay & Tuttle	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	258	12%	60%	19	27	B	1
Tuttle	S Malemute Run	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	258	12%	60%	19	27	B	1
Horizon	S Knik Goose Bay	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1495	12%	60%	108	154	B	1
S Ellexson	Horizon	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	616	12%	60%	44	63	B	1
W Hazel	S Knik Goose Bay	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	860	12%	60%	62	88	B	1
S Alix	S Knik Goose Bay & W Clay Chapman	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	330	12%	60%	24	34	B	1
Knik Knack Mud Shack	S Knik Goose Bay & W Carmel	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	63	12%	60%	5	6	B	1
W Clay Chapman	S Alix	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	2057	12%	60%	148	212	B	1
S Hallie	S Knik Goose Bay & W Carmel	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	366	12%	60%	26	38	B	1
Bogle Bluff	S Knik Goose Bay & W Vecera	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	785	12%	60%	57	81	B	1
W Vecera	Rubacaba & S Timberview	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	49	12%	60%	4	5	B	1
Rubacaba	W Vecera & O'Brien Creek	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	0	12%	60%	0	0	N/A	1
S Timberview	W Vecera & W Sandvik	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	49	12%	60%	4	5	B	1
W Sandvik	S Timberview & S Territorial	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	49	12%	60%	4	5	B	1
S Territorial	S Brimstone & W Leckwold	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	49	12%	60%	4	5	B	1
Bartlett	S Territorial & S Settlers Bay	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	49	12%	60%	4	5	B	1
Inlet Vista	S Knik Goose Bay & Bogle Bluff	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	0	12%	60%	0	0	N/A	1
W Donna Marie	Inlet Vista & S Viewport	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	0	12%	60%	0	0	N/A	1
W Douglas	S Knik Goose Bay	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	0	12%	60%	0	0	N/A	1
S Kathilyn	S Knik Goose Bay	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1193	12%	60%	86	123	B	1
S Settlers Bay	S Knik Goose Bay & Easement Trail	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	3565	12%	60%	257	367	C	1
W Wellington	S Knik Goose Bay	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	2891	12%	60%	208	297	C	1
Sunset	S Knik Goose Bay & S Daybreak	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	2324	12%	60%	167	239	B	1
W Binnacle	Sunset & W Birch Harbor	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	330	12%	60%	24	34	B	1
S Pinnacle	S Knik Goose Bay & Cardiff	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	0	12%	60%	0	0	N/A	1
Cardiff	S Pinnacle & W Lupine	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	0	12%	60%	0	0	N/A	1
W Lupine	Cardiff	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1291	12%	60%	93	133	B	1
Vine	S Knik Goose Bay & Parks HWY	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	8584	12%	60%	618	883	E	2
W Phenix	Vine & W Hollywood	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	0	12%	60%	0	0	N/A	1
W Jakes	Vine	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	292	12%	60%	21	30	B	1
Calico	Vine & Shelby	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	550	12%	60%	40	57	B	1
W Hollywood	S Claiborne & Big Lake	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	4926	12%	60%	355	507	D	1
Sylvan	W Hollywood & Highland	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1558	12%	60%	112	160	B	1
S Vanamanita	W Hollywood & W Williams	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	0	12%	60%	0	0	N/A	1
Andrea Dr	W Hollywood & S Preflight	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	0	12%	60%	0	0	N/A	1
S Johnsons	W Hollywood & Parks HWY	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	2485	12%	60%	179	256	C	1
S Pond Lily	W Hollywood & W Tofson	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	186	12%	60%	13	19	B	1
S Babcock	W Mahoneys & W Henderson	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	43	12%	60%	3	4	B	1
W Mahoneys	S Babcock	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	0	12%	60%	0	0	N/A	1
S Echo Lake	Big Lake & W Mahoneys	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	542	12%	60%	39	56	B	1
Big Lake	Echo Lake & Parks HWY	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	7851	12%	60%	565	808	E	2
S Lake View	Big Lake	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	448	12%	60%	32	46	B	1
Hughes Homestead	Big Lake	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	242	12%	60%	17	25	B	1
W Big Lake Lodge	Big Lake	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1534	12%	60%	110	158	B	1
S Beaver Lake	Big Lake & W Lakes	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	647	12%	60%	47	67	B	1
Maplewood	Big Lake	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	544	12%	60%	39	56	B	1
Creek Frontage	Big Lake	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	0	12%	60%	0	0	N/A	1
Kenlar	Big Lake & Hawk	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1769	12%	60%	127	182	B	1
Parks HWY	Hawk & Museum	1,640		Class II	4	2	Left turn lanes	-5%	-5%	95%	1558	31115	12%	60%	2,240	2,358	C	2
S Ridgecrest	Parks HWY & S Elizabeth	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	0	12%	60%	0	0	N/A	1
Potter	Parks HWY & S Leora	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1825	12%	60%	131	188	B	1

* Based on FDOT 2023 Quality/Level of Service Handbook

https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/planning/systems/systems-management/document-repository/glos/fdot_glos_handbook_v6-0_clean-june-2023.pdf?sfvrsn=198c6846_2

Knik Goose Bay-Big Lake Sub-Area																	
Roadway	Segment Extents	Peak Hour Directional Threshold Capacity	Non- State Hwy Adj	Facility Type	Total Lanes	Directional Thru	Median & Turn Adj	Total Adj	Adj %	Adjusted Peak Hour Directional Threshold Capacity	AADT	Assumed K-Factor	Assumed D-Factor	Assumed Peak Hour Directional Volume	Adjusted Peak Hour Directional Volume	LOS	Directional Thru Lanes Required for LOS D

Adjustment Factors

The peak hour directional service volumes should be adjusted by multiplying by 1.2 for one-way facilities
The AADT service volumes should be adjusted by multiplying 0.6 for one way facilities 2 Lane Divided
Roadway with an Exclusive Left Turn Lane(s): Multiply by 1.05
2 lane Undivided Roadway with No Exclusive Left Turn Lane(s): Multiply by 0.80

Exclusive right turn lane(s): Multiply by 1.05
Multilane Undivided Roadway with an Exclusive Left Turn Lane(s): Multiply by 0.95
Multilane Roadway with No Exclusive Left Turn Lane(s): Multiply by 0.75
Non-State Signalized Roadway: Multiply by 0.90

This table does not constitute a standard and should be used only for general planning applications. The table should not be used for corridor or intersection design, where more refined techniques exist.
*Cannot be achieved using table input value defaults. **Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached.
***LOS C thresholds are not applicable for C6 as C6 roadway facilities are neither planned nor designed to achieve automobile LOS C.



Peak Hour Directional

	B	C	D	E
1 Lane	240	430	730	1,490
2 Lane	1,670	2,390	2,910	3,340
3 Lane	2,510	3,570	4,370	5,010

(C1-Natural & C2-Rural)

Adjustment Factors

2 Lane Divided Roadway with Exclusive Left Turn Adjustment: Multiply by 1.05
Multilane Undivided Highway with Exclusive Left Turn Adjustment: Multiply by 0.95
Multilane Undivided Highway without Exclusive Left Turn Adjustment: Multiply by 0.75

UMED District Sub-Area

Roadway	Segment Extents	Peak Hour Directional Threshold Capacity	Non- State Hwy Adj	Facility Type	Total Lanes	Directional Thru	Median & Turn Adj		Total Adj	Adj %	Adjusted Peak Hour Directional Threshold Capacity	AADT	Assumed K- Factor	Assumed D- Factor	Assumed Peak Hour Directional Volume	Adjusted Peak Hour Directional Volume	LOS	Directional Thru Lanes Required for LOS D
Parks HWY	Gershmel & Glenn HWY	1,800		Class I	4	2	Limited Access	0%	0%	100%	1800	47536	12%	60%	3,423	3,423	F	3
Trunk	Parks HWY & W Bogard	1,640	-10%	Class II	4	2	Exclusive Left Turns	-5%	-15%	85%	1394	26300	12%	60%	1,894	2,228	C	2
E Fireweed	Jensen & Trunk	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1550	12%	60%	112	159	B	1
E Blue Lupine	Pioneer & Trunk	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1383	12%	60%	100	142	B	1
S Woodworth	Trunk	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	10599	12%	60%	763	1,090	E	2
Snodgrass	Old Trunk	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	0	12%	60%	0	0	N/A	1
Old Trunk	Snodgrass & Palmer	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	2099	12%	60%	151	216	B	1
College	Old Trunk	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1191	12%	60%	86	123	B	1
Wasilla Creek	Old Trunk & E Riparian	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1314	12%	60%	95	135	B	1
Palmer Wasilla HWY	N Stringfield & Glenn HWY	730	-10%	Class II	2	1	TWTL	-5%	-15%	85%	621	20658	12%	60%	1,487	1,750	F	2
N Stringfield	Palmer Wasilla & E Katherine	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	320	12%	60%	23	33	B	1
E Westside	Palmer Wasilla & N Midtown	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	2471	12%	60%	178	254	C	1
N Manhattan	E Westside	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	0	12%	60%	0	0	N/A	1
N Golden Hills	Palmer Wasilla & Gold Pan	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	0	12%	60%	0	0	N/A	1
Gold Pan	N Golden Hills & N Vroman	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	0	12%	60%	0	0	N/A	1
N 49th State	Palmer Wasilla	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	407	12%	60%	29	42	B	1
N Loma Prieta	Palmer Wasilla & E Loma Rica	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	972	12%	60%	70	100	B	1
France	Palmer Wasilla	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1603	12%	60%	115	165	B	1
N Hemmer	Palmer Wasilla & Maple Springs	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	4942	12%	60%	356	508	D	1
Irwin	Palmer Wasilla & Woodstock	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1646	12%	60%	119	169	B	1
Woodstock	Irwin & S Felton	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	505	12%	60%	36	52	B	1
S Felton	Palmer Wasilla & E Helen	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1619	12%	60%	117	167	B	1
W Fern	S Felton & Ronda	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1804	12%	60%	130	186	B	1
Ellen	Palmer Wasilla & W Fern	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	6825	12%	60%	491	702	D	1
E Helen	S Felton & E Moore	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1336	12%	60%	96	137	B	1
E Moore	E Moore & S Margaret	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1336	12%	60%	96	137	B	1
E Harold	S Margaret & Glenn HWY	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	343	12%	60%	25	35	B	1
S Margaret	E Clair	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1786	12%	60%	129	184	B	1
E Jay	S Margaret & Glenn HWY	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1991	12%	60%	143	205	B	1
E Clair	S Margaret & Glenn HWY	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1270	12%	60%	91	131	B	1
E Cienna	E Clair	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1018	12%	60%	73	105	B	1
S Rebecca	E Kyrok & E Cienna	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	1857	12%	60%	134	191	B	1
S Ochre	E Cienna & E Crimsonview	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	839	12%	60%	60	86	B	1
E Crimsonview	Glenn HWY	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	839	12%	60%	60	86	B	1
S Colleen	Thomas & Glenn HWY	730	-10%	Class II	2	1	No TURN Treatments	-20%	-30%	70%	511	0	12%	60%	0	0	N/A	1
Glenn HWY	Trunk & Palmer Wasilla HWY	1,640		Class II	4	2	Exclusive Left Turns	-5%	-5%	95%	1558	19903	12%	60%	1,433	1,508	B	2

* Based on FDOT 2023 Quality/Level of Service Handbook

https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/planning/systems/systems-management/document-repository/qlos/fdot_qlos_handbook_v6-0_clean-june-2023.pdf?sfvrsn=198c6846_2

Adjustment Factors

The peak hour directional service volumes should be adjusted by multiplying by 1.2 for one-way facilities.
The AADT service volumes should be adjusted by multiplying 0.6 for one-way facilities 2 Lane Divided Roadway with an Exclusive Left Turn Lane(s): Multiply by 1.05
2 lane Undivided Roadway with No Exclusive Left Turn Lane(s): Multiply by 0.80

Exclusive right turn lane(s): Multiply by 1.05
Multilane Undivided Roadway with an Exclusive Left Turn Lane(s): Multiply by 0.95
Multilane Roadway with No Exclusive Left Turn Lane(s): Multiply by 0.75
Non-State Signalized Roadway: Multiply by 0.90

This table does not constitute a standard and should be used only for general planning applications. The table should not be used for corridor or intersection design, where more refined techniques exist.

*Cannot be achieved using table input value defaults. **Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached.

***LOS C thresholds are not applicable for C8 as C6 roadway facilities are neither planned nor designed to achieve automobile LOS C.

Adjustment Factors

2 Lane Divided Roadway with Exclusive Left Turn Adjustment: Multiply by 1.05
Multilane Undivided Highway with Exclusive Left Turn Adjustment: Multiply by 0.95
Multilane Undivided Highway without Exclusive Left Turn Adjustment: Multiply by 0.75



Peak Hour Directional

	B	C	D	E
1 Lane	240	430	730	1,490
2 Lane	1,670	2,390	2,910	3,340
3 Lane	2,510	3,570	4,370	5,010

(C1-Natural & C2-Rural)

		LOS				
		B	C	D	E	F
Lanes (Directional)	1	240	430	730	1490	1800
	2	1670	2390	2910	3340	3600
	3	2510	3570	4370	5010	5400

	1		2		3	
N/A	0	0	0	0	0	0
B	1	240	1	1670	1	2510
C	241	430	1671	2390	2511	3570
D	431	730	2391	2910	3571	4370
E	731	1490	2911	3340	4371	5010
F	1491	10000	3341	10000	5011	10000

APPENDIX E:

**OFFICIAL STREETS &
HIGHWAYS PLAN
(OSHPP)
ANALYSIS**



Memo

Date: Friday, May 16, 2025

Project: MSB Community Growth (formerly Sub-Area) Solutions Study: Project Evaluation of Proposed OSHP Road Connections

HDR Project Number 10342956 - (MSB Urbanized Area Corridor)

To: Kim Sollien, Project Manager

From: M. Murph O'Brien and Laurie Cummings

Subject: Community Growth Solutions Study OSHP Project Evaluation Methodology

Introduction

The purpose of this memorandum is to document the methodology used to rank the new major and minor collector roads recommended in the MSB's 2022 Official Streets and Highway Plan (OSHP) that are located in one of the three sub-areas identified by the MSB's Community Growth Solutions Study (hereafter "Study"). A total of 93 roads were evaluated: 6 roads within the UMED sub, 46 within the Fishhook Triangle sub-area, and 39 in the Knik Goose Bay/Big Lake sub-area.

The evaluation process applied both subjective and objective criteria to establish the relative priority of these projects within each sub-area. The evaluation criteria and associated scoring is shown in Table 1. For additional detail about how the criteria was applied, please see the Attachment A: MS Excel File.

Table 1 Evaluation Criteria

Criteria	Score
Environmental: Acres of Impacted Wetlands	
<1.0 acres	5
1.0-2.5 acres	3
>2.5 acres	1
Connectivity	
Provides collector connection between two arterials or a Major Collector and Arterial	5
Provides connection between two collector roads	3
Connects large subdivisions/population areas to arterial network	3
Connects two future collectors	1
Functional Classification	



Criteria	Score
Environmental: Acres of Impacted Wetlands	
<1.0 acres	5
1.0-2.5 acres	3
>2.5 acres	1
Major Collector	5
Minor Collector	3
Population: Increase in Population Density by 2045	
High Increase	5
Moderate Increase	3
Low Increase	1
Safety	
Provides new alternative access to large subdivisions or existing well-developed area	5
Provide new alternative access to small subdivisions or developing areas	3
Provides minor safety improvement. Dependent on the construction of two or more new road connections.	1
Mobility	
Provides Existing Congestion Relief	5
Land Use	
Project recommended in adopted land use plan	5
Within 0.5 miles of a school, college, or EMS/Fire/Hospital	5
Quality of life	
Improves access to major recreational facilities including by not limited to Hatcher Pass, Government Peak Recreations Area, Alcantra Recreation Facility, Skeetawk Ski Area, Matanuska Green Belt, Big Lake, State Parks, or Matanuska Valley Moose Range.	3
Economic Impact	
Improves access to proposed Study development node	5

Note: Maps showing wetlands and land use analysis are shown in Attachments B, D, and E. Attachment F shows a map of the proposed Study Development Nodes.

The resulting prioritized list of road projects for the Fishhook Triangle, UMED, and Knik Goose Bay-Big Lake sub areas are shown in Tables 2, 3, and 4 respectively. Higher scores represent a higher priority. Additional information about how each individual project scored is available in Attachment A. Maps of the results are available in Attachment B.

Table 2 Fishhook Triangle Sub-Area Prioritization Results

ID	Road Name or Description	Functional Classification	Result
172	N Engstrom Rd	Major Collector	41
13537	Tex-Al Dr Connection	Major Collector	41
88	E New Hope St	Minor Collector	39
871	N Covington St	Major Collector	36



ID	Road Name or Description	Functional Classification	Result
8478	E Lamar R Rd	Minor Collector	35
9180	E Independence Ave	Minor Collector	35
13919	N Green Forest Dr Re-Alignment	Minor Collector	33
13821	E Farm Meadow Ext. to N Engstrom RD N Ext.	Minor Collector	32
13538	N Raleigh Hills St Connection	Minor Collector	30
13540	N Raleigh Hills St Ext. South to ID #13550	Minor Collector	30
13565	N Tanis Rd Connection South to E Paradise Ln	Minor Collector	30
13891	Raleigh Hills St Ext. from ID #13540 to Engstrom Rd	Minor Collector	28
13552	New Rd: Wolf Lake Dr E to Palmer Fishhook Segment B	Minor Collector	28
13914	Farm Meadow Ext. from N Steen Rd to Wasilla Fishhook Segment B	Minor Collector	28
13917	Farm Meadow Ext. from N Steen Rd to Wasilla Fishhook Segment A	Minor Collector	28
12015	E Settlement Ave	Major Collector	27
10186	E Spruce Ave	Minor Collector	27
13905	Bogard Rd E Ext. Frontage Rd Ext./ N Colony Way to Hassen Bey Dr	Minor Collector	27
10023	E Paradise Ln	Minor Collector	26
13804	S Bear St Ext.	Minor Collector	25
13922	E Edgerton Parks Rd Connection to E Alberta Circle	Minor Collector	23
13886	Engstrom Rd to N Old Homestead Rd Connection	Minor Collector	23
13561	N Charley Dr Ext. to E Curtis Dr/Wasilla Fishhook	Minor Collector	22
565	E Scott Rd	Minor Collector	20
13888	Trunk Rd to E Tern Dr Connection	Minor Collector	20
5345	E Jensen Rd	Major Collector	19
13739	Tex-Al Dr W Ext. to E Needham Ave	Major Collector	19
11558	E Edgerton Parks Rd	Minor Collector	19
13557	N Bear St Ext.	Minor Collector	19
13943	E Pike Ave Ext.	Minor Collector	17
13589	North/South Connection: E Spruce Rd Ext. to E Seldon Rd	Minor Collector	17
13734	E Carney Rd to E Needham Ave Connection	Major Collector	15
2872	N Tazlina Dr	Minor Collector	13
13944	N Travelair Dr to N Charley Dr Connection	Minor Collector	13
13744	E Paradise Ln Extension West	Minor Collector	13
10285	N Soto Rd	Minor Collector	12
267	E Yentna Rd	Minor Collector	11
799	E Carlson Rd Ext. East	Minor Collector	11
13903	Hassen Bae Dr Ext. to E Scott Rd Ext.	Minor Collector	11
13550	New Rd: Wolf Lake Dr E to Palmer Fishhook Segment A	Minor Collector	11
13564	E Foxtrot Ave Ext. to N Bear St Ext.	Minor Collector	11
13918	New Rd: Tex Al Dr/Grouse Loop Intersection to ID# 13914	Minor Collector	11



ID	Road Name or Description	Functional Classification	Result
13727	New Rd: E Polar Bear Dr North to E Burlwood Dr Ext.	Minor Collector	11
13746	E Carlson Dr Ext. West	Minor Collector	11
13811	N Bull Moose Dr Ext. North	Minor Collector	9
13936	E Burlwood Dr Ext.	Minor Collector	9
13740	N Champion Rd Ext. to Carney Rd	Minor Collector	9

Note: ID numbers are based on the draft OSHP GIS file

Table 3 UMED Sub-Area Prioritization Results

ID	Road Name or Description	Classification	Result
14085	Hemmer Extension France to 49th State Street	Major Collector	38
843	E Katherine Dr	Minor Collector	34
2319	S Blunck St/ S Hemmer Extension	Major Collector	33
14084	Hospital Alternative Access: Glenn Highway to Georgeson	Minor Collector	32
1047	N Old Trunk Rd	Minor Collector	25
13876	E Bradley Lake Road Ext.	Minor Collector	22

Note: ID numbers are based on the draft OSHP GIS file

Table 4 Knik Goose Bay-Big Lake Sub-Area Prioritization Results

ID	Road Name or Description	Classification	Result
13863	Kenlar Rd Realignment to align with W Wasey Lane	Major Collector	35
13664	W Wasey Way/W Hollywood Connection South	Major Collector	31
14703	S Frontier Dr Ext East or S Settlers Bay Dr/Hayfield Rd Connection East	Major Collector	30
13652	W Sunset Ave Connection	Minor Collector	30
14076	W Lupine Ln Ext South	Minor Collector	30
13703	W Hollywood Rd/Foothills Drive Connection	Major Collector	26
13706	W Jakes Rd Ext East	Major Collector	26
13670	Misty Lake Rd (Jakes Road) Ext West (between Kenlar Dr and W Misty Lake Rd)	Major Collector	26
13892	W Knox Dr/Museum Pl Connection (13892)	Minor Collector	25
13662	Andrea Dr South Ext.	Major Collector	24
13912	W Carmel Rd Ext B	Major Collector	24
13987	S Pinnacle Peak Dr/S Country Dr Connection	Minor Collector	24
10892	W Hughes Homestead Rd	Minor Collector	24
13667	Misty Lake Rd (Jakes Road) Ext West	Minor Collector	24
2797	S Ogard St North to South Pond Lily Lane	Major Collector	23
13991	Foothills Blvd/Country Dr Intersection Re-Alignment (13991)	Major Collector	23
14049	Creek Frontage Rd/Big Lake Rd Connection	Minor Collector	23



ID	Road Name or Description	Classification	Result
531	W Carmel Rd Ext A	Major Collector	22
13654	W Sunset Ave W Ext	Minor Collector	22
13686	Sylvan Rd Connection South A	Major Collector	21
13689	Sylvan Rd Connection South B	Major Collector	21
3905	S Ridgecrest Rd	Minor Collector	18
13687	W Jakes Rd Ext West A	Major Collector	17
13839	S Sylvan Ln Connection	Minor Collector	17
13692	S Vanamanita Ln Ext North	Minor Collector	17
13697	Calico Dr Ext. W	Minor Collector	17
7182	W Clay Chapman Rd	Minor Collector	16
13984	W Binnacle Dr/KGB Connection	Minor Collector	16
4518	S Malemute Cir	Major Collector	15
13650	Ogard St/S Ellexson Rd Connection South	Major Collector	15
14070	W Douglas LnWest Donna Marie Intersection at KGB	Minor Collector	15
14071	W Douglas Ln Connection to KGB	Minor Collector	15
13688	W Jakes Rd Ext West B	Major Collector	13
752	W Hazel Ave	Minor Collector	12
6296	S Kimberly St	Major Collector	11
9208	S Rubacaba	Minor Collector	11
13838	S Sylvan LN/S Vanamanita Ln Connection	Minor Collector	11
13837	S Vanamanita Ln Ext South	Minor Collector	9
13858	Lewis Loop Ext N to W Hazel Ave Ext.	Minor Collector	9
2216	W Little Jack Ave	Minor Collector	7
7326	W Cindy Way	Minor Collector	7

Note: ID numbers are based on the draft OSHP GIS file

Attachments

- Attachment A: Results Table
- Attachment B: Results Maps
- Attachment C: Evaluation Criteria Summary
- Attachment D: Wetlands Maps
- Attachment E: Land Use Maps
- Attachment F: Development Node Map



Attachment A: Results Table

See MS Excel Files:
Community Growth Solutions Study | Appendix D
Segment Capacities

Draft OSHP Project Ranking: Fishhook Triangle

ID	Road Name or Description	Classification	Segment Length	Wetlands Acreage	Wetlands Impact	Connectivity	Functional Classification	Population Growth	Safety	Mobility	Land Use	Quality of Life	Economic	Result	Notes
172	N ENGSTROM RD	Major Collector (NC)	0.604117579	0.53986706	5	5	5	3	5	5	5	3	5	41	Fishhook Comp Plan
13537	Tex-Al Dr Connection	Major Collector (NC)	0.249913337	N/A	5	5	5	3	5	5	5	3	5	41	Fishhook Comp Plan
871	N COVINGTON ST	Major Collector (NC)	1.248660595	0.2830451	5	5	5	3	5	5	0	3	5	36	Part of Engstrom North/Covington Corridor
12015	E SETTLEMENT AVE	Major Collector (NC)	1.646116418	2.87609471	1	5	5	1	5	5	0	0	5	27	Need to confirm with MSB if OSHP alignment is still their preferred alignment
5345	E JENSEN RD	Major Collector (NC)	0.745157745	2.41391617	3	3	5	3	5	0	0	0	0	19	Part of corridor that could connect Palmer Fishhook to Soapstone Road
13739	Tex-Al Dr W Ext. to E Needham Ave	Major Collector (NC)	0.753453751	N/A	5	3	5	3	3	0	0	0	0	19	New road, partial section line easement. Connects to undeveloped PUE
13734	E Carney Rd to E Needham Ave Connection	Major Collector (NC)	1.163199269	3.24283037	1	3	5	3	3	0	0	0	0	15	North South segment in 50' PUE.

ID	Road Name or Description	Type	Segment Length	Wetlands Acreage	Wetlands Impact	Connectivity	Functional Classification	Population Growth	Safety	Mobility	Land Use	Quality of Life	Economic	Result	Notes
88	E NEW HOPE ST	Minor Collector (NC)	0.846180264	N/A	5	5	3	3	5	5	5	3	5	39	Connects Ccnvington to PFR and WFR; Fishhook Comp Plan
8478	E LAMAR R RD	Minor Collector (NC)	0.123714057	0.07011161	5	3	3	3	3	5	5	3	5	35	Part of Farm Meadows connection between the two Fishhooks
9180	E INDEPENDENCE AVE	Minor Collector (NC)	0.25238757	N/A	5	3	3	3	3	5	5	3	5	35	Part of New Hope Connection between the two Fishhooks
13919	N Green Forest Dr Re-Alignment	Minor Collector (NC)	0.066007757	N/A	5	5	3	5	5	5	5	0	0	33	Part of Funded Engstrom Green Forest Drive Roundabout project
13821	E Farm Meadow Ext. to N Engstrom RD N Ext.	Minor Collector (NC)	0.751029468	N/A	5	5	3	3	3	5	0	3	5	32	Connects North Engstrom ext to Palmer Fishhook
13538	N Raleigh Hills St Connection	Minor Collector (NC)	0.124909445	N/A	5	3	3	3	3	5	0	3	5	30	Part of North Raliegh corridor. Connect collector New Hope to Major CollectorTex-Al
13540	N Raleigh Hills St Ext. South to ID #13550	Minor Collector (NC)	1.384493882	N/A	5	3	3	3	3	5	0	3	5	30	Part of North Raliegh corridor. Connects Tex-AL to Engstrom
13565	N Tanis Rd Connection South to E Paradise Ln	Minor Collector (NC)	0.180676331	N/A	5	3	3	1	3	5	5	0	5	30	Connects Paradise and Shaw Elementary to Wasilla Fishhook
13891	Raleigh Hills St Ext. from ID #13540 to Engstrom Rd	Minor Collector (NC)	0.849939244	N/A	5	3	3	1	3	5	0	3	5	28	Part of North Raliegh corridor. Completes connection Tex-AL to Engstrom
13552	New Rd: Wolf Lake Dr E to Palmer Fishhook Segment B	Minor Collector (NC)	1.379113697	0.8764638	5	3	3	1	3	5	0	3	5	28	Connects Engstrom to Palmer Fishhook via proposed N Raliegh Cor./local roads
13914	Farm Meadow Ext. from N Steen Rd to Wasilla Fishhook Segment B	Minor Collector (NC)	0.211403383	N/A	5	3	3	1	3	5	0	3	5	28	Part of East West Farm Meadows Road Extension connecting the Fishhooks
13917	Farm Meadow Ext. from N Steen Rd to Wasilla Fishhook Segment A	Minor Collector (NC)	0.758038074	N/A	5	3	3	1	3	5	0	3	5	28	Part of East West Farm Meadows Road Extension connecting the Fishhooks
10186	E SPRUCE AVE	Minor Collector (NC)	0.801063623	N/A	5	3	3	5	3	0	5	3	0	27	Connects large subdivision to Wasilla Fishhook
13905	Bogard Rd E Ext. Frontage Rd Ext./ N Colony Way to Hassen Bey Dr	Minor Collector (NC)	0.425578804	N/A	5	5	3	1	3	5	5	0	0	27	Extends BREE frontage Road(Emminent Domain Circle) to Hassen Bey. CAMP benefit
10023	E PARADISE LN	Minor Collector (NC)	0.484991268	1.8070799	3	3	3	1	3	5	5	3	0	26	Connects large subdivision to Wasilla Fishhook
13804	S Bear St Ext.	Minor Collector (NC)	0.389487097	0.52531588	5	3	3	1	3	5	5	0	0	25	Connects to Finger Lake School. Possible long term connection to PWH
13922	E Edgerton Parks Rd Connection to E Alberta Circle	Minor Collector (NC)	0.25145212	0.74726696	5	3	3	1	3	0	0	3	5	23	Connects two minor collectors
13886	Engstrom Rd to N Old Homestead Rd Connection	Minor Collector (NC)	0.723443697	0.66519515	5	3	3	1	1	0	5	0	5	23	Possibly too close to Bogard to afford significant benefit
13561	N Charley Dr Ext. to E Curtis Dr/Wasilla Fishhook	Minor Collector (NC)	0.118026057	N/A	5	3	3	3	5	0	0	3	0	22	Connects large subdivision to Wasilla Fishhook. Impacts home
565	E SCOTT RD	Minor Collector (NC)	0.860533195	1.69509834	3	3	3	3	3	0	5	0	0	20	Connects to 49th State Stret. last 1/4 mile thru wetlands/pond.
13888	Trunk Rd to E Tern Dr Connection	Minor Collector (NC)	0.151086142	0.07183211	5	3	3	3	1	0	0	0	5	20	Has existing connection. Dependent on Engstrom Connection
11558	E EDGERTON PARKS RD	Minor Collector (NC)	2.686864877	0.91990421	5	1	3	1	1	0	0	3	5	19	Connects 2 future minor collectors
13557	N Bear St Ext.	Minor Collector (NC)	0.869578857	0.53332641	5	3	3	5	3	0	0	0	0	19	Connects two collectors. stream crossing
13943	E Pike Ave Ext.	Minor Collector (NC)	0.033520874	N/A	5	3	3	3	3	0	0	0	0	17	Connects two minor collectors; low hanging fruit. RSA project?
13589	North/South Connection: E Spruce Rd Ext. to E Seldon Rd	Minor Collector (NC)	0.999210115	1.69357065	3	1	3	1	1	0	5	3	0	17	Connects new Spruce ext, to Arterial Seldon. Confllicts with road E and W on Seldon
2872	N TAZLINA DR	Minor Collector (NC)	0.764354807	1.26050631	3	1	3	3	3	0	0	0	0	13	Connects E Yetna to Jenson Corridor
13944	N Travelair Dr to N Charley Dr Connection	Minor Collector (NC)	0.025001565	N/A	5	1	3	3	1	0	0	0	0	13	local road connection to Charley. Aircraft taxi on Travel Air
13744	E Paradise Ln Extension West	Minor Collector (NC)	0.112860089	N/A	5	3	3	1	1	0	0	0	0	13	Connects existing collector to proposed collector
10285	N SOTO RD	Minor Collector (NC)	0.748973647	1.54861629	3	1	3	1	1	0	0	3	0	12	Runs north from Pamela; future connections
267	E YENTNA DR	Minor Collector (NC)	0.321349622	0.19992057	5	1	1	1	3	0	0	0	0	11	No connections between major collectors or major subdivisions. Depends on future connections
799	E CARLSON RD Ext. East	Minor Collector (NC)	0.666826994	0.09121728	5	1	3	1	1	0	0	0	0	11	Existitng connection to Pamela via Pamela Spur
13903	Hassen Bae Dr Ext. to E Scott Rd Ext.	Minor Collector (NC)	0.12587787	N/A	5	1	3	1	1	0	0	0	0	11	connects future Scott Rd Ext and subdivisions to Bogard E.
13550	New Rd: Wolf Lake Dr E to Palmer Fishhook Segment A	Minor Collector (NC)	1.000318054	N/A	5	1	3	1	1	0	0	0	0	11	No SL Easement. Bisepts subdivision. ConnectsEngstrom to PFR. Problematic. perha[s] just a connection from th end of the subdivision road east to PFR?
13564	E Foxtrot Ave Ext. to N Bear St Ext.	Minor Collector (NC)	1.077766833	1.23208349	3	3	3	1	1	0	0	0	0	11	Connects two collectors. stream crossing
13918	New Rd: Tex Al Dr/Grouse Loop Intersection to ID# 13914	Minor Collector (NC)	0.532323804	N/A	5	1	3	1	1	0	0	0	0	11	Connects MC Tex-Al to future minor collector
13727	New Rd: E Polar Bear Dr North to E Burlwood Dr Ext.	Minor Collector (NC)	1.045246556	0.26040853	5	1	3	1	1	0	0	0	0	11	Connects 2 future minor collectors

ID	Road Name or Description	Type	Segment Length	Wetlands Acerage	Wetlands Impact	Connectivity	Functional Classification	Population Growth	Safety	Mobility	Land Use	Quality of Life	Economic	Result	Notes
13746	E Carlson Dr Ext. West	Minor Collector (NC)	0.241931698	N/A	5	1	3	1	1	0	0	0	0	11	Extends new collector
13811	N Bull Moose Dr Ext. North	Minor Collector (NC)	0.792432815	1.96672827	3	1	3	1	1	0	0	0	0	9	Extends Bull Moose to future collector
13936	E Burlwood Dr Ext.	Minor Collector (NC)	0.997183816	1.77970671	3	1	3	1	1	0	0	0	0	9	Connects 2 future minor collectors
13740	N Champion Rd Ext. to Carney Rd	Minor Collector (NC)	0.736084943	2.82462868	1	1	3	3	1	0	0	0	0	9	Flood plain and river crossing. Connects future collectors.

Draft OSHP Project Ranking: KGB/BL

ID	Road Name or Description	Classification	Segment Length	Wetlands Acreage	Wetlands Impact	Connectivity	Functional Classification	Population Growth	Safety	Mobility	Land Use	Quality of Life	Economic	Result	Notes
13863	Kenlar Rd Realignment to align with W Wasey Lane	Major Collector (NC)	0.401996512	1.712821264	3	3	5	3	3	5	5	3	5	35	50' SLE west 33'SLE east. Stream crossing Little Meadow Creek. Reduces conflict point
13664	W Wasey Way/W Hollywood Connection South	Major Collector (NC)	1.659911383	4.815172689	1	5	5	5	5	0	5	0	5	31	Connects BLR minor arterial to Hollywood Major collector
14703	S Frontier Dr Ext East or S Settlers Bay Dr/Hayfield Rd Connection East	Major Collector (NC)	1.188019521	2.902259451	1	3	5	3	5	5	0	3	5	30	Connects 2 existing collectors.
13703	W Hollywood Rd/Foothills Drive Connection	Major Collector (NC)	0.309586483	N/A	5	5	5	1	5	5	0	0	0	26	Connection Vine (arterial) & Foot Hills Collector. 50' SLE south 33'SLE north
13706	W Jakes Rd Ext East	Major Collector (NC)	1.004659326	0.24223543	5	5	5	3	3	5	0	0	0	26	Connects Vine arterial and Foothills Collector. Partial SLE along segment.
13670	Misty Lake Rd (Jakes Road) Ext West (between Kenlar Dr and W Misty Lake Rd)	Major Collector (NC)	2.24	6.774	1	1	5	5	1	0	5	3	5	26	Connects future collectors. No SLE.
13662	Andrea Dr South Ext.	Major Collector (NC)	1.840039335	5.566001027	1	5	5	5	3	5	0	0	0	24	Connects Hollywood to Carmel; Part of Johnson Road Ext to KGB.
13912	W CARMEL RD Ext B	Major Collector (NC)	2.51708695	3.427705382	1	1	5	3	1	0	5	3	5	24	Connects to future collectors
2797	S OGARD ST north to South Pond Lily Lane	Major Collector (NC)	3.178000045	11.68089079	1	3	5	3	1	0	5	0	5	23	Connects W Hazel to Hollywood via Lily Pond
13991	Foothills Blvd/Country Dr Intersection Re-Alignment (13991)	Major Collector (NC)	0.083855266	N/A	5	5	5		3	5	0	0	0	23	Connects Major Collector to KGB arterial
531	W CARMEL RD Ext A	Major Collector (NC)	1.010103975	8.549882318	1	1	5	1	1	0	5	3	5	22	Connects to future collectors
13686	Sylvan Rd Connection South A	Major Collector (NC)	0.270114215	0.398694146	5	3	5	3	5	0	0	0	0	21	Connects Sylvan Road to Sylvan Lane via W Jakes Road Ext. Lucille Creek crossing
13689	Sylvan Rd Connection South B	Major Collector (NC)	0.074564709	N/A	5	5	5	1	5	0	0	0	0	21	Final connection of Sylvan Rd to Sylvan Lane
13687	W Jakes Rd Ext West A	Major Collector (NC)	0.894573637	3.357177343	1	3	5	3	5	0	0	0	0	17	Extends W Jakes to future Sylvan Ext. Provides E/W connection to Vine
4518	S MALEMUTE CIR	Major Collector (NC)	0.830583305	1.231844517	3	3	5	1	3	0	0	0	0	15	Part of connection between KGB and W. Hazel
13650	Ogard St/S Ellexson Rd Connection South	Major Collector (NC)	0.223969906	1.668725058	3	3	5	1	3	0	0	0	0	15	Part of connection between KGB and W. Hazel
13688	W Jakes Rd Ext West B	Major Collector (NC)	1.278388776	2.642072317	1	1	5	3	3	0	0	0	0	13	Extends W Lake to new Collector Id 13692 (S.Vanamantha Lane)
6296	S KIMBERLY ST	Major Collector (NC)	5.038468575	7.819882525	1	1	5	3	1	0	0	0	0	11	Port Mac Rd and futre collectors ID 13981 and 13912 (West Carmel Ext B)

ID	Road Name or Description	Type	Segment Length	Wetlands Acreage	Wetlands Impact	Connectivity	Functional Classification	Population Growth	Safety	Mobility	Land Use	Quality of Life	Economic	Result	Notes
13652	W Sunset Ave Connection	Minor Collector (NC)	0.235582581	0.026399928	5	3	3	3	3	0	5	3	5	30	Connects two existing collectors aka two existing segments of Sunset
14076	W Lupine Ln Ext South	Minor Collector (NC)	0.181228581	N/A	5	1	3	3	5	5		3	5	30	Extends W Lupine to furture major collector 12073
13892	W Knox Dr/Museum Pl Connection (13892)	Minor Collector (NC)	1.506879774	1.335881121	3	3	3	3	3	5	5	0	0	25	Connects two existing collectors Museum Drive and Sylvan Road. Acts as backage Rd to Parks Highway. Maybe deserves a higher score.
13987	S Pinnacle Peak Dr/S Country Dr Connection	Minor Collector (NC)	0.498995396	N/A	5	3	3	5	3	5	0	0	0	24	Connects two existing collectors. ROW needed. Would existing Pinnacle/KGB intersection be closed?
10892	W HUGHES HOMESTEAD RD	Minor Collector (NC)	0.130864943	N/A	5	1	3	1	1	0	5	3	5	24	Connects to future collector Sunset Road extension.
13667	Misty Lake Rd (Jakes Road) Ext West	Minor Collector (NC)	1	2.65	1	1	3	5	1	0	5	3	5	24	Connects future collectors. No SLE.
14049	Creek Frontage Rd/Big Lake Rd Connection	Minor Collector (NC)	0.020255347	N/A	5	3	3	1	3	5	0	3	0	23	Connects minor collector to Big Lake Road. Lines up with opposing driveway.
13654	W Sunset Ave W Ext	Minor Collector (NC)	0.173258423	8.424723794	1	3	3	1	1	0	5	3	5	22	Connects two existing collectors. Provides new access to Big Lake.Hughes Homestead Road would need upgrading and possible realignment to avoid conflict with State airport.
3905	S RIDGECREST RD	Minor Collector (NC)	0.411287714	1.363531594	3	1	3	3	3	0	0	0	5	18	Connects to future collectort Jakes Road Extension
13839	S Sylvan Ln Connection	Minor Collector (NC)	0.387802379	N/A	5	3	3	3	3	0	0	0	0	17	Connects Hollywood to Sunset via minor collector Timberlake Loop
13692	S Vanamanita Ln Ext North	Minor Collector (NC)	3.197067555	2.589114073	5	3	3	3	3	0	0	0	0	17	Future Parks Hwy Connection to Hollywood
13697	Calico Dr Ext. W	Minor Collector (NC)	1.818296365	1.003383641	5	3	3	3	3	0	0	0	0	17	Connects arterial Vine to future collector. Somewhat of a backage to Parks Hwy.
7182	W CLAY CHAPMAN RD	Minor Collector (NC)	0.693821971	1.513918277	3	1	3	3	1	0	5	0	0	16	Connects to future major collector Ogard Street extension.
13984	W Binnacle Dr/KGB Connection	Minor Collector (NC)	0.126325746	N/A	1	3	3	3	1	5	0	0	0	16	Extends Binnacle to line up with 3 Bears Alaska Intersection
14070	W Douglas LnWest Donna Marie Intersection at KGB	Minor Collector (NC)	0.0226353	N/A	5	3	3	3	1	0	0	0	0	15	Connects existng minor collector to arterial KGB. Low hanging fruit.
14071	W Douglas Ln Connection to KGB	Minor Collector (NC)	0.099631828	N/A	5	3	3	3	1	0	0	0	0	15	Connects existng minor collector to arterial KGB. Low hanging fruit.
752	W HAZEL AVE	Minor Collector (NC)	2.301002016	3.923831453	1	1	3	3	1	0	3	0	0	12	Connects existng minor collector to future major collector
9208	S RUBACABA ST	Minor Collector (NC)	0.373395767	N/A	1	3	3	1	3	0	0	0	0	11	Connects two existing collectors
13838	S Sylvan Ln/s Vanamanita Ln Connection	Minor Collector (NC)	1.000700591	0.229051685	5	1	3	1	1	0	0	0	0	11	Connects two future collectors
13837	S Vanamanita Ln Ext South	Minor Collector (NC)	1.656093195	2.589114073	1	1	3	1	3	0	0	0	0	9	Connects future collectors. No SLE. Bisects large auto recycling yard.
13858	Lewis Loop Ext N to W Hazel Ave Ext.	Minor Collector (NC)	0.891915315	1.279259378	3	1	3	1	1	0	0	0	0	9	Connects two future collectors
2216	W LITTLE JACK AVE	Minor Collector (NC)	1.756122152	8.526034073	1	1	3	1	1	0	0	0	0	7	Connects S Lewis Loop to local road
7326	W CINDY WAY	Minor Collector (NC)	1.99854415	3.300247645	1	1	3	1	1	0	0	0	0	7	Connects Lewis lool to new major collector Kimberly St

Note include Big Lake Comp Plan Transportation Map as appendix
 Note No projects from Houston Comp Plan in study area
 Note Knik Fairview Comp plan is from 1997. no projects identified in study area
 Note Meadow Lakes Comp Plan no projects in study area

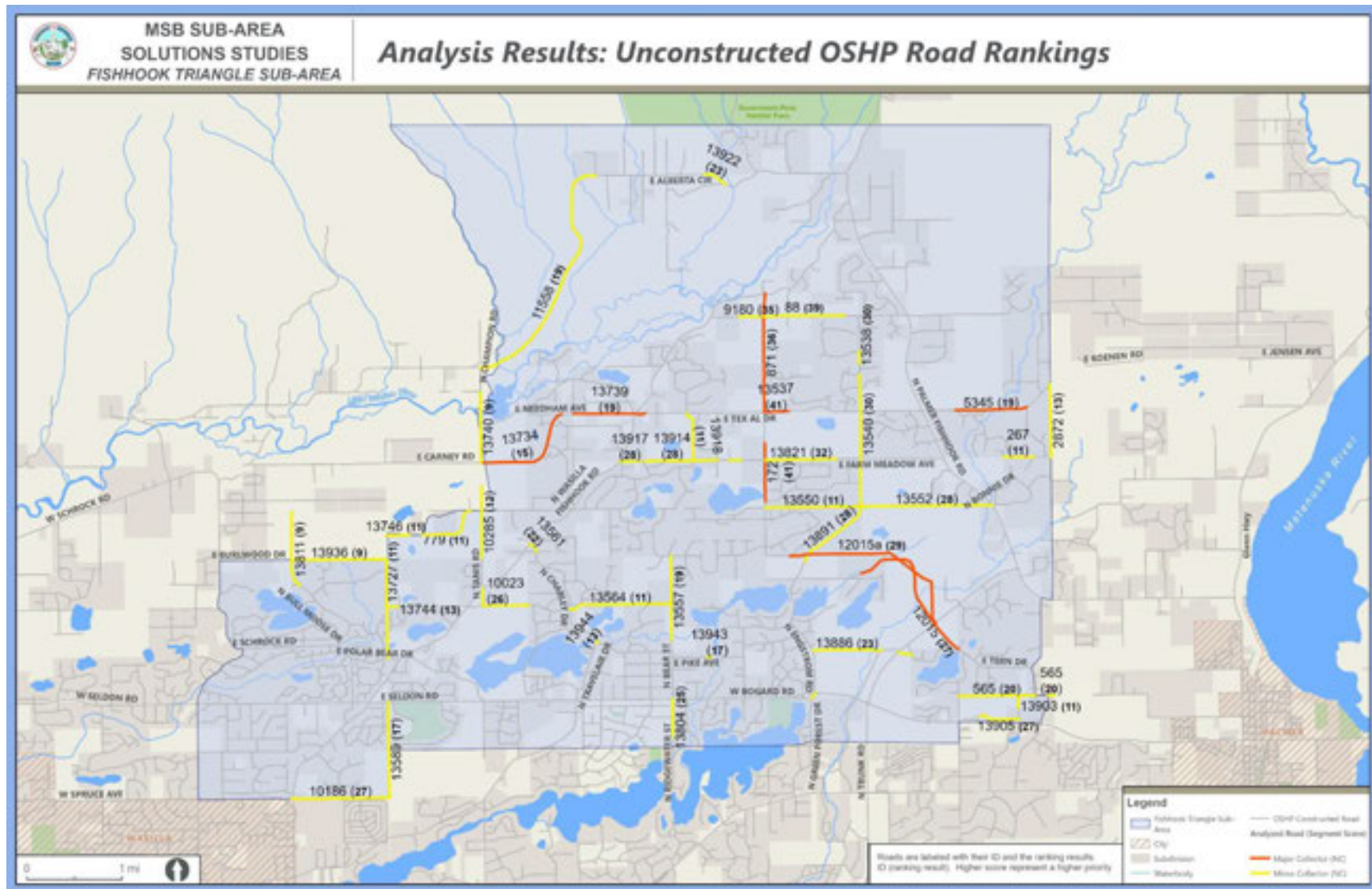
Draft OSHP Project Ranking: UMED

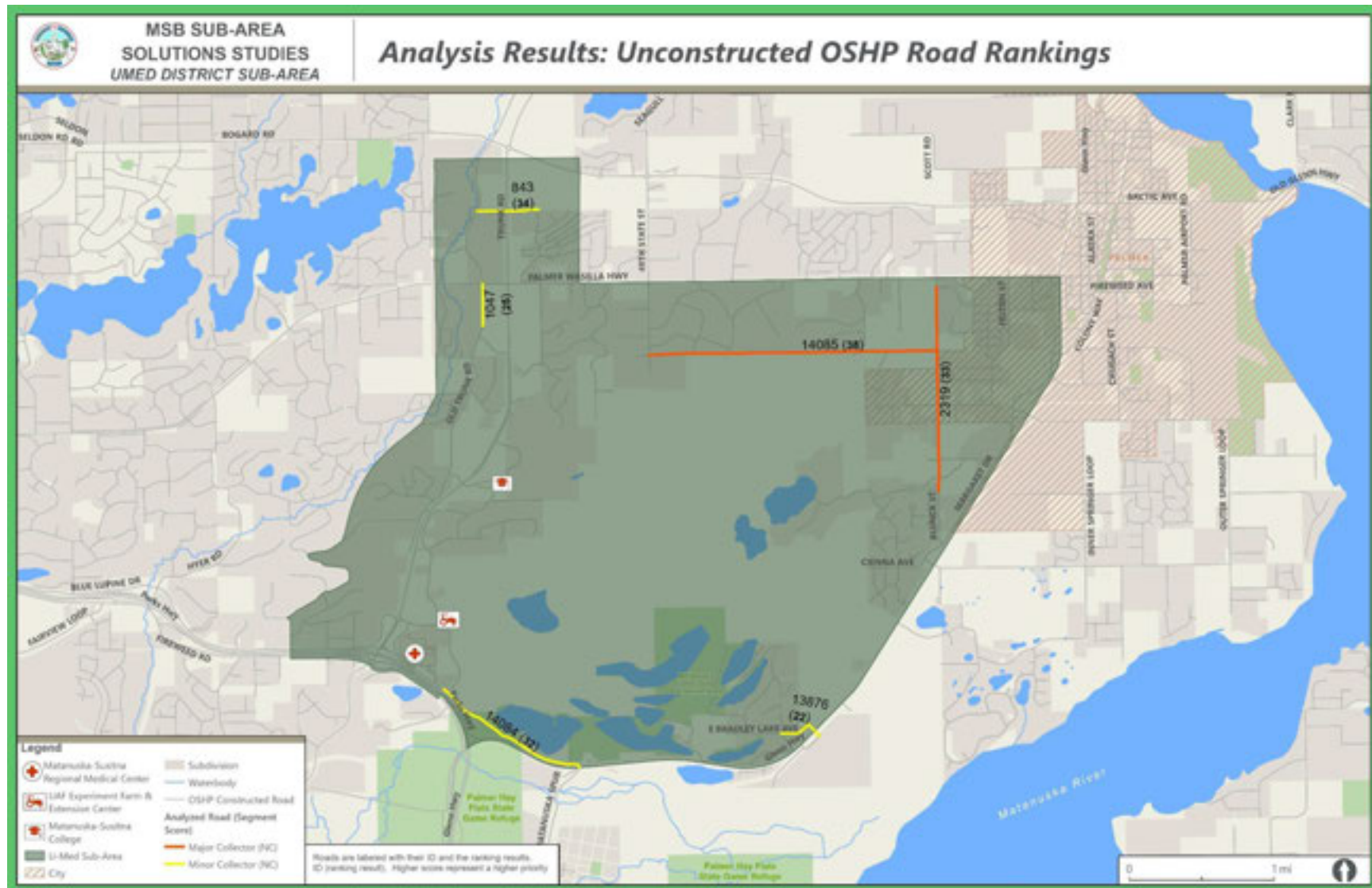
ID	Road Name or Description	Classification	Segment Length	Wetlands Acreage	Environmental Impact	Connectivity	Functional Classification	Population Growth	Safety	Mobility	Land Use	Quality of Life	Economic	Result	Notes
14085	Hemmer Extension France to 49th State Street	Major Collector (NC)	1.986769491	5.694741401	5	5	5	3	5	5	5	5	0	38	Not Wetlands but borders MSB properties; High voltage transmission line extending east 1 mile from 49th State Street/
2319	S BLUNCK ST/ South Hemmer Extension	Major Collector (NC)	1.404512125	N/A	5	5	5	3	5	5	5	0	0	33	In Palmer Comp Plan

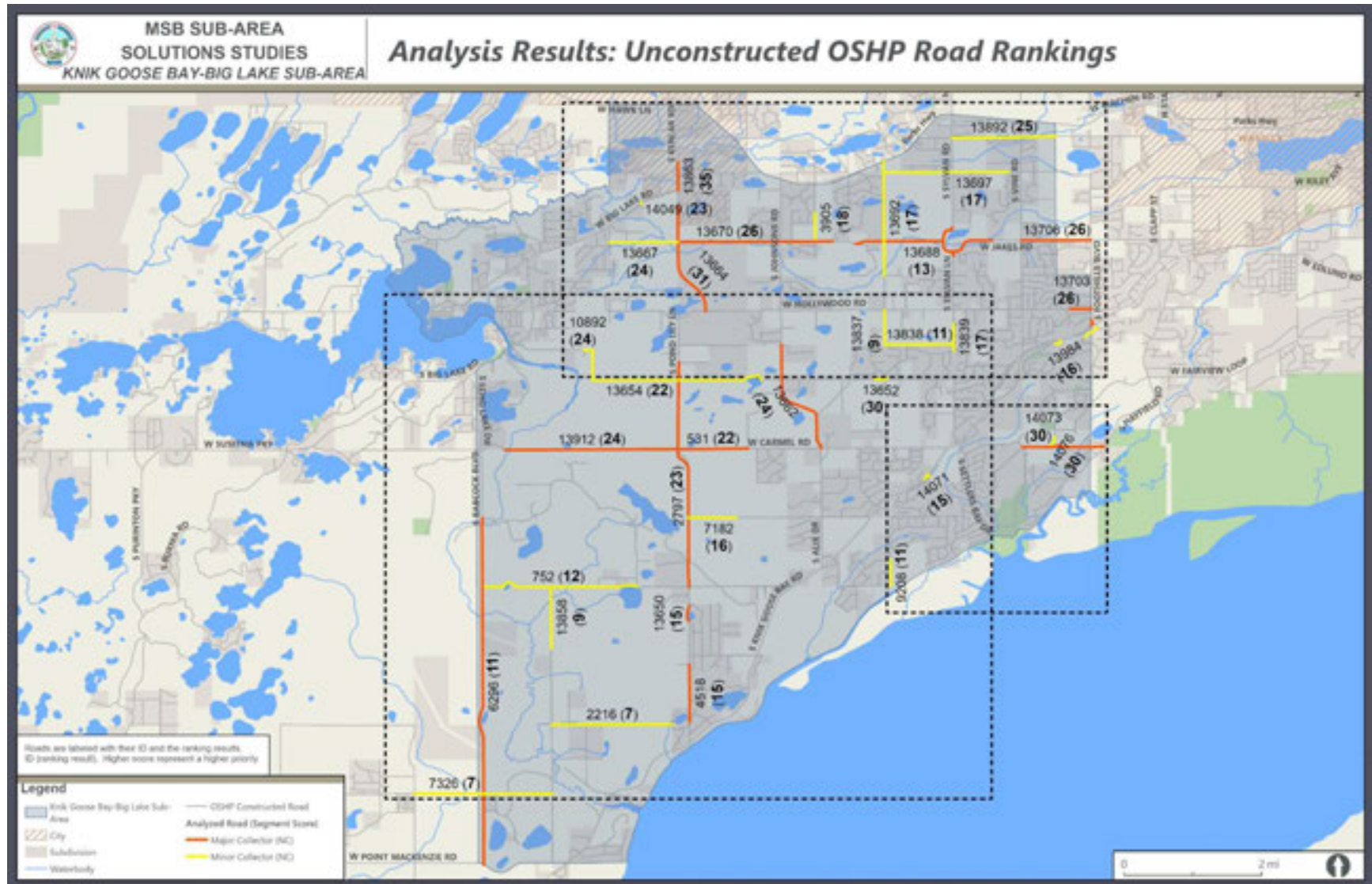
ID	Road Name or Description	Type	Segment Length	Wetlands Acreage	Environmental Impact	Connectivity	Functional Classification	Population Growth	Safety	Mobility	Land Use	Quality of Life	Economic	Result	Notes
843	E KATHERINE DR	Minor Collector (NC)	0.422771868	N/A	5	3	3	3	5	5	5	0	5	34	Funded between Trunk and Stringfield Roads
14084	Hospital Altenative Access: Glenn Highway to Georgeson	Minor Collector (NC)	1.114716668	0.200484384	5	3	3	1	0	5	5	5	5	32	Impacts State Park, 3 businesses and one resident. Perhaps look at a one way exit starting at the gravel pit.
1047	N OLD TRUNK RD	Minor Collector (NC)	0.286697274	N/A	5	3	3	1	3	0	5	0	5	25	Old road embankment still exists. Needs upgrading to current standards
13876	E Bradley Lake Road Ext.	Minor Collector (NC)	0.322749879	N/A	5	3	3	3	3	5	0	0	0	22	Provides better intersection with Glenn Hwy. Part of Glenn Highway project?



Attachment B: Results Maps







Attachment C: Evaluation Criteria Summary

Evaluation Criteria

The following is a description of the nine criteria used to evaluate the OSHP New Roads and how the scoring was applied for each criterion.

1. Environmental: Acres of Wetlands Impact

GIS mapping was used to determine wetlands areas within the three sub-areas. A GIS technician then calculated the area of wetlands impacted using an 80' wide right-of-way width for major collectors and a 60' right-of-way width for minor collectors. Points were allocated based on number of acres impacted:

- < than 1.0 acres 5 points
- 1.0 to 2.5 acres 3 points
- > 2.5 acres 1 point
- Roads with no wetlands impact are identified with a N/A and received 5 points

2. Connectivity

As background, the OSHP identified the lack of roadway connectivity within the borough as a major impediment to a well-functioning road network. The OSHP noted **the lack of connectivity is especially prevalent in the Fishhook Triangle and KGB/BL Sub-Areas**. To address connectivity within the sub-areas, HDR used the MSB 2022 Parcel Viewer [Matanuska-Susitna Borough | Parcel Viewer \(matsugov.us\)](https://matsugov.us/ParcelViewer) using 2022 imagery and its subdivision layer to assess how each road improves connectivity to score this criterion. An assessment was made to determine if the new road connected to arterials or other collectors. The parcel viewer's subdivision layer was used to determine if the roads connected large subdivisions or population areas to the arterial system. Connectivity points were allocated using the following parameters:

- Road segment provides connection between two arterials or a major collector and an arterial 5 points
- Road segment provides connection between two collector roads 3 points
- Connects large subdivisions/population area to arterial network 3 points
- Connects two future collectors 1 point

3. Functional Classification

Road segments were identified by the 2022 OSHP as either major collectors or minor collectors using Federal Highway Administration Criteria. Major and Minor Collectors fall in the mid-range of providing mobility and access. Local roads provide low mobility and high access. Arterials

provide high mobility and low access. Collector streets balance mobility with access; Major Collectors tip towards mobility, and Local Collectors tip toward access. No local roads were evaluated as part of the Community Growth Solutions Study. Points were allocated as follows:

- Major Collector 5 points
- Minor Collector 3 points

4. Population: Increase in Population Density by 2045

This criterion uses MSB 2045 projections of new population growth within the sub-areas by 2045. Upon consultation with MSB Planning staff, it was determined that the following scenario is the most appropriate for this analysis. This scenario assumes 70% infill in 2045 with a 20:1 ratio of residential to commercial of small parcels. Additionally, it assumes 70% infill by 2045 with a 20:1 ratio of residential to commercial development of 1.5 acre lots. Remaining parcels were assigned population weighted by acreage and 2013-2020 activity. This scenario results in a total new population growth of 40,600 residents.

Based on these assumptions, a GIS evaluation was conducted to assign scores to individual roads based on the level of increase in density new population growth. Points were allocated in the following manner:

- Access areas of projected high increase in new density by 2045 (> 250 people) 5 points
- Access areas of projected moderate increase in new density by 2045 (101-250 people) 3 points
- Access areas of projected low increase in new density by 2045 (0 -100 people) 1 point

5. Safety

Improving safety was a prime concern recognized by the 2022 OSHP. This analysis focused on providing alternative or secondary access to subdivisions that improve emergency response times and serve as improved alternative evacuation route during wildfire or other natural disasters. HDR again reviewed the 2022 Parcel Viewer to determine how the new road may improve access to existing subdivisions as well as the relative size of the subdivisions being accessed. Minor safety points were given if the safety improvement was dependent on the construction of two or more new roads. Points were allocated in the following manner:

- Provides new alternative access to large subdivisions or existing well-developed areas 5 points
- Provides new alternative access to small subdivisions or developing areas 3 points
- Provides minor safety improvement dependent on the construction of two or more new road connections 1 point

6. Mobility

The lack of connectivity creates mobility issues which can result in congestion. Within the framework of this evaluation, if a road segment helps to address an area of known congestion it received 5 points. If the segment did not appear to address known congestion it received no points. For example, any road segments that help address congestion issues at the Engstrom Road/Bogard Road intersection received points under this category. Points were allocated in the following manner:

- Provides congestion relief 5 points
- Does not address congestion 0 points

7. Land Use

Land use was considered based on whether the proposed road segment is contained in an adopted comprehensive plan. HDR reviewed all adopted community comprehensive plans and within the three sub-areas and the MSB Core Area Plan to determine which projects were identified within these plans. If a road is identified in a plan, it received points. No points were assigned if the road was not included in a plan. Additionally, if a road improved transportation within a ½ mile radius of a school, college, EMS/Fire, or a hospital it also received points. Where a road was identified both in a plan and was within a ½ mile of one of these facilities it received a maximum of 5 points. Maps were prepared showing existing facilities in each sub-area that are within a ½ mile radius to aid in the evaluation. Points were allocated in the following manner:

- Road segment in adopted Comprehensive Plan 5 points
- Road segment within ½ mile of identified facility 5 points

8. Quality of Life

The Matanuska-Susitna Borough is known for its beauty, recreation opportunities, and being a great place to live, work, and play. Points were awarded if the road either improved direct access to these recreation facilities or if internal connections were improved to provide access to a higher functioning road that provides access to the recreation facility. Points were allocated in the following manner:

- If the new road improved access to major recreation facilities such as Hatcher Pass, Government Peak Recreation Area, Alcantra Recreation Facilities, Skeetawk Ski Area, Matanuska Greenbelts, Big Lake, State Parks, or the Matanuska Moose Range, or other significant recreation facilities it received 3 points.

9. Economic Impact

Transportation projects in general have a positive economic impact. Any road project that improves the flow of goods and services positively impacts the local and regional economy. Good paying jobs related to the planning, design, construction, and maintenance of new roadways also provide temporary positive economic benefits.



A major component of the Study is the identification of development nodes that foster economic growth and employment within the MSB. The Study identified a total of eight number of potential development nodes within the various sub-areas. Points were awarded if the road either improved direct access to these nodes or if internal connections were improved to provide access to a higher functioning road that provides access to the node.

- Improves access to proposed Study Development Node. 5 points

DRAFT - Study Road Ranking Criteria
May 4, 2023

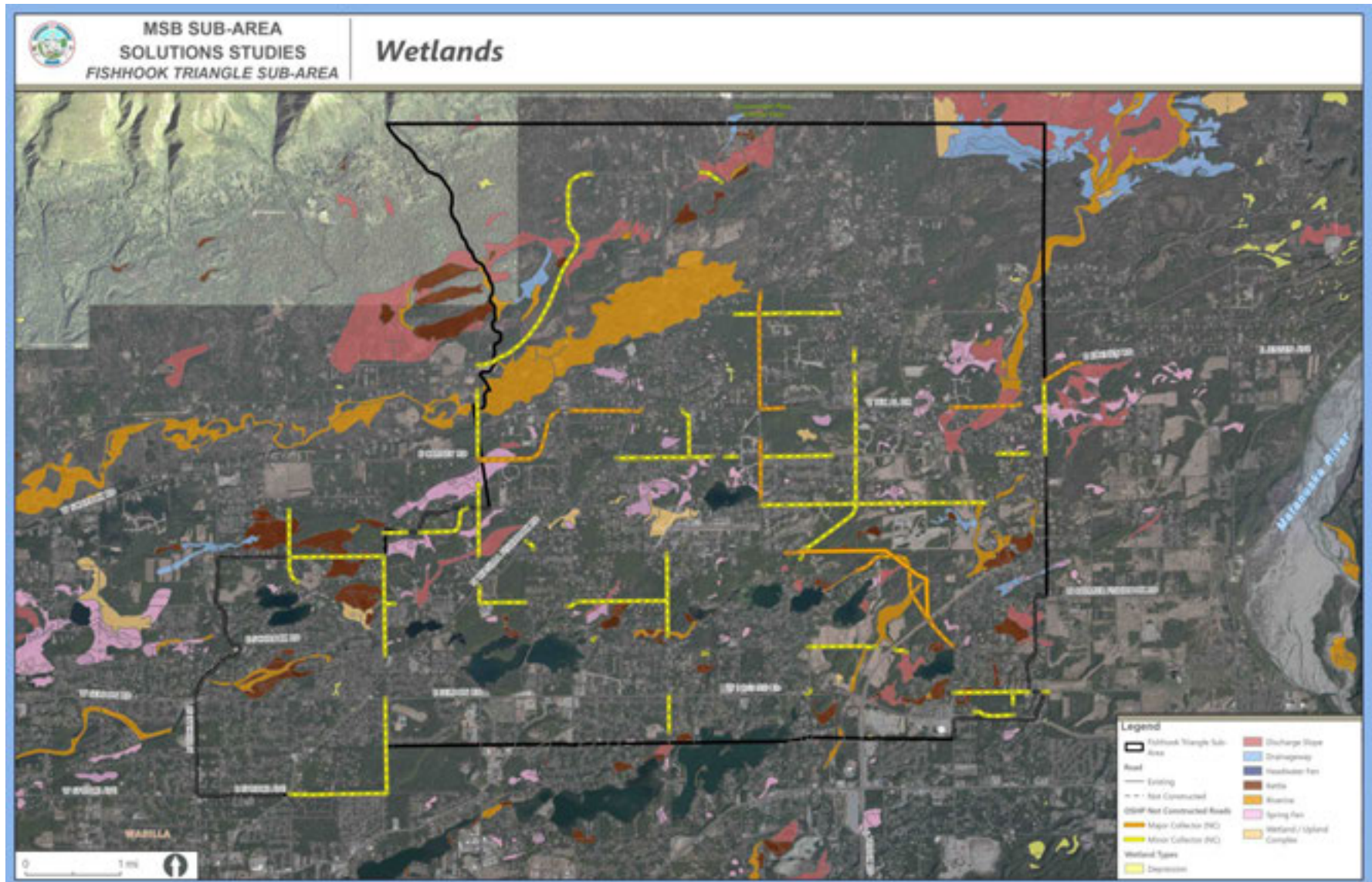
Criteria	Score
Environmental: Acres of Impacted Wetlands	
<1.0 acres	5
1.0-2.5acres	3
>2.5 acres	1
Connectivity	
Provides collector connection between two arterials or a Major Collector and Arterial	5
Provides connection between two collector roads	3
Connects large subdivisions/population areas to arterial network	3
Connects two future collectors	1
Functional Classification	
Major Collector	5
Minor Collector	3
Population: Increase in Population Density by 2045	
High Increase	5
Moderate Increase	3
Low Increase	1
Safety	
Provides new alternative access to large subdivisions or existing well-developed area	5
Provide new alternative access to small subdivisions or developing areas	3
Provides minor safety improvement. Dependent on the construction of two or more new road connections.	1
Mobility	
Provides Existing Congestion Relief	5
Land Use	
Project recommended in adopted land use plan	5
Within 0.5 miles of a school, college, or EMS/Fire/Hospital	5
Quality of life	

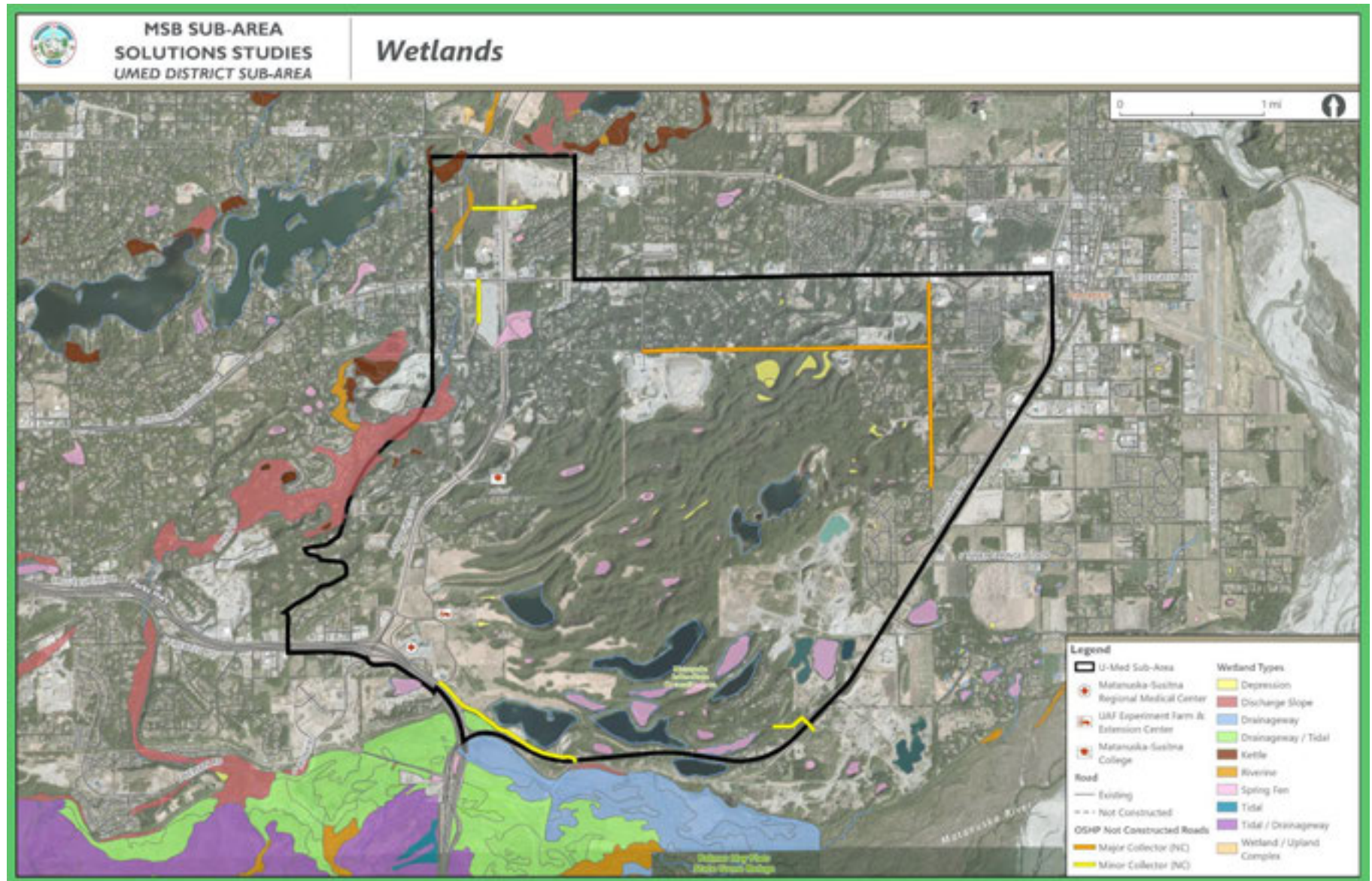


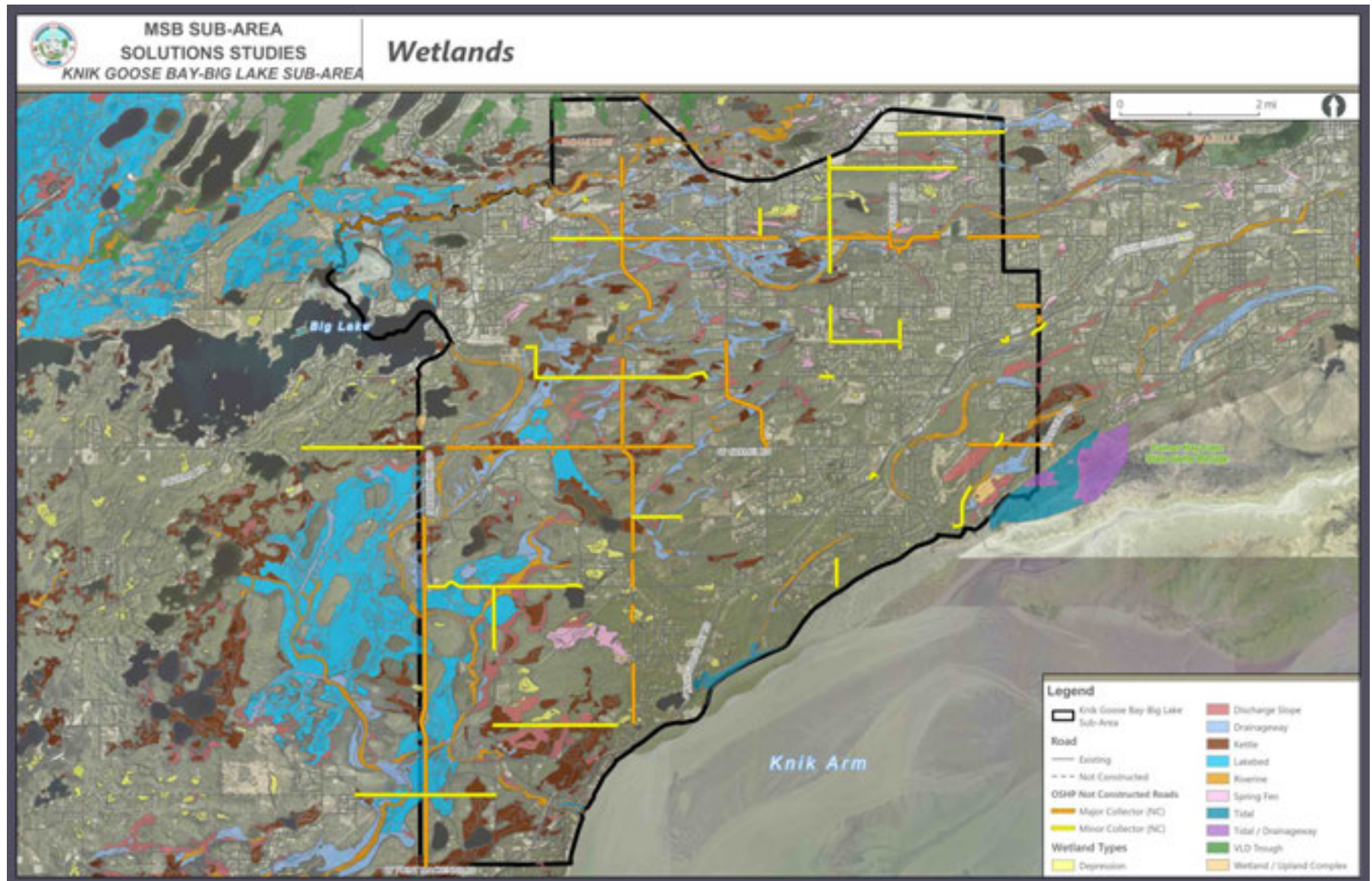
Criteria	Score
Environmental: Acres of Impacted Wetlands	
<1.0 acres	5
1.0-2.5 acres	3
>2.5 acres	1
Improves access to major recreational facilities including by not limited to Hatcher Pass, Government Peak Recreations Area, Alcantra Recreation Facility, Skeetawk Ski Area, Matanuska Green Belt, Big Lake, State Parks, or Matanuska Valley Moose Range.	3
Economic Impact	
Improves access to proposed Study development node	5



Attachment D: Wetlands Maps

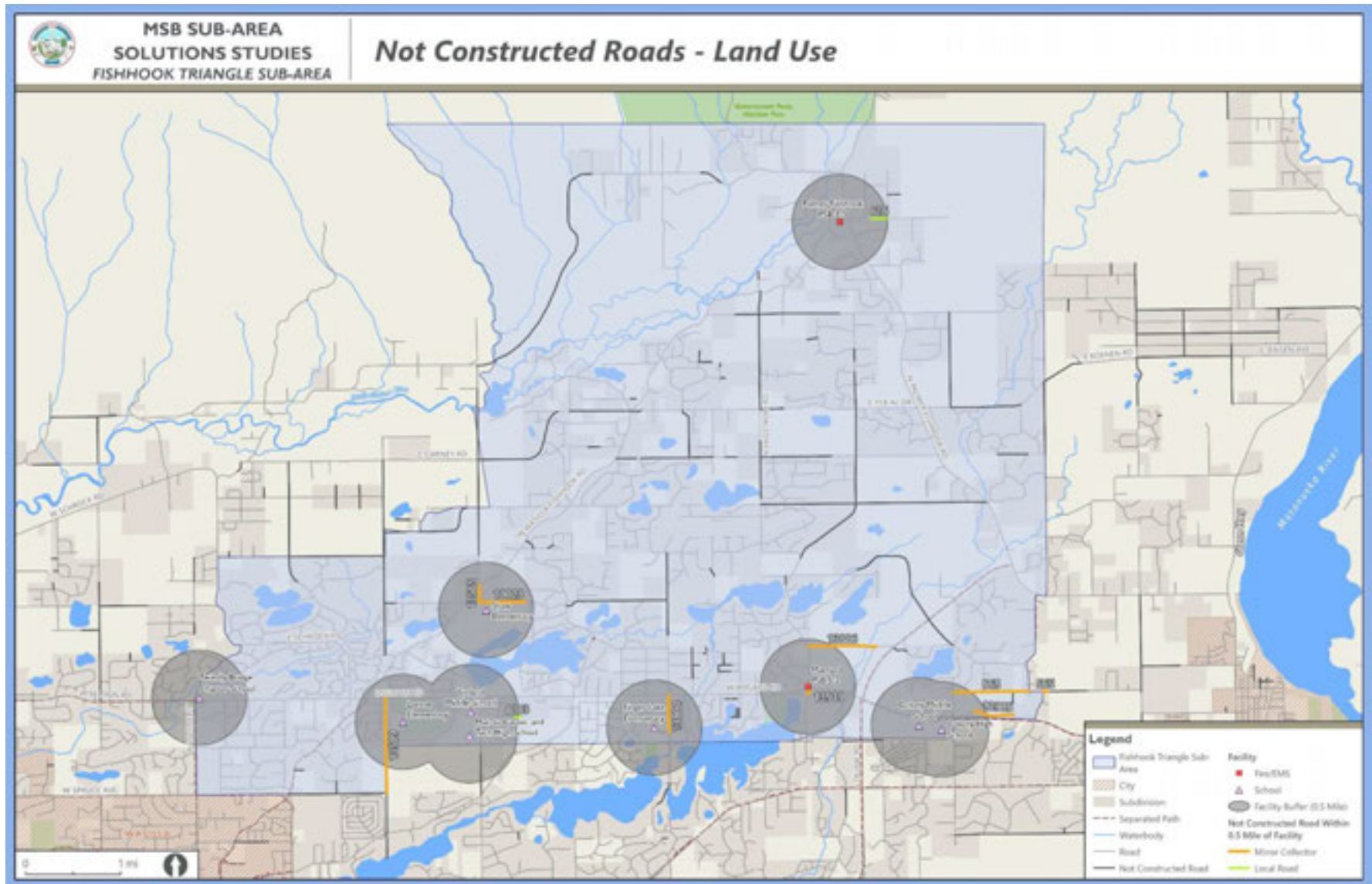


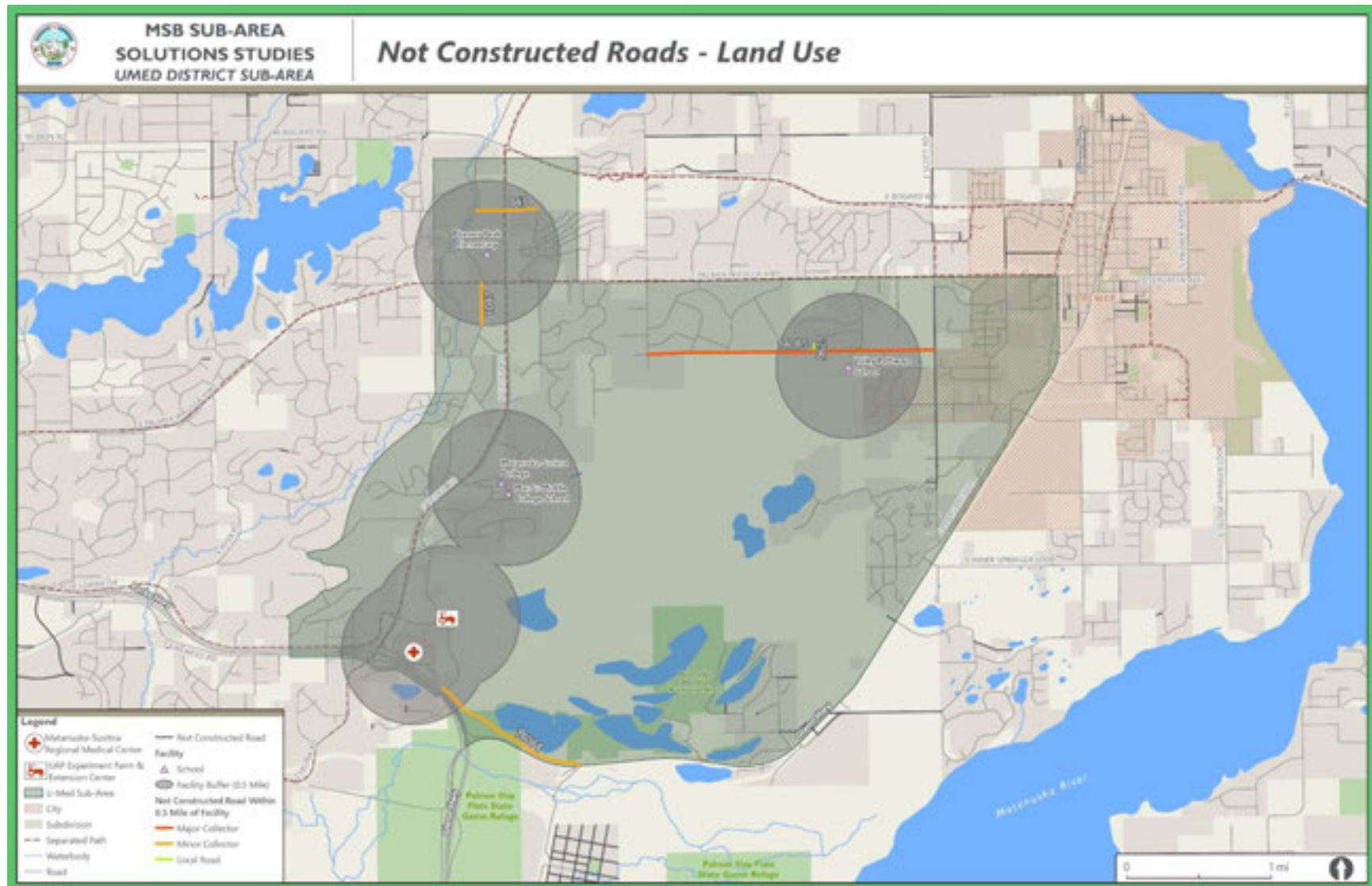


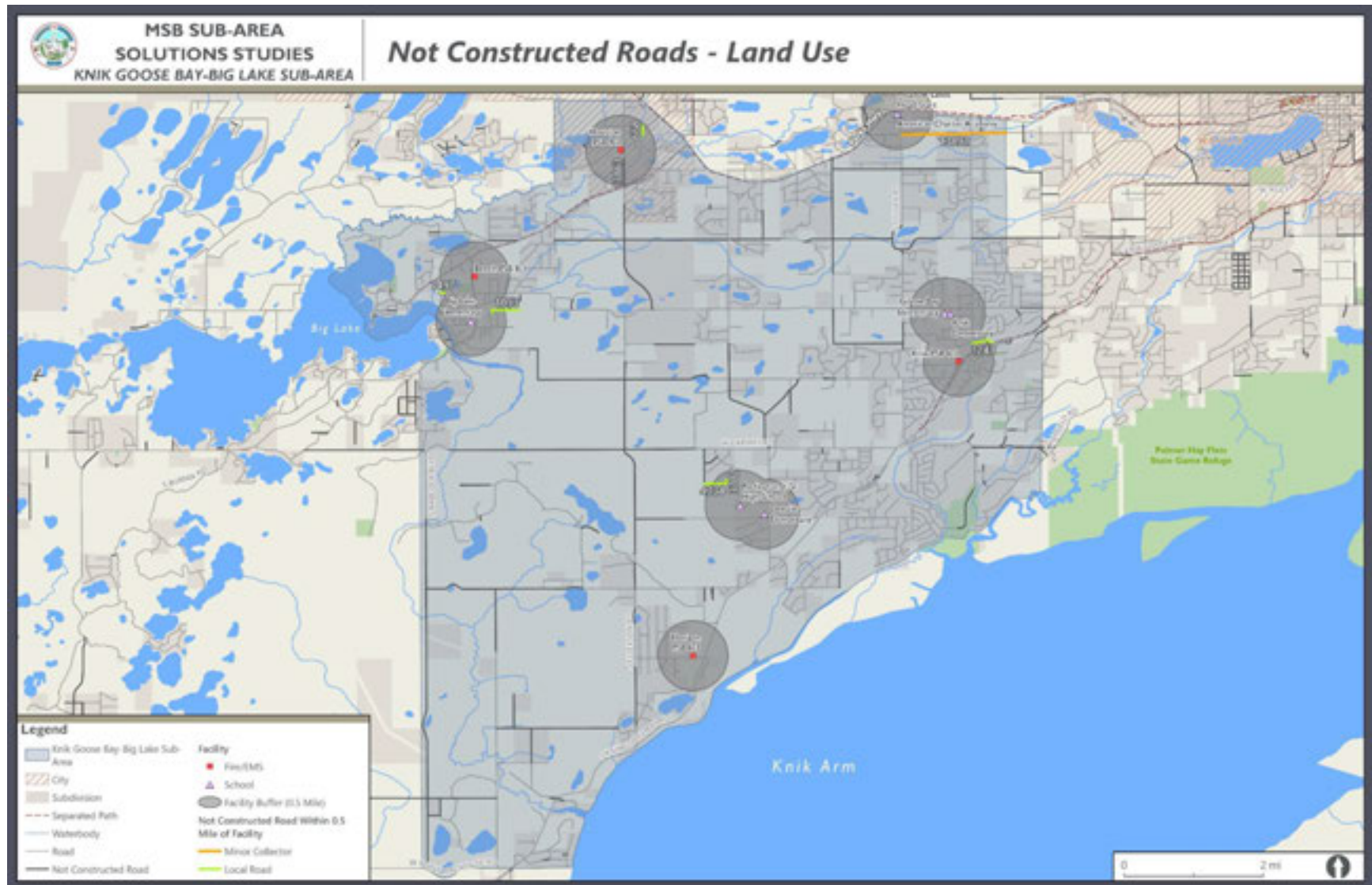




Attachment E: Land Use









Attachment F: Development Node Map

