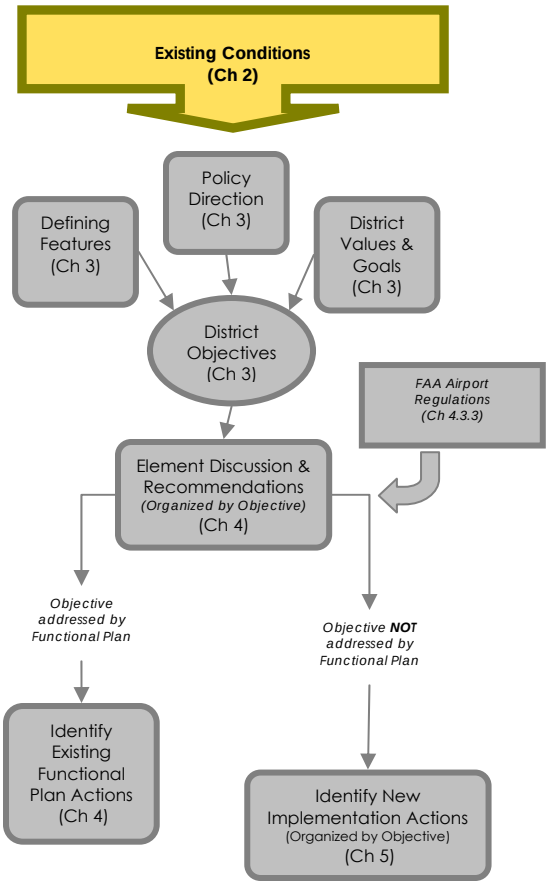
2.0 EXISTING CONDITIONS



This chapter presents an overview of the physical, land use, and socioeconomic characteristics that define West Anchorage. These existing conditions provide baseline information about the planning area, framing the context for planning and decision making. An overview is provided for demographics, economics and housing; land use; infrastructure and public services; transportation; conditions at TSAIA; recreation and open space; and the natural environment.

This chapter was excerpted from the West Anchorage Baseline Profile, which is available on the MOA Community Development Department's Planning Division website.

2.1 Demographics, Economics, and Housing

2.1.1 Population

The Anchorage Bowl population was estimated to be 240,300 in 2010,[1] with a projected average annual population growth rate of 0.8% from 2010-2030.[2] This would increase the population of the Anchorage Bowl to a total of 283,700 residents (240,300 + 43,400) by the year 2030. Of this total, approximately 44,000 people (or about 16.0% of the Bowl population) in the Sand Lake, Spenard, and Turnagain Community Council areas call West Anchorage home.

[1] The 2010 Decennial US Census Data
[2] Base case growth rate estimate from the Institute of Economic and Social Research (ISER), 2009. "Economic and Demographic Projections for Alaska 2010-2035" Table II.1. This is a slower growth rate than the 1.6% estimate by ISER during the writing of *Anchorage 2020*.

2.1.2 Age and Race

West Anchorage roughly mirrors the age distribution and racial characteristics found across the Bowl. West Anchorage contains a greater distribution of 15-64 year olds (70.0%) than the Bowl average of 63%, and fewer racial minorities comprising the overall population (28%) than the Bowl average of 30%. Key ethnic distinctions for West Anchorage include a slightly higher percentage of Black/African American residents (6% compared to 3% for the Bowl) and Asian residents (9% compared to 8% for the Bowl).

Within West Anchorage, there are some noteworthy age distribution statistics that reveal unique characteristics about the major community council areas as follows:

- Sand Lake contains the higher percentage of school-age residents (22% of total population);
- Spenard contains the higher percentage of young adults (16% of total population); and
- Turnagain contains the higher percentage of baby boomers[3] and seniors (36% and 8% respectively of total population).

Anchorage School District (ASD) enrollment data reveal the growing trend toward higher minority student populations with an important milestone reached in 2008. For the first time, more than half the citywide ASD student population consisted of ethnic minorities. In West Anchorage, five of ten elementary schools (Campbell, Lake Hood, Northwood, Sand Lake, and Willow Crest) exceed 50% "minority" populations. Willow Crest is the highest at 75%.

2.1.3 Economy

The Bowl's highest employment concentrations are found in the Downtown and Midtown business districts. Employment centers in West Anchorage include the TSAIA complex and the Spenard Road commercial corridor.

Direct employment at TSAIA in 2007 was 10,222 annual average full-time equivalent jobs generating an annual payroll of $562 million. The indirect economic impact is the equivalent of one in eight jobs in Anchorage and a total contribution of $850 million annual payroll.[4]

The average unemployment rates for Anchorage declined steadily from 6.3% in 2003 to 5.0% in 2007. The rate went up to 5.3% in 2008 and the rate was higher in the final 2009 calculations, due to the global economic downturn. The Alaska Economic Development Corporation predicts employment increases in the trade and health care sectors; these require office space and health service facilities. Public construction projects should remain strong, including projects at TSAIA, which should help the city's construction industry remain stable. However, the air transportation and leisure and hospitality sectors are the first to experience employment loss during times of recession.

[3] The post-WWII "baby boom" is generally acknowledged as persons born between 1946 and 1964.
[4] Institute of Social and Economic Research, 2007. "Ted Stevens Anchorage International Airport: Economic Significance"

2.1.4 Housing

Home ownership rates in West Anchorage are equivalent to those within the larger Bowl (58%). Spenard contains the highest concentration of renters (63%) and highest vacancy rate (8%) of the three community council areas. Housing density is relatively low in the Bowl, exceeding 10 dwelling units in only a few areas. By comparison, the neighborhoods around the north end of Spenard Road, Northern Lights Boulevard, and Minnesota Drive have some of the highest housing densities in the Bowl.

Table 2.1-1 demonstrates the current number of housing units in West Anchorage and the number of new units that could be constructed under existing zoning conditions.

Table 2.1-1
Housing Units in West Anchorage

Zoning Districts with Housing	Existing Housing	New Housing [a]	Total Housing
Residential			
Single-family	7,864	485	
Two-family	3,654	437	
Multi-family [b]	6,073	220	
Commercial	74	-	
Industrial	11	-	
Institutional	15	-	
TOTAL	**17,691**	**1,142**	**18,833**

Source: MOA, 2009

[a] The number of additional new residential units that could be built if parcels are built-out to their allowed density according to current zoning.

[b] Multi-family designation includes three or more units and mobile home parks.

NOTE: Data from adjusted planning boundary northeast of Spenard Road is not included.

Anchorage 2020 addressed the need to accommodate future population growth in subareas of the Bowl. The northwest part of the Bowl (Spenard and Turnagain) has the opportunity to create a certain number of new housing units, even without zoning changes. At the time *Anchorage 2020* was written, the southwest area of the Bowl (Sand Lake) had large undeveloped tracts of land, which provided a strong base of new housing units to accommodate growth in that section. Given population projections at the time and existing zoning, *Anchorage 2020* predicted that new growth could be generally accommodated with the existing disposition of vacant residential land, except in the northwest section of the Bowl. For the West Anchorage District planning area, accommodating population growth would require strategically located areas of increased residential densities and full build-out to maximum densities on remaining vacant lands. These were to be located within certain of the *Anchorage 2020* land use policy areas, including along transit corridors, around neighborhood commercial centers, and the two designated town centers. Growth allocations in these specific sections of West Anchorage, along with redevelopment potential sites with increased densities were to have made up any shortfalls in providing for population increases.

2.2 Land Use

2.2.1 Existing West Anchorage Land Use

The most prevalent land uses in West Anchorage are, in order of area: (1) aviation (TSAIA), (2) residential, (3) public recreation (e.g., Kincaid Park), and (4) transportation (railroad, streets). Much of West Anchorage is already built-out, with only 6.0% of non-airport lands remaining vacant. Table 2.2-1 and Exhibit 2-1 display the amount and location of existing land uses.

Table 2.2-1 Existing Land Use in West Anchorage

Land Use	Area (acres)	Percent of Total Area	Housing (units)
Residential - Total	2,844	22.0%	17,482
▪ Single-family	2,153	16.0%	7,866
▪ Two-family	373	3.0%	3,393
▪ Multi-family [a]	318	3.0%	6,223
Commercial	376	2.5%	74
Industrial	476	3.0%	11
Institutional [b]	580	4.0%	15
Park and Open Space	2,404	17.0%	0
Railroad and ROW [c]	1,497	11.0%	0
Vacant	806	6.0%	0
Waterbodies [d]	227	1.5%	0
TSAIA [e]	4,607	33.0%	0
TOTAL	**13,817**	**100.0%**	**17,691**

Source: MOA, 2009 Existing Land Use Study

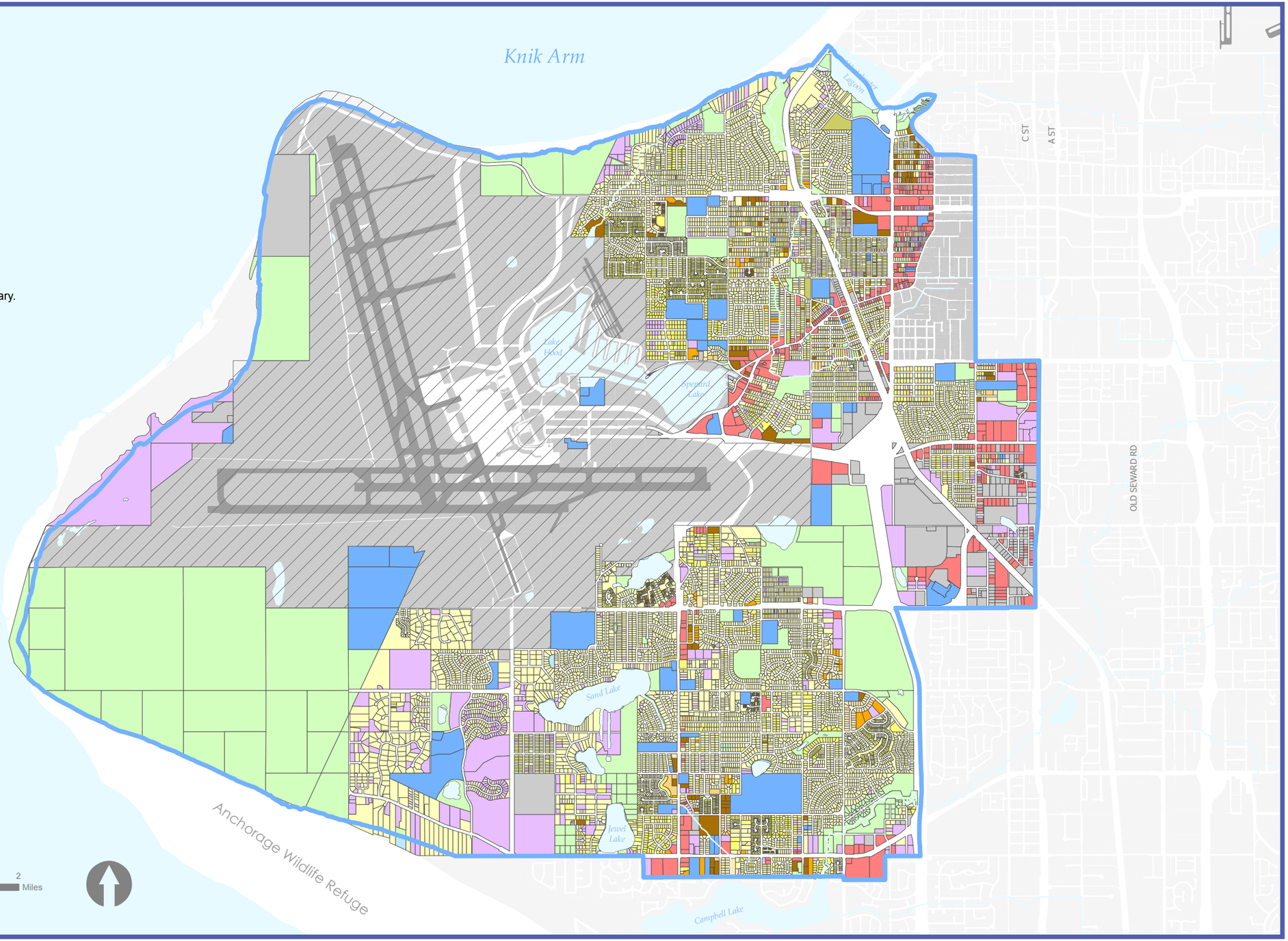
[a] Multi-family designation includes 3 or more units and mobile home parks.
[b] Excludes uses within TSAIA property.
[c] Subject to geo-database model coverage limitations.
[d] Excludes sizeable tidal areas under state jurisdiction.
[e] See Table 2-3 for breakdown of uses within TSAIA property.
NOTE: Data from adjusted planning boundary northeast of Spenard Road is not included.

Existing Land Use

- Single Family
- Two Family
- 3 or 4 Units
- 5 or 6 Units
- 7 or 8 Units
- 9 or More Units
- Commercial
- Mobile Home Park
- Industrial
- Institutional
- Parks/Open Space
- Water/Tidelands
- Transportation Related
- Vacant
- RR/ROW
- TSAIA Property

Legend

Note:
See Exhibit 2-2 for existing land uses within the TSAIA boundary.



Source: Municipality of Anchorage

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TSAIA property accounts for roughly 33.0% of the total planning area. Within the airport, the airfield (e.g., runways, taxiways, etc.) occupies the largest land area (just over 1,500 acres). By comparison, the passenger terminal complex, air cargo/aircraft maintenance facilities, and Lake Hood seaplane base combine at around 1,000 acres. Of the 140 acres reserved for future airport development, most are vacant and/or temporarily used for recreation at the airport's discretion. The amount and location of existing land use on airport property is displayed in Table 2.2-2 and Exhibit 2-2.

Table 2.2-2
Existing Land Use at TSAIA

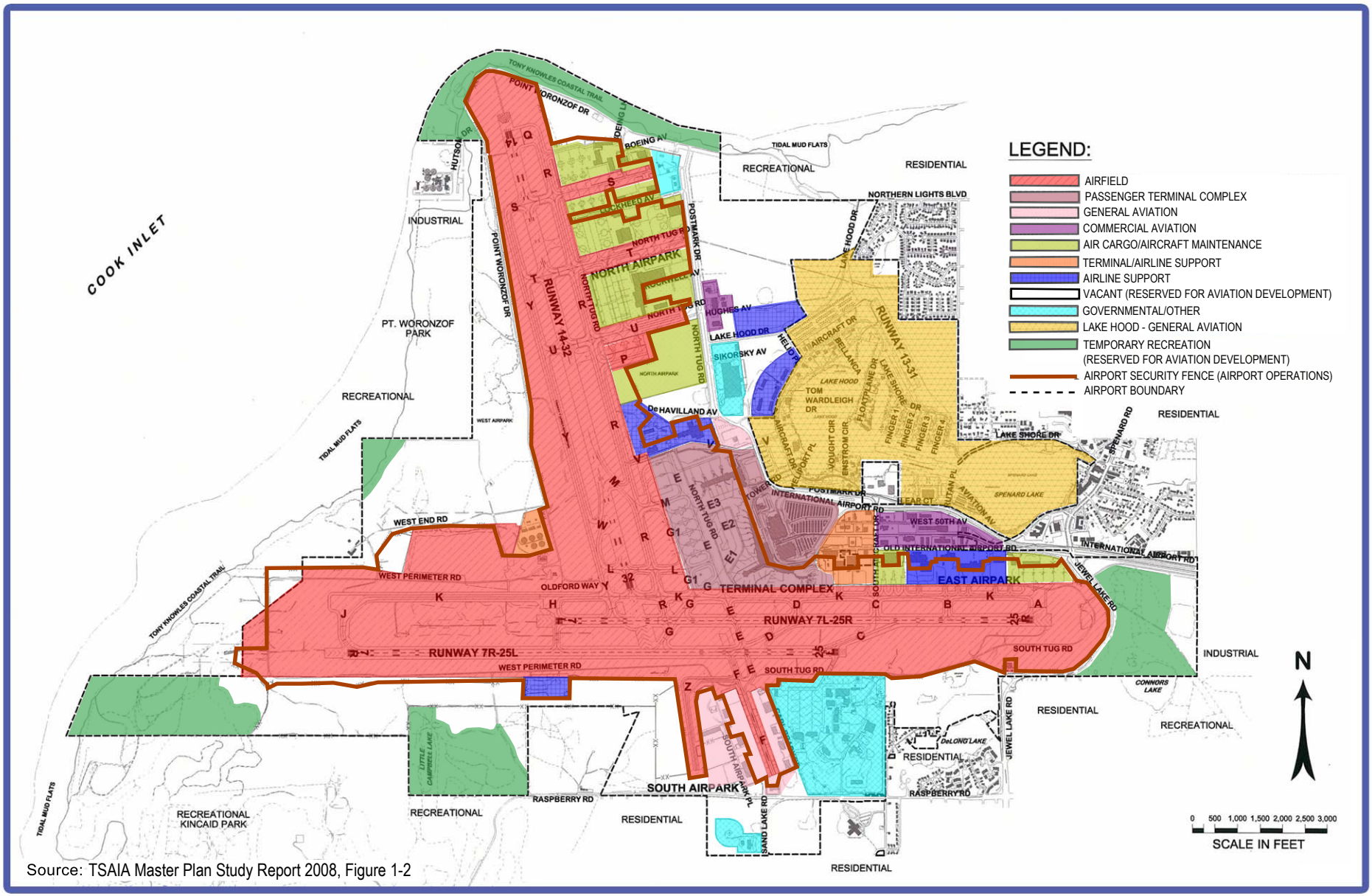
TSAIA Land Use	Area (acres)	Percent of Total Area
Airfield	1,564	34%
Passenger Terminal Complex	228	5%
General Aviation	9	<1%
Commercial Aviation	55	1%
Air Cargo/Aircraft Maintenance	253	5%
Terminal/Airline Support	93	2%
Airport Support	80	2%
Aviation-related Commercial	60	1%
Governmental/Other	163	4%
Reserved for Future Airport Development [a]	1,407	31%
Lake Hood – General Aviation	520	11%
Other (including Tidal/Water and Roadways/ROW)	177	4%
TOTAL	**4,607**	**100%**

Source: TSAIA Draft Master Plan Update, 2009

[a] Includes airport land that is undeveloped or used for recreation under interim maintenance agreement (e.g., portions of the Tony Knowles Coastal Trail, Little Campbell Lake, and Connors Lake, among others).

NOTE: Data from adjusted planning boundary northeast of Spenard Road is not included.

Exhibits 2-2a and 2-2b show the planned future development for the airport.



Source: TSAIA Master Plan Study Report 2008, Figure 1-2

Exhibit 2-2: Existing TSAIA Land Use

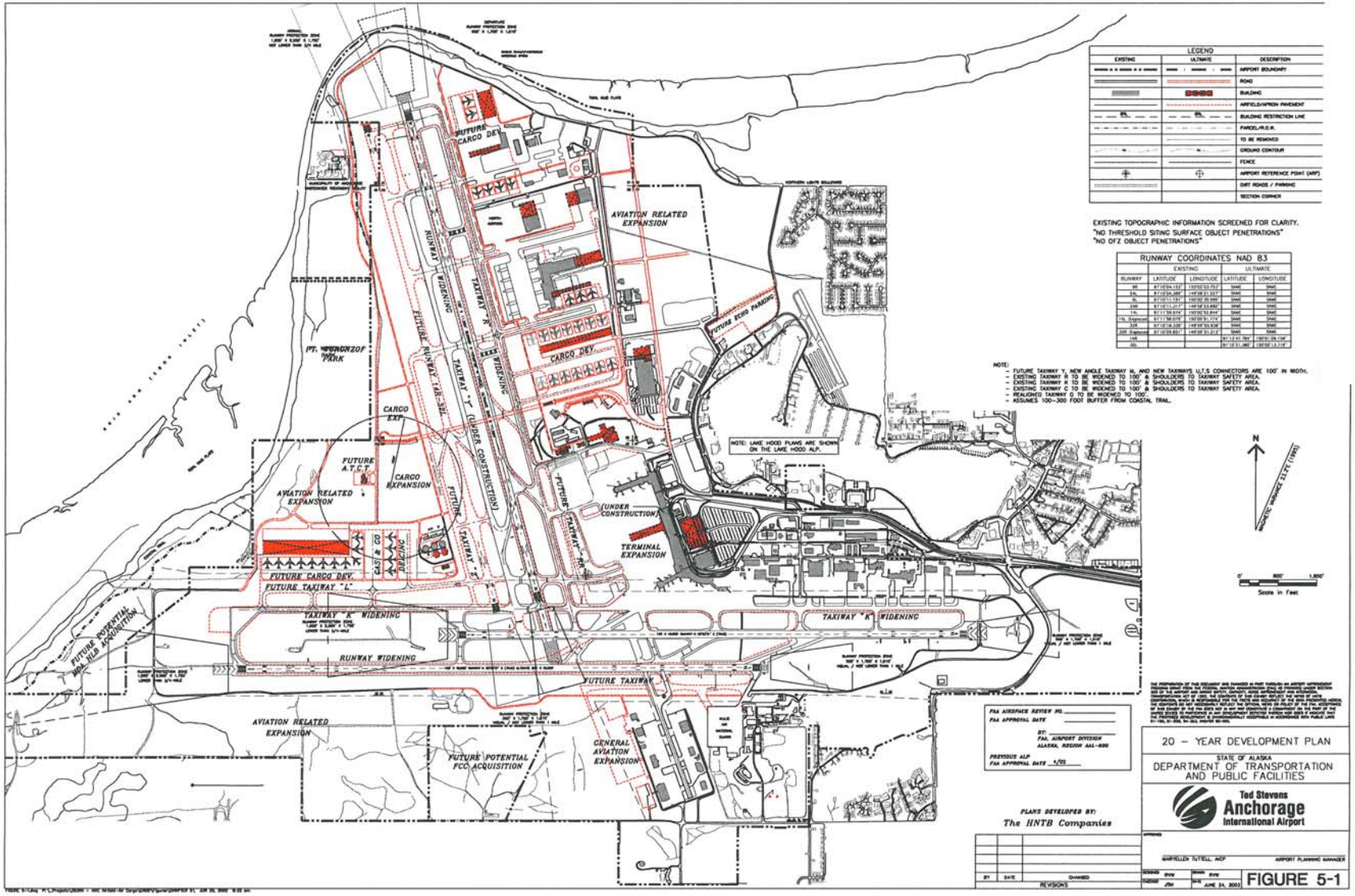


Exhibit 2-2a: Future Build-out of TSAIA

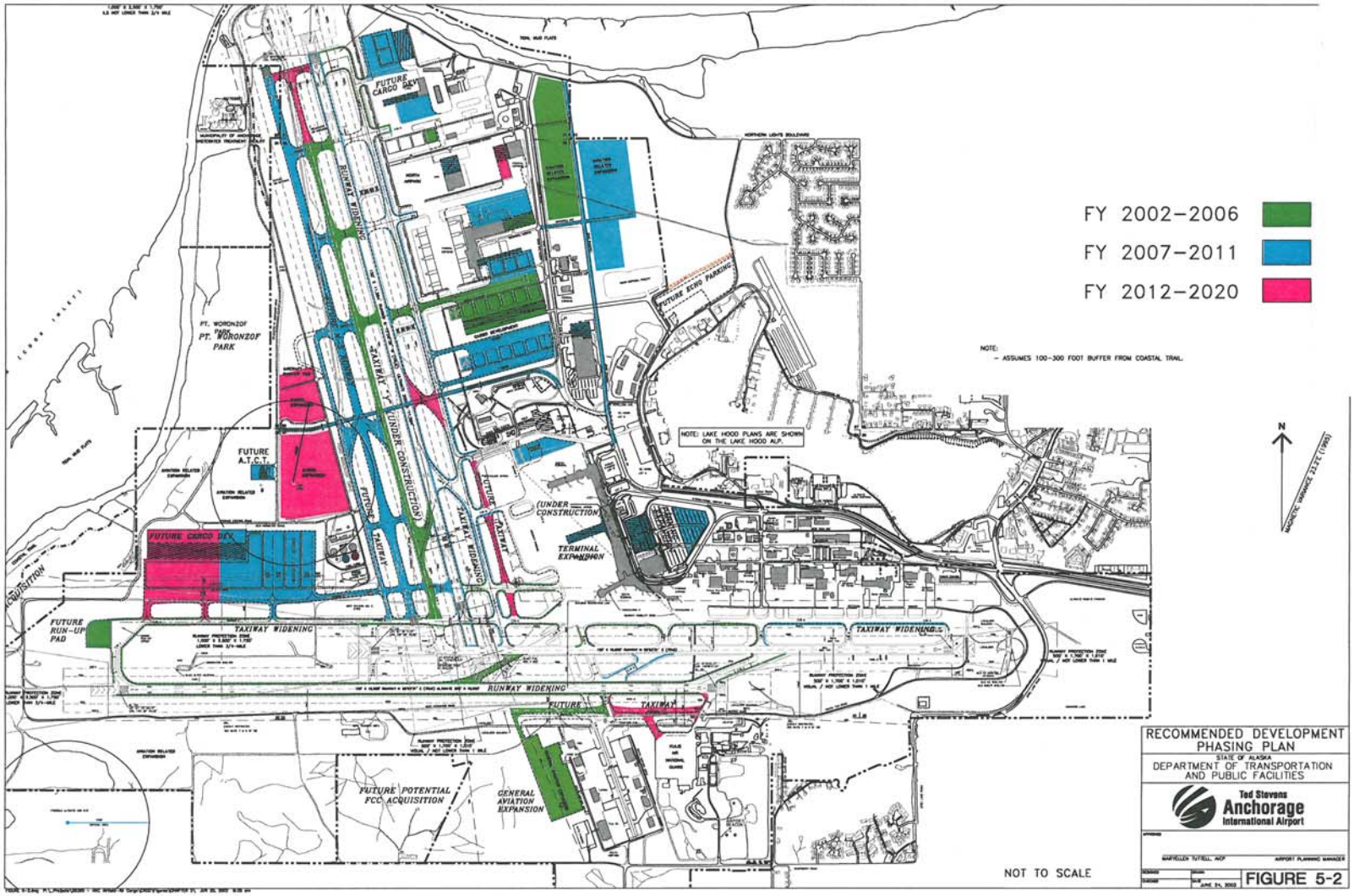


Exhibit 2-2b: Future Build-out Phasing of TSAIA

2.2.2 Existing West Anchorage Zoning

West Anchorage includes various zoning districts that are defined and regulated by Title 21, the Anchorage Land Use Planning Code. Zoning defines the allowable uses, development standards and design guidelines that determine how a given property can be developed. The amount and location of West Anchorage's zoning districts are shown in Table 2.2-3 and Exhibit 2-3.

Table 2.2-3
Existing Zoning in West Anchorage

Zoning Category	WADP (acres)	Percent of Total Area
MOA Lands		
Residential (R)	5,039	37.0%
Commercial (B)	356	2.5%
Industrial (I)	793	6.0%
Transition (T)	392	2.5%
Public Lands & Institutions, including parks (PLI, PLI-p) [a]	2,630	19.0%
Airport Lands		
Air Transportation-related (Various)	4,607	33.0%
TOTAL - MOA and Airport	**13,817**	100.0%

Source: MOA
[a] Includes MOA/HLB- and state-owned lands, parks.
NOTE: Data from adjusted planning boundary northeast of Spenard Road is not included.

There has been discussion between the MOA Community Development Department and TSAIA staff on the formation and details of a new airport zoning district covering the entire TSAIA property. A "zoning overlay height district" already exists in Title 21, which limits the height of structures directly adjacent to the airport for safety reasons. This height restriction relates to FAA regulations.

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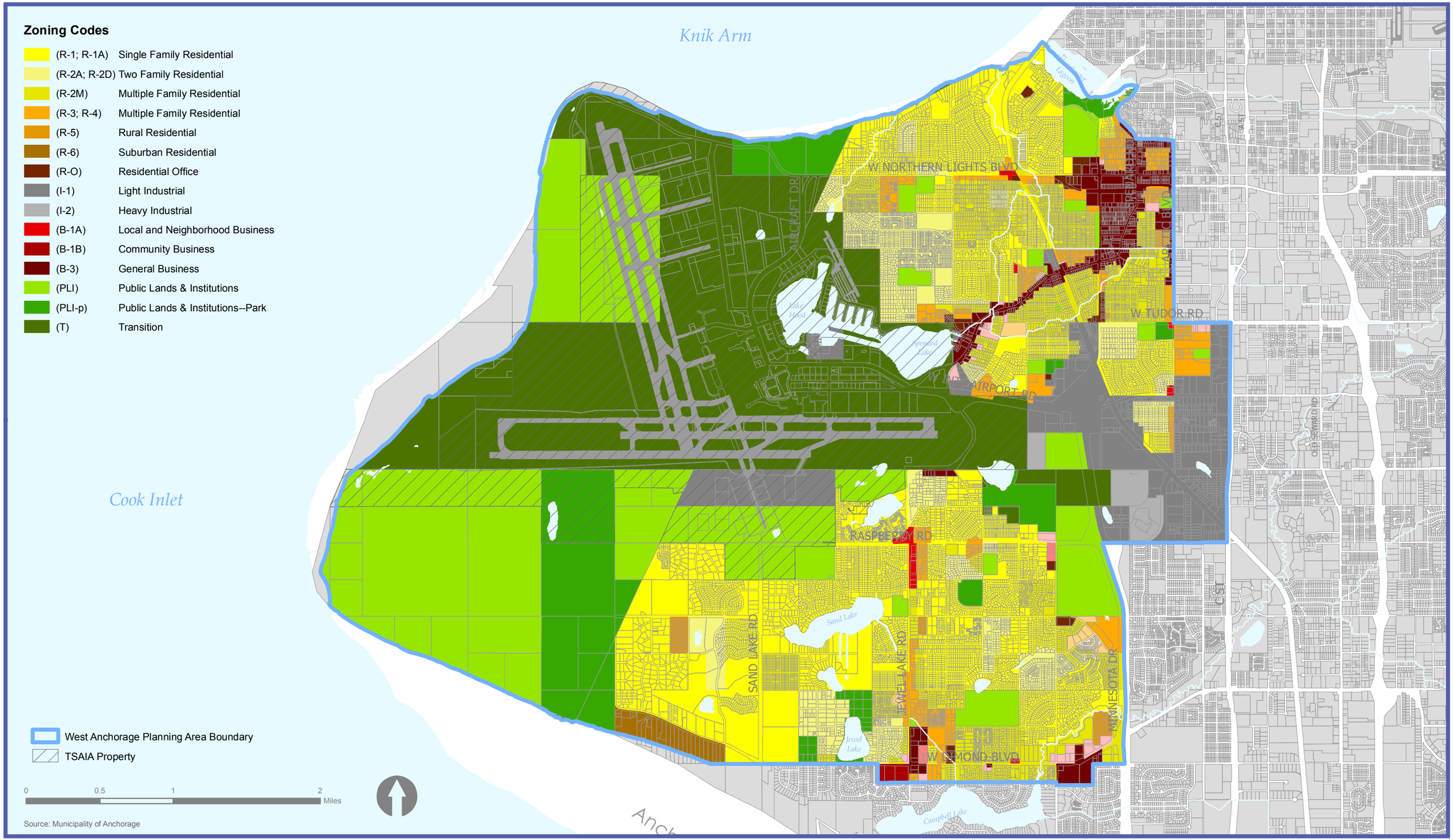

West Anchorage District Plan

Exhibit 2-3: Existing West Anchorage Zoning

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2.2.3 Development Trends

As mentioned earlier, much of West Anchorage is already developed. New development will focus on the few remaining vacant land holdings, which are mostly located at the TSAIA and the Sand Lake gravel pits. Older, underutilized areas of Spenard have also attracted redevelopment with new and more intense uses. In particular, the following area characteristics are noteworthy:

Spenard Hotel Area – The southern end of Spenard Road near International Airport Road has shown a gradual increase in commercial development of vacant or underdeveloped parcels in response to visitor demand and redevelopment efforts initiated by the MOA in the mid 1980s. This has led to the development of hotels and related retail services unified by a pedestrian-friendly streetscape.

Spenard Commercial Renewal – The emergence of a diverse mix of entertainment, service, and boutique-style stores—bounded by Spenard Road, Benson/West Northern Lights Boulevard, and Minnesota Drive—is an exciting trend that could serve as a catalyst for further revitalization of the surrounding area.

Sand Lake Gravel Pits Residential Subdivisions – As Anchorage continues to grow, existing developable land available for residential development (especially single-family development) is becoming scarce. The Sand Lake gravel pits are continuing to be filled and include considerable remaining vacant land. Developable portions of the gravel pits have been master planned for residential homes, streets, schools, and park sites. Development is occurring incrementally in response to market demand, which is expected to remain steady given the limited availability of vacant land for single-family residential development.

Ted Stevens Anchorage International Airport – Ted Stevens Anchorage International Airport has expanded its role as a leading domestic and international air cargo hub in response to the needs of the aviation industry. Recent airport development has focused on the North and South Airparks. Air National Guard operations housed at Kulis ANG Base relocated to Elmendorf Air Force Base in 2011. With the impending return of the land and facilities to TSAIA, a reuse plan is in process to make this facility available for alternative aviation and non-aviation uses. Although world-wide economic conditions in 2008 led to a decline in airport cargo and passenger operations, 2010 showed a return to near normal operational levels.

2.3 Infrastructure and Public Services

Exhibit 2-5 shows the location of public and community facilities such as schools, post offices, fire stations, police stations, major utility facilities, and water/wastewater service areas. There are private walk-in health clinics in West Anchorage but no hospitals.

2.3.1 Water and Wastewater

Anchorage Water and Wastewater Utility (AWWU) provides public water and sewer service to most of the planning area within a certificated boundary for each permitted by the Regulatory Commission of Alaska (Exhibit 2-4). Residents in West Anchorage outside the AWWU service area operate private on-site wells and septic systems or receive service from one of four small private water utilities. Detailed information about the water distribution and sewer system can be found in the 2005 *AWWU Anchorage Water Master Plan* and the *2006 AWWU Anchorage Wastewater Master Plan*.

Wastewater Treatment Facility - The AWWU Asplund Wastewater Treatment Facility is located within the study area near the inlet at the northwest corner of the airport. It has capacity to process 58 million gallons of effluent per day for primary treatment. The Environmental Protection Agency (EPA) is evaluating reauthorization of the facility's discharge permit under Section 301(h) of the Clean Water Act, which allows marine discharge of primary treatment effluent. Should EPA determine that Section 301(h) no longer applies, the facility may need to add equipment and facilities for secondary treatment. The 75-acre reserve south of the existing site is held to accommodate future such expansions. (See the AWWU Industrial-zoned parcel in the northwest corner of the map in Exhibit 2-1.)

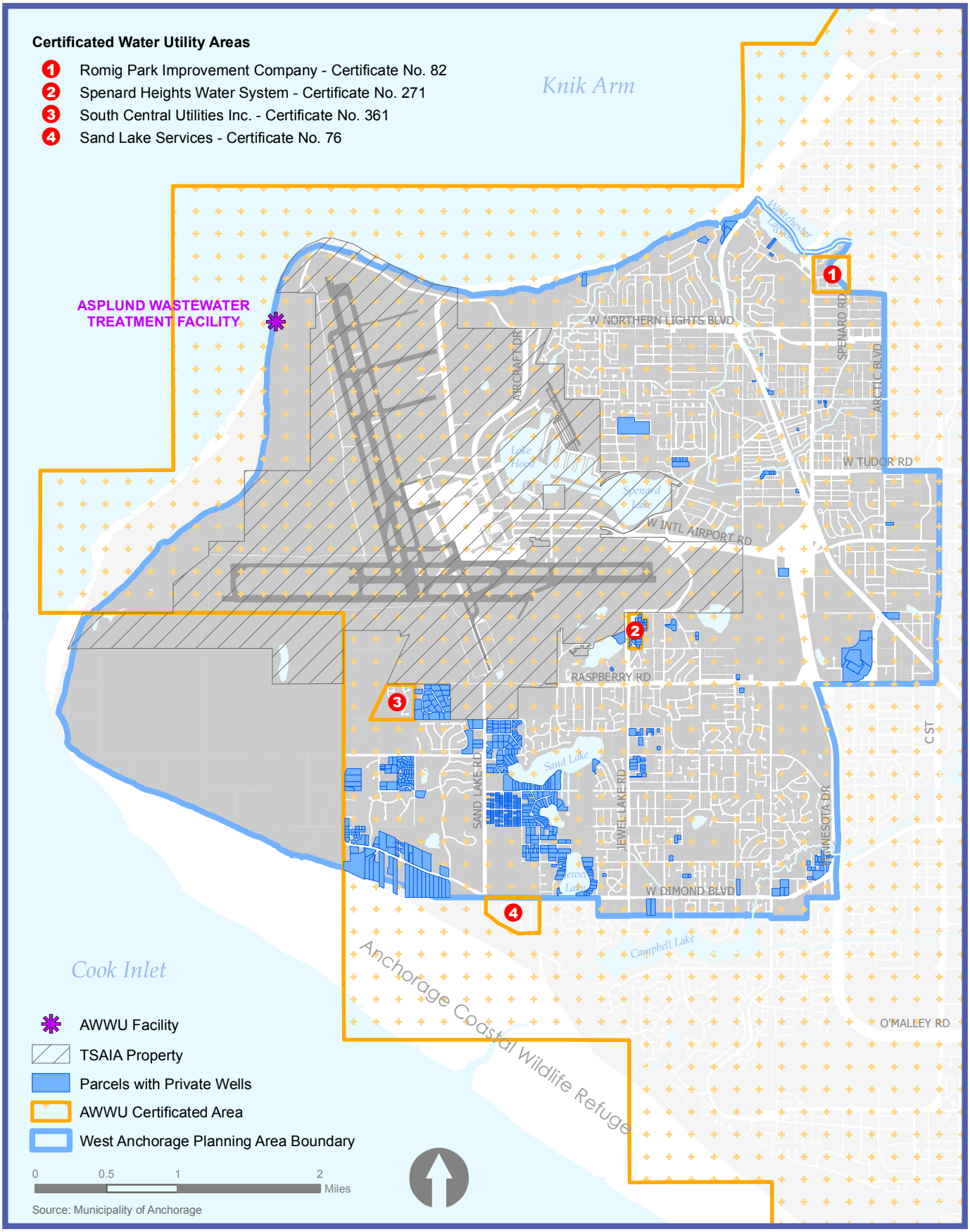
2.3.2 Storm Water

The Municipality and the Alaska Department of Transportation and Public Facilities (ADOT&PF) own, operate, and maintain West Anchorage's storm drain system. The system comprises storm drains, catch basins, oil/grease separators, and sedimentation basins. In most of the developed areas of West Anchorage, storm water is collected and piped for discharge to reduce uncontrolled runoff from rain and melting snow on public streets and other urban areas. Most runoff is collected and filtered to remove urban pollutants prior to discharge to surface waters such as creeks, lakes, wetlands, or into Cook Inlet.

Both the Municipality and TSAIA operate under special regulations in their respective Alaska Pollution and Discharge Elimination Systems (APDES) permits, issued to each by the EPA. Both permits require that TSAIA and the Municipality upgrade their storm water controls and collection systems to ultimately maximize treatment of all runoff, both from storm events on a regional scale and at individual construction sites.

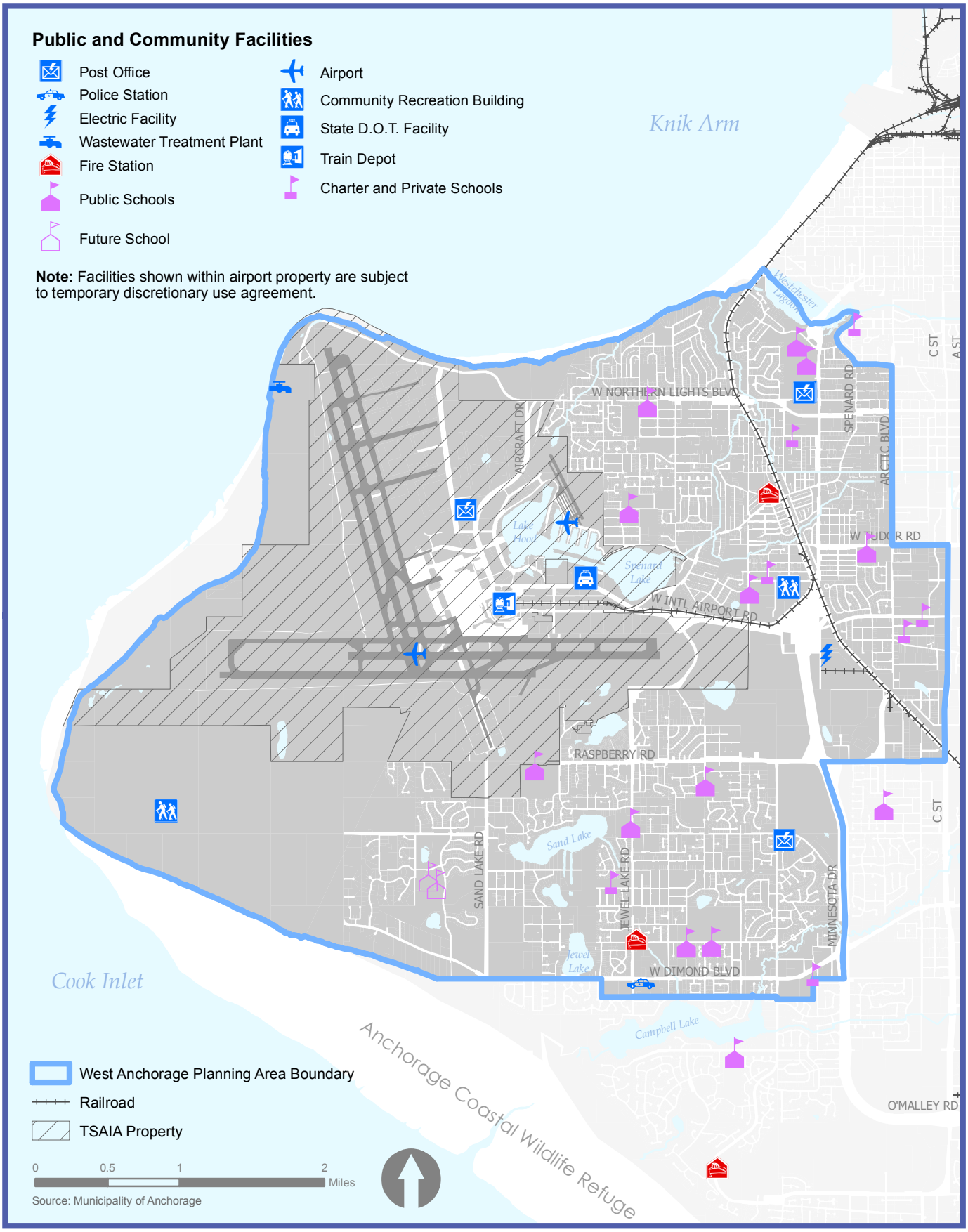
2.3.3 Solid Waste and Recycling

Alaska Waste and the MOA Solid Waste Services collects and disposes of solid waste in West Anchorage. Most residential and commercial waste is trucked to the Central Transfer Station and then hauled in trailers to the Anchorage Regional Landfill. Products not accepted at the transfer station must be delivered directly to the landfill (i.e., some commercial and industrial wastes). Clean construction material can be delivered to the privately owned Lucy Pit Fill Site at Kincaid Road and Lucy Street that is being filled for future development. The Anchorage Regional Landfill has sufficient capacity to accommodate the long-term solid waste needs of the Municipality.



West Anchorage District Plan

Exhibit 2-4: Water and Wastewater Service Areas and Private Wells



West Anchorage District Plan

Exhibit 2-5: Public and Community Facilities

2.3.4 Power and Heating

Enstar provides 90% of the natural gas for residential heating or appliances in Anchorage. Enstar also provides natural gas to commercial customers and to electric companies for power generation. The Enstar transmission line travels from the Kenai Peninsula and enters the planning area roughly along the Anchorage Railroad ROW.

Municipal Light & Power (ML&P) provides electricity for the northwest corner of the planning area, while Chugach Electric Association (CEA) is the power provider to the remainder of the planning area.

The Municipality conducted a baseline greenhouse gas (GHG) inventory in 2009 with the intent to follow up with the *Anchorage Climate Action Plan* that outlines strategies and policies for reducing the MOA carbon footprint. The MOA's total emissions were calculated from: public buildings, vehicle fleet, employee commute, street lights, water/sewage, and solid waste.

2.3.5 Cellular Towers

There are dozens of registered cellular towers located in West Anchorage. Service is widely available in West Anchorage, but there are areas within and around Kincaid Park with service gaps. Tower construction is regulated by Anchorage Municipal Code (AMC) 21.45.265 and heights are restricted by zoning district. The MOA encourages co-use of cell towers by multiple carriers to avoid the construction of excessive towers.

2.3.6 Civic and Cultural Facilities

Civic and cultural facilities in West Anchorage include churches, the Alaska Aviation Heritage Museum, Spenard Recreation Center, Asian Alaskan Cultural Center (in Northwood Elementary), Kincaid Bunker, and Turnagain Arts Building. There are no libraries in West Anchorage except those in public schools.

The Library Department's 2010 Library Plan reported that a peer analysis showed the Loussac Library, which is a few miles east of the planning area, to be among the largest of main libraries serving populations between 250,000 and 350,000. On the other hand, a comparison of libraries serving similar-sized populations showed that Anchorage has less than half the number of branch locations. The Library Plan includes the following action items:

- Increase the number of branch libraries and enhance some of the existing branches to strengthen their ability to serve as centers of community life.

Planning for additional branches should continue; however, no additional facilities should be opened until funding is available to sustain them without diluting already strained staff and material resources. Consultants strongly recommend that the Anchorage Public Library carry out a master facilities planning process as soon as is practical to determine the number of facilities, the size of facilities, and the nature of any new service outlets. A public library in the Spenard Corridor could compliment and support future revitalization efforts.

2.3.7 Anchorage Police Department

West Anchorage lies almost entirely within the Anchorage Police Department (APD) West Patrol District. Crime density maps created by the Police Department show small pockets of property crimes occur in Spenard. There are no severe "person crime" hot spots in the planning area, but there are moderate spots in Spenard and along West 88th Avenue in Sand Lake. Crime hot spot maps can be viewed on the MOA website at: http://www.muni.org/Departments/police/stats.

2.3.8 Education

West Anchorage contains public elementary, middle, and high schools run by the ASD, as well as privately run charter/alternative schools. There are no near-term site selections for new schools in West Anchorage identified in the ASD District Ten Year Capital Improvement Plan (2009-2019). However, two new school sites have already been selected in the Sand Lake gravel pit area.

The ASD adopted a master plan for the West Romig campus in 2010. The plan envisions restructuring the campus into a hub that integrates joint community and educational use of school facilities through the "Active Educational Enterprise Partners" program. The implementation of the plan would contribute to the Spenard town center.

2.4 Transportation

The transportation system is a key factor in planning future development, land uses, and public services. West Anchorage contains surface roads, which serve private transportation, public transportation, and freight distribution. The area also includes railroad tracks and facilities, TSAIA, a major floatplane base, and a diversity of non-motorized transportation facilities.

2.4.1 Roads

It is estimated that of the more than 1 million trips taken within the Bowl each typical weekday (including Mat-Su Valley commuters), 90% are made in personal vehicles. The remaining trips are a combination of walking (6%), school bus (2%), public transit (1%), and bicycle (1%).

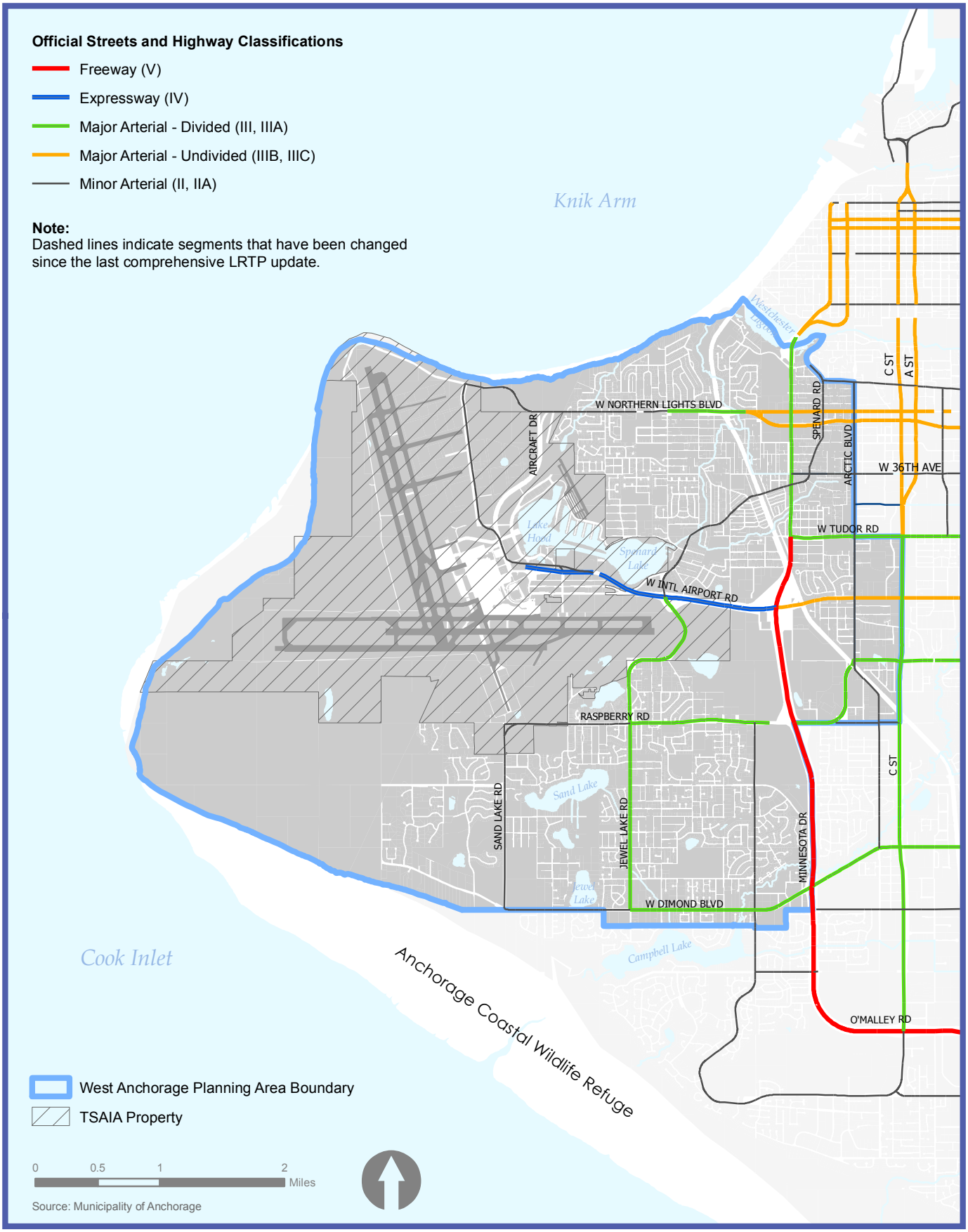
International Airport Road, eastbound (Robinson, 2009)

The State and the Municipality have been encouraging the use of other modes of travel (transit, carpools, vanpools, etc.) since these can reduce congestion and contribute to a more efficient use of the existing transportation system. Bicycle and pedestrian use is increasing, but gaps in the pathway/sidewalk system, major road crossings, inadequate snow removal, signage, and lighting still need to be addressed in order to improve the number of non-motorized trips.

Road Classification

The *Official Streets and Highways Plan* (OS&HP) identifies the functional street classifications and minimum right-of-way widths required to convey traffic volumes as areas of Anchorage are developed. Projected traffic volumes are based on land uses designated on the Municipality's official Land Use Plan Map and population projections. The OS&HP functional street classification supports land use objectives by proving a serviceable road network with appropriate physical characteristics. Exhibit 2-6 depicts the official Municipal road classifications.

The LRTP recommended the functional classifications in the OS&HP be augmented to include street typology or design elements applied to the full right-of-way in each street. Street typologies describe not only lane configuration, but also how the street relates to the adjacent land use by setting priorities for certain design elements. This is the process for Context Sensitive Solutions. A list of street typologies, representative design features, and built examples are highlighted in Table 2.4-1. Street typology does not override decisions about street design. Rather, it is a tool used in conjunction with engineering specifications, plans like the LRTP and *Non-Motorized Transportation Plan*, physical constraints of the ROW, the context of adjacent land uses, and feedback from the community.



West Anchorage District Plan

Exhibit 2-6: OSHP Road Classifications

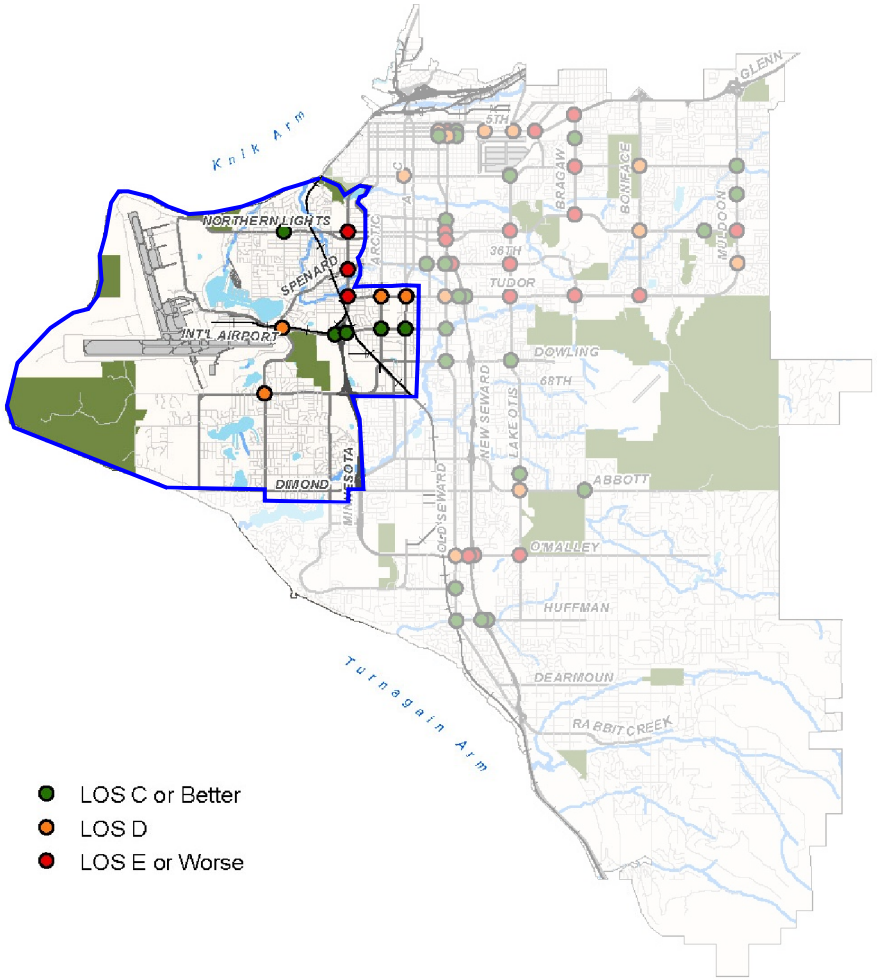
Table 2.4-1 Road Typology Examples			
Street Typology	**Purpose**	**Potential Design Features**	**Example**
Residential Street	Balance need for land access with multimodal mobility and pedestrian-orientation; more pedestrian-oriented than commercial streets.	Two travel lanes; greater emphasis on walking, biking, and land access.	Wisconsin Street
Commercial Street	Balance need for traffic mobility with land access.	Three to six lanes divided by a landscaped median or continuous center lane for left turns; frequent intersections.	Dimond Blvd,
Industrial Street	Accommodate significant volumes of large trucks and trailers; infrequent bicycle and pedestrian use.	Two to four (wider-15 to 20 feet) travel lanes without bicycle lanes or on-street parking; narrower sidewalks.	C Street – industrial major arterial
Main Street	Medium-intensity retails and mixed land uses as defined by the Town Center designation in *Anchorage 2020*; promote walking, bicycling and transit within an attractive landscaped corridor.	Two to four travel lanes; on-street parking; wider sidewalks (10 feet or greater); street furniture, plazas, and other features concentrated within a two- to eight-block area.	West Dimond Boulevard at Jewel Lake Road – main street major arterial
Transit Corridor	Accommodate of alternative modes of transportation the highest concern.	Two to four travel lanes; increased use of pedestrian, bicycle, and transit design features.	Jewel Lake Road – transit corridor major arterial
Mixed-Use Street	Mix of high-intensity commercial, retail, and residential with substantial pedestrian activity.	Two to four travel lanes; on-street parking and wide sidewalks; trees, lawns, and street furniture.	Spenard Road – mixed-use street minor arterial
Park Land Street	Minimize disturbance to the natural setting; accommodate low to moderate amounts of traffic.	Natural vegetation landscaping to reduce noise, air pollution, and visibility of the road; grade-separated crossing for recreationist and wildlife collision prevention measures.	Raspberry Road (west of Sand Lake Road) – park land street collector
Source: LRTP (MOA, 2005)			

Level of Service

For transportation planning, "level of service" (LOS) is a measure of how well traffic flows on a road based on its design and capacity. LOS ranges from "A" or "under capacity" to "F" or "over capacity." For example, Minnesota Drive from International Airport Road to West Dimond Boulevard experiences LOS "D" (i.e., congested conditions stall traffic) during afternoon peak periods.

Based on analysis for congestion management, Anchorage Metropolitan Area Transportation Solutions (AMATS) found that LOS at intersections is the key determinant of congestion in Anchorage. Throughout the Bowl, intersections of major east-west and north-south arterials cause bottlenecks or delays. Intersection congestion appears to be worse in the afternoon, particularly along east-west arterials like Northern Lights Boulevard. Exhibit 2-7 shows intersection LOS for morning and afternoon rush hours.

Morning Peak Hour Intersection Level of Service



Afternoon Peak Hour Intersection Level of Service

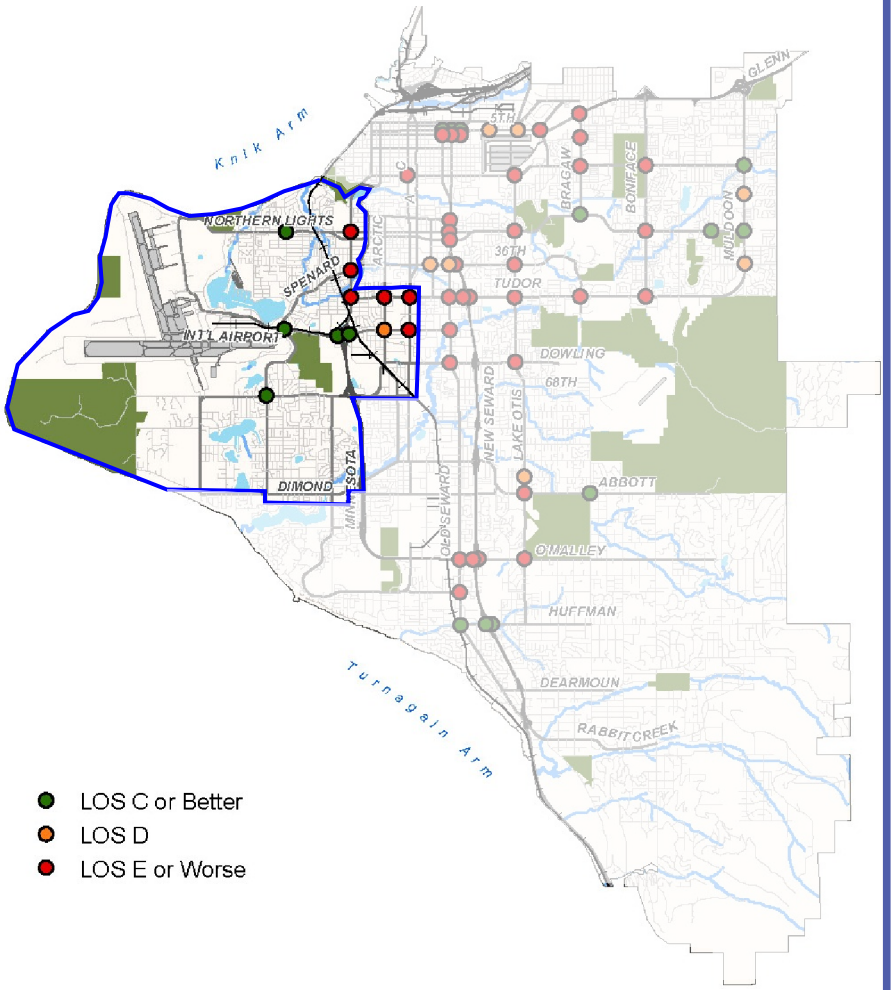


Exhibit 2-7: AM and PM Intersection Levels of Service (LOS)

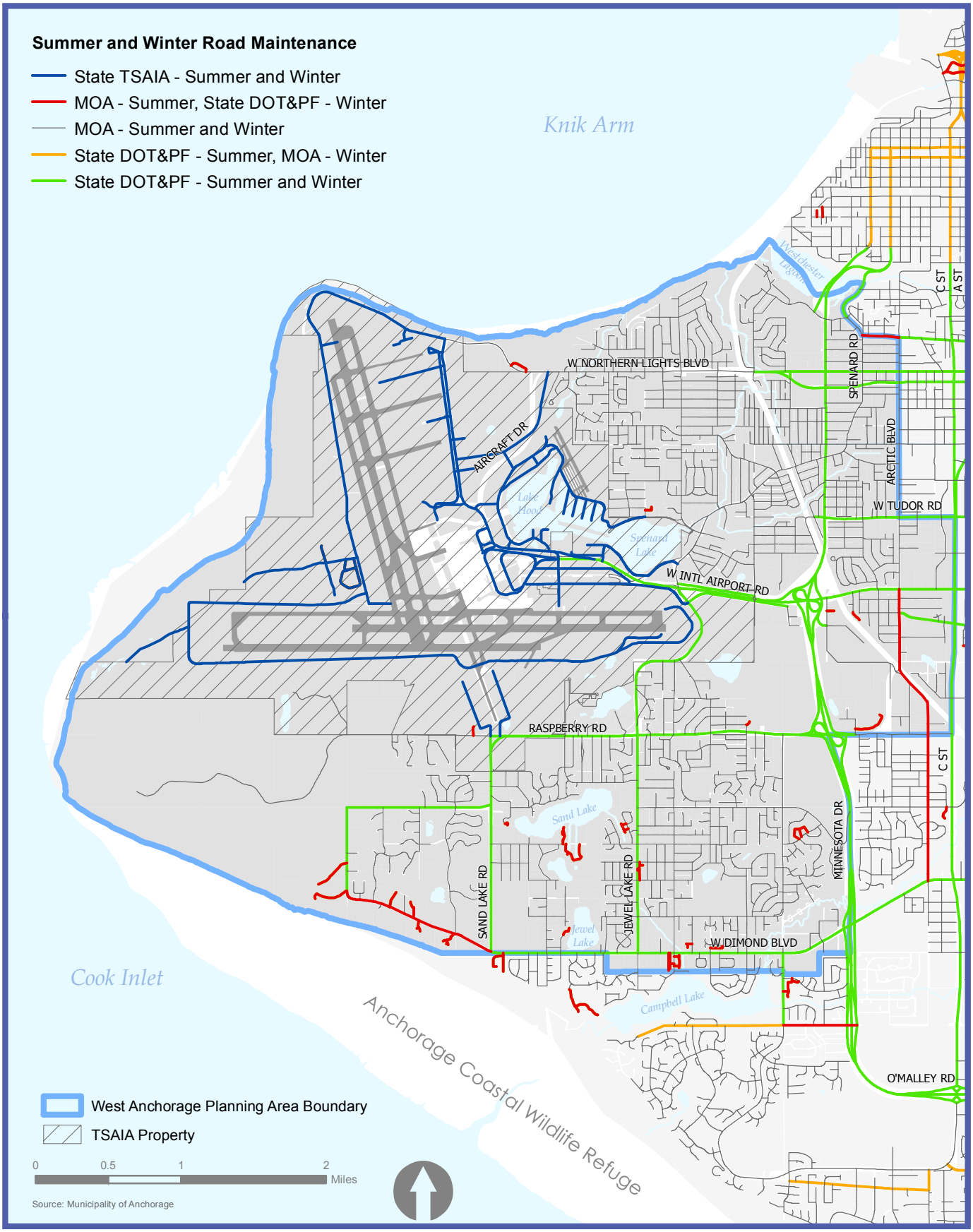
Road Maintenance

Road maintenance includes signing, lighting, street and walkway/trailway sweeping, traffic signal system operation, snow clearing, pothole/general repair, and landscaping. The responsibility for maintaining roadways in Anchorage is shared by the MOA and the ADOT&PF according to ownership with a few formal agreements to exchange maintenance responsibilities for efficiency. State and municipal road ownership is shown on Exhibit 2-8.

The MOA and ADOT&PF have improved communication and coordination of snow removal efforts. For example, the MOA authorized ADOT&PF to use municipal snow dump facilities to shorten the distance for snow hauling. However, problems with sidewalk snow removal persist. This is due to a variety of reasons including: equipment incompatibility, tenants that do not plow in front of their properties, and street/sidewalk design that does not accommodate snow storage or equipment. Snow management (sanding, salting, piling, and melting) can have environmental management consequences related to runoff, trash accumulation, and airborne particulates. The Public Works' Street Maintenance website http://www.muni.org/departments/works/operations/streets contains maps that demonstrate the areas that are plowed for snow, as well as bus stop, sidewalk, and trail snow removal priorities.

Road Improvements

Surface road improvements are funded through the Statewide Transportation Improvement Program (federal) and/or Capital Improvement Program (MOA). Federally funded projects are prioritized through AMATS. Each of these agencies has a public process for the design and reconstruction of roads. The Municipality adopted a context sensitive design (CSD) planning process that focuses on early public engagement and the relationship between land use and transportation systems. The *WADP* helps establish the context for future road projects by recommending a long-range vision and land use patterns that need to be considered early in the road design process.



West Anchorage District Plan

Exhibit 2-8: Road Ownership and Maintenance

Permitted for Commercial Vehicles *– The functional classification of each street, as determined by the OS&HP, determines whether or not a street can be used by commercial vehicles, including double-loaded trucks.*

2.4.2 Freight Distribution

Ninety percent of the total volume of goods entering Anchorage comes through the Port of Anchorage. Daily truck traffic is highest on the Glenn and Seward Highways and around the Port – all outside the planning area.

Most air cargo flights using TSAIA are merely stopping to refuel before continuing to their final destination. The smaller percent of goods intended for the Alaska market are distributed by truck from the airport to several nearby freight distribution centers in West Anchorage.

2.4.3 Public Transportation

Public transit accounts for over 1% of typical weekday trips in Anchorage, and school buses account for approximately 2%. People Mover is the fixed route bus service for Anchorage; funded by local and federal dollars and operated by the MOA. Unlike most metropolitan transit systems, People Mover's operating expenses are not funded by the State.

People Mover has two bus routes that run on the half-hour (6 a.m. to 11 p.m.) through West Anchorage connecting the downtown Transit Center and Dimond Center. The route to the airport is hourly. Most of West Anchorage has limited bus service due to the small number of routes. The most heavily used bus routes are along Spenard Road and Jewel Lake Road, where many existing bus shelters are inadequate.

More information on public transportation services can be found in the *Anchorage Human Services Transportation Coordination Plan* online.

ARRC Double Track Project Concept[5]

2.4.4 Railroad

The Alaska Railroad Corporation (ARRC) main line track runs from the Intermodal Center in Ship Creek, through Turnagain and Spenard neighborhoods and the industrial areas south of International. The airport spur, which is used primarily for seasonal cruise ship charter service to the airport, runs west from the mainline at Minnesota Drive to the airport. It follows the north edge of International Airport Road until it crosses Jewel Lake/Spenard Road and then switches to the south edge of International Airport Road.

ARRC is considering an addition of 10 miles of double-track on both sides of its terminals to accommodate the busiest segment in the ARRC system. This second track would be achieved within the existing ROW to accommodate the projected increase in passenger traffic and a modest increase in freight.

The International Airport Road transportation corridor remains a critical access point to the airport for both rail and truck. The at-grade rail crossings are a safety issue, but future passenger and material freight have not been substantial enough to justify a project to construct above-grade crossings or rail realignment to the south side of International Airport Road.

Another long-term project is the creation of a commuter rail system connecting Anchorage to the Mat-Su Valley. After creation of a "regional transit authority," a full-corridor scenario that includes intermodal service to Girdwood, Dimond Center, the airport, and Spenard is envisioned in an updated *ARRC Southcentral Rail Network Commuter Study and Operation Plan*. A timeline and any land acquisition requirements are not underway at this time.

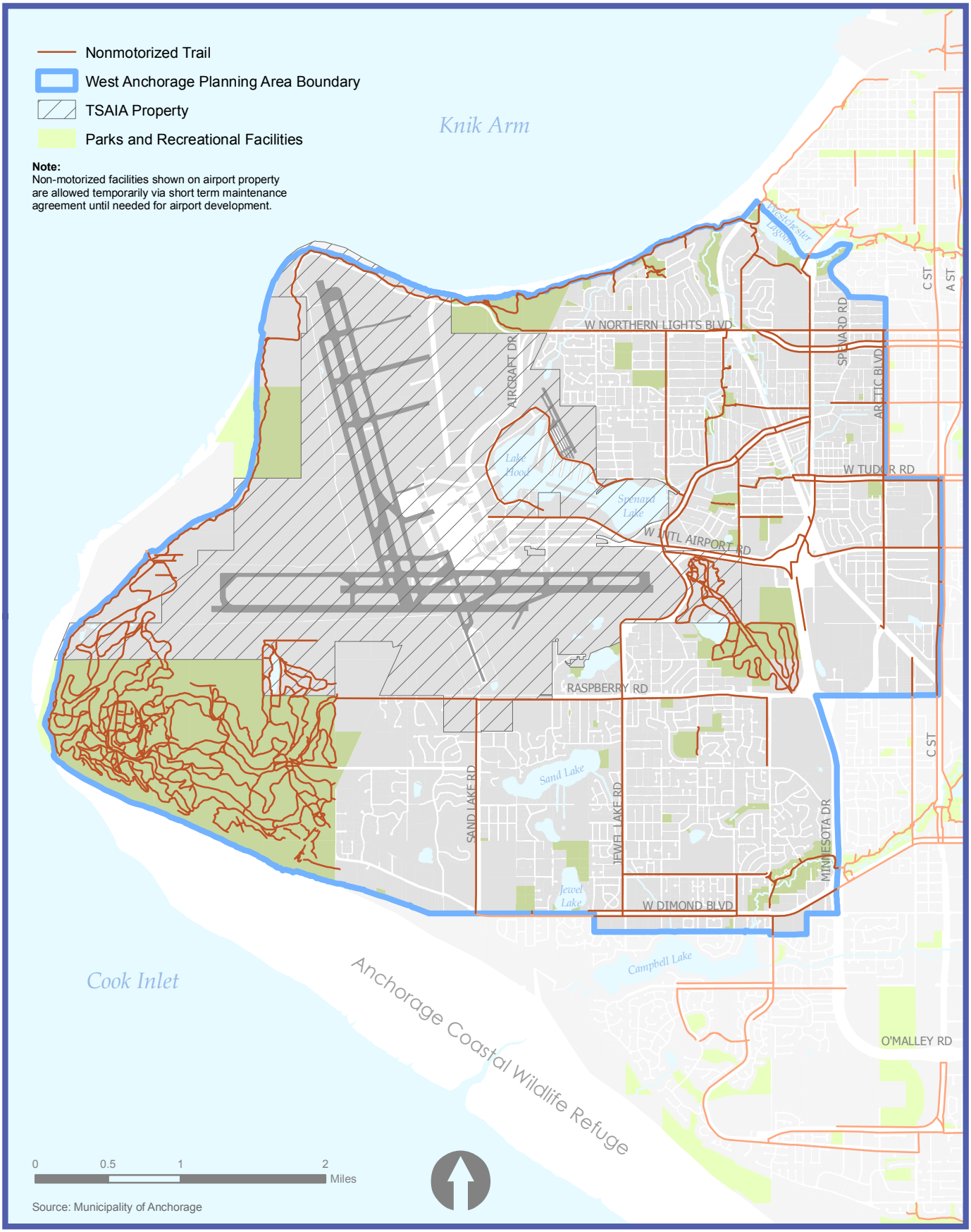
During summer months, several trains per day can run from the airport spur and a total of 20 trains per day can run from Milepost 110 (near International Airport Road and Minnesota Drive) to Milepost 114 in Ship Creek.[5] Residents in close proximity to the tracks have complained about noise and vibrations.

2.4.5 Non-Motorized Transportation

An LRTP goal is to provide viable transportation choices among various modes. To implement this goal, the MOA developed a three-part *Non-Motorized Transportation Plan*. This includes the Anchorage Pedestrian Plan adopted in 2007, the Anchorage Bicycle Plan adopted in 2010, and the Areawide Trails Plan adopted in 1997 (a revision process should be completed in 2012-2013..

Walking accounts for about 6% of the trips within Anchorage and bicycles account for about 1%. Fourteen percent of students surveyed in 2002 reported walking to school in the spring. The pedestrian facilities in Anchorage are divided into three categories: pathways (including multi-use paved pathways/walkways and sidewalks), paved greenbelt trails, and unpaved trails shown in Exhibit 2-9. This is a map of existing and proposed pedestrian facilities in West Anchorage. Bicyclists utilize a number of types of pedestrian facilities as

[5] Source: Anchorage Railroad Corporation, 2008. "Project Facts: Anchorage Rail Capacity Improvements MP 114-110"



West Anchorage District Plan

Exhibit 2-9: Non-Motorized Facilities

well as the shoulder of roadways. The *Anchorage Bicycle Plan* includes a "core" network shown in Exhibit 2-10.[6]

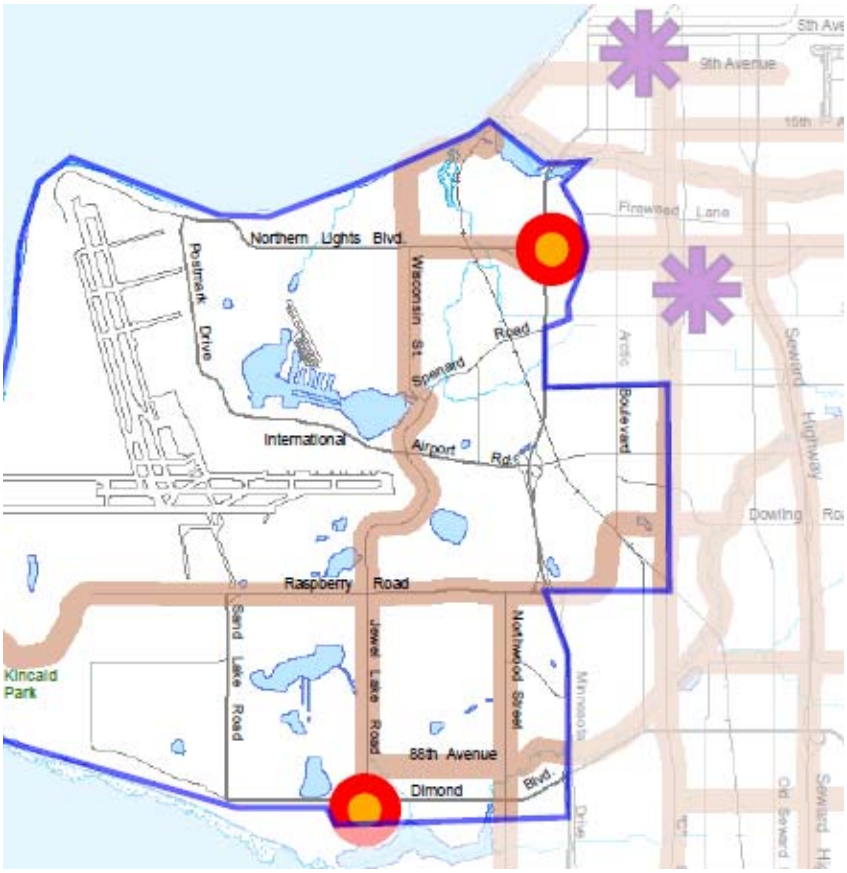


Exhibit 2-10 Core Bicycle Network from the *Anchorage Bicycle Plan*

The *Anchorage Pedestrian Plan* notes that compact development increases the likelihood of walking trips. The lowest rate of non-motorized travel in West Anchorage is in the Sand Lake area due to its low housing density and lack of mixed land uses and established sidewalk/multi-use trail system.

Pedestrian facilities are discontinuous in much of Anchorage due to the history of the development of the Bowl, which did not include common urban infrastructure elements such as sidewalks. Streets that serve as collectors are now typically developed with pedestrian facilities on both sides. However, many examples of collectors without pedestrian facilities are found in the Sand Lake Community Council area.

Under today's subdivision standards, the requirement to build a sidewalk along a local street depends on the number of average daily vehicle trips. Streets with low volumes are not required to have sidewalks, while other streets must have sidewalks on only one side of the street. Streets carrying more than 1,000 average daily trips are required to have sidewalks on both sides of a street. Impediments to pedestrian facilities include snow storage, utility poles, trash containers, and mailboxes. A complete list of priority projects to connect walkways and sidewalks, as well as requisite lighting and safe road crossings, are found in the Appendix of the Anchorage Pedestrian Plan.

Paved and Unpaved Trails

There are about 180 miles of multi-use paved trails in the Bowl located within parks, greenbelts, and within road ROWs. Popular paved trails in West Anchorage include:

- The Tony Knowles Coastal Trail.
- Fish Creek Greenbelt Trail.
- Jewel Lake Road separated pathway.
- Lake Hood separated walkways and widened road around Lake Hood.
- Campbell Creek Trail.

[6] The bicycle core network is overlaid on the *Anchorage 2020* Land Use Policy Map with the town centers indicated with red circles.

The 1997 *Areawide Trails Plan* will be updated as the last of three elements of the new *Non-Motorized Transportation Plan*. In general, unpaved trails are utilized for winter and summer recreational purposes like walking/jogging, cross-country skiing, equestrian use, and mountain biking. The predominant unpaved trails in West Anchorage are located in Kincaid Park, on Heritage Land Bank and airport property near Kincaid Park, and around Connors Bog.

2.4.6 Aviation Facilities

General Overview

West Anchorage contains the largest air transportation facility in the State of Alaska. ADOT&PF owns and operates Ted Stevens Anchorage International Airport (TSAIA/ANC).[7] It serves local, regional, state, national, and international aviation needs. TSAIA is an essential asset to the MOA and a major contributor to the local economy. Its direct and indirect economic impact on Anchorage is substantial generating over 18,400 jobs on- and off-site (1 in 8 local jobs) as well as contributing $850 million in annual payroll ($1 of every $8 in wages). TSAIA plays a key role in international aviation activities, being located within 9.5 hours of 90% of the industrialized world. It ranks as the fifth largest airport worldwide in cargo throughput.

Airport Facilities

The TSAIA airfield complex includes three runways and an extensive system of taxiways, aprons, buildings, and navigational equipment. These elements accommodate an active national and international fleet of commercial passenger and cargo jet aircraft. The Lake Hood Seaplane Base (LHD) accommodates the General Aviation (GA) component at TSAIA consisting mostly of small, privately owned, fixed-wing aircraft. The LHD components include Lake Hood and Lake Spenard allowing takeoffs and landings by aircraft fitted with pontoons in the summer and skis in the winter, as well as a small GA runway and related aircraft tie down areas. The general location of airport facilities is shown in Exhibit 2-2.

Airport Growth Trends

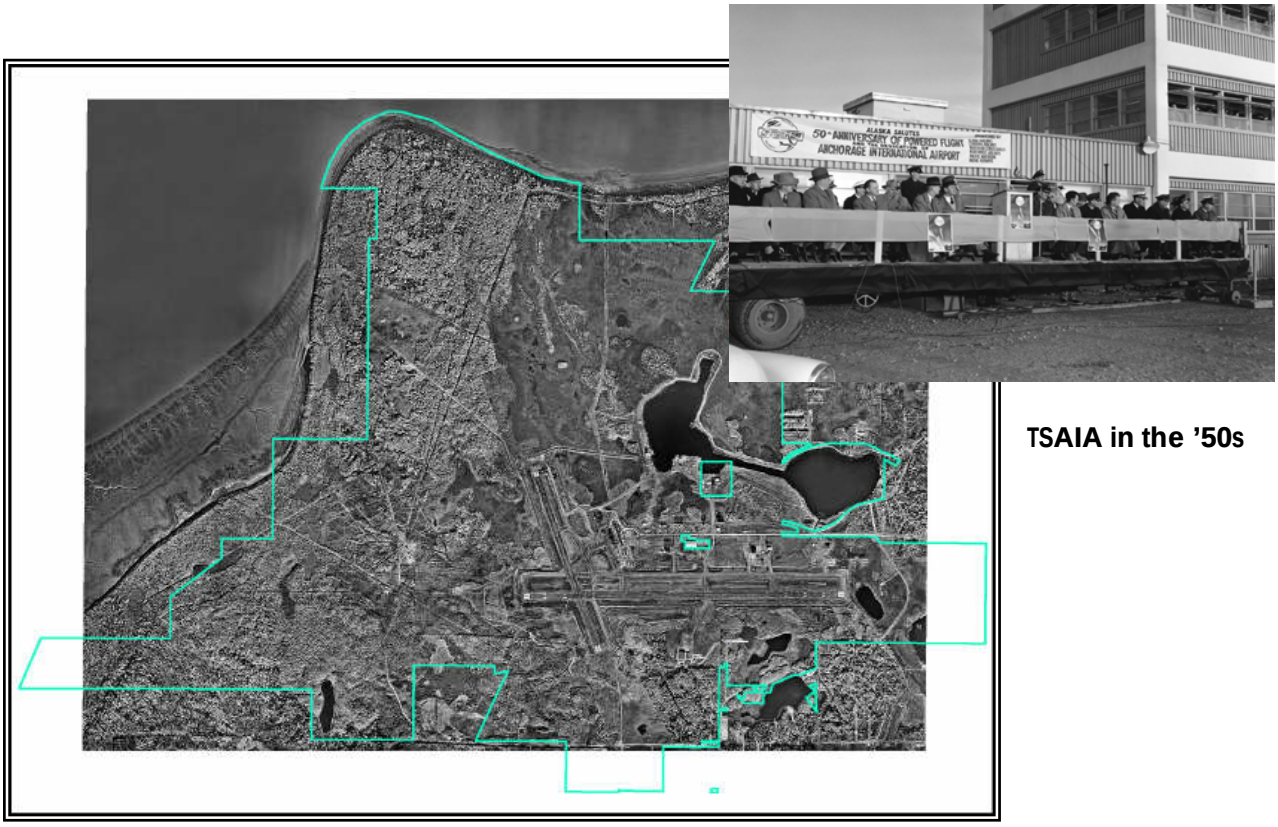
TSAIA has grown steadily since its inception in the 1950s. Between 1990 and 2005, total operations (takeoffs and landings) at TSAIA increased from 221,259 to 246,019. This reflected a slight decrease in passenger operations but was more than offset by increases in air cargo activity, which more than doubled over the same time period. Lake Hood GA operations decreased from 89,959 in 1996 to 69,502 in 2005. In 2008 and 2009, operational trends saw a marked downturn in response to the weak global economy but have since rebounded and are approaching pre-recession levels.

Air Cargo Service

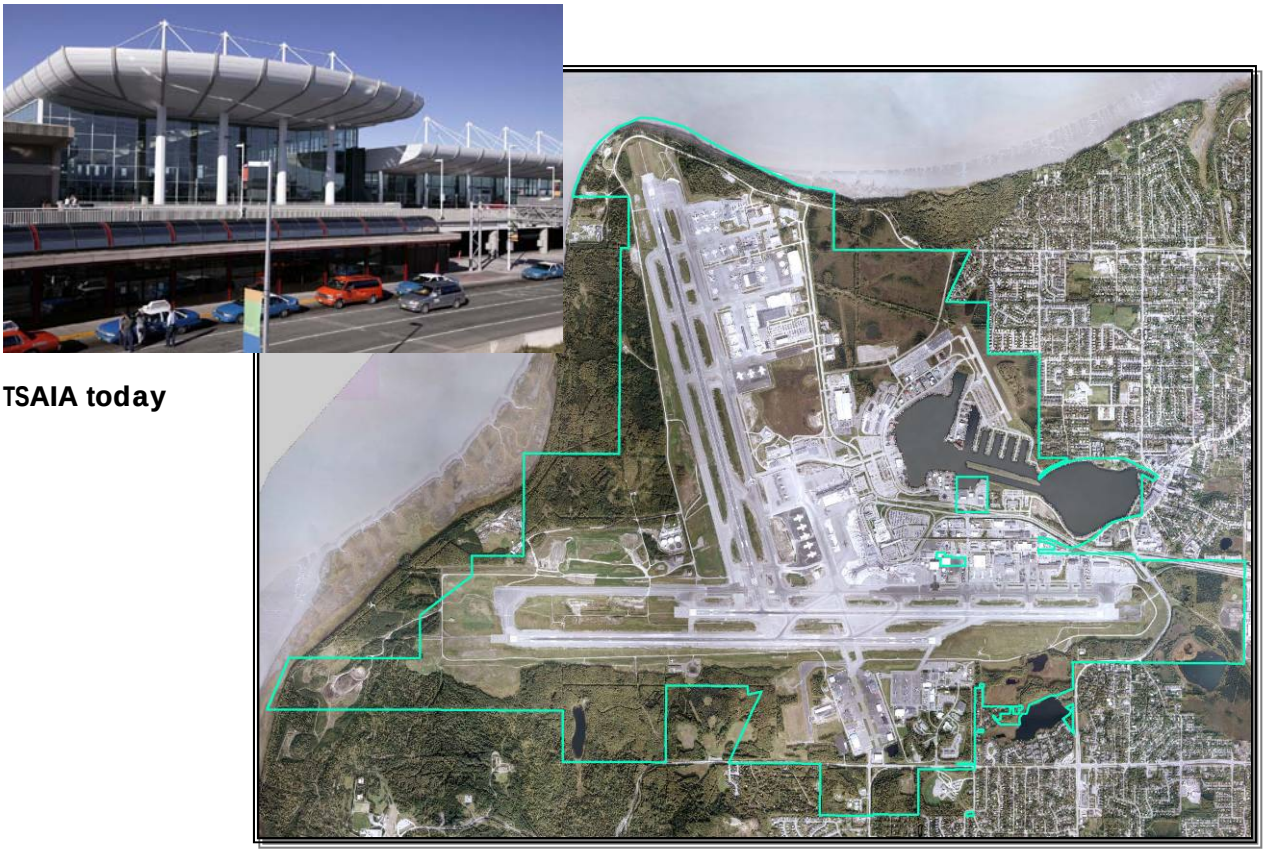
Air cargo traffic flowing from Asia to North America accounts for the majority of such traffic at TSAIA. The airport often ranks first in the nation for cargo landed weight and ranked fifth in the world for total cargo weight in 2008. This cargo is divided between transfer traffic (FedEx, USPS) and refueling traffic. U.S. air cargo operators include FedEx, UPS, and major airline air cargo divisions; foreign carriers include Korean Air China Cargo, China Cargo, Cathay Pacific Cargo, and others. Cargo "landed weight" tonnages at TSAIA peaked in 2006, but overall cargo tonnages at *TSAIA* have been the major revenue generator for TSAIA and have remained strong for the last 10 years. Table 2.4-2 shows the combined cargo volumes from 2006 to April 2010. Although cargo operations showed a severe

[7] The acronym TSAIA represents the operating/managing body and ANC represents the international code for the airport. Lake Hood Seaplane Base is operated by TSAIA, but its airport code is LHD.

decrease during 2009, the trend had reversed itself and was approaching near normal levels by mid 2010.

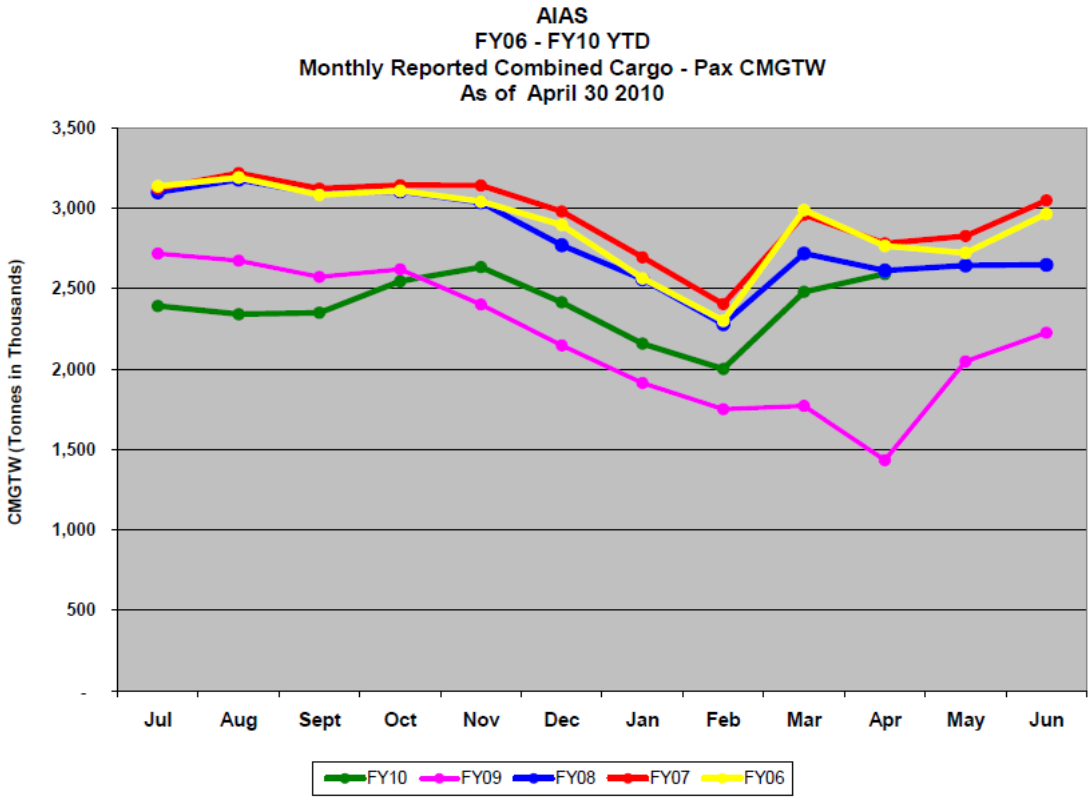


TSAIA in the '50s



TSAIA today

TABLE 2.4-2 – TSAIA MONTHLY COMBINED CARGO/PAX VOLUMES (2006-2010)



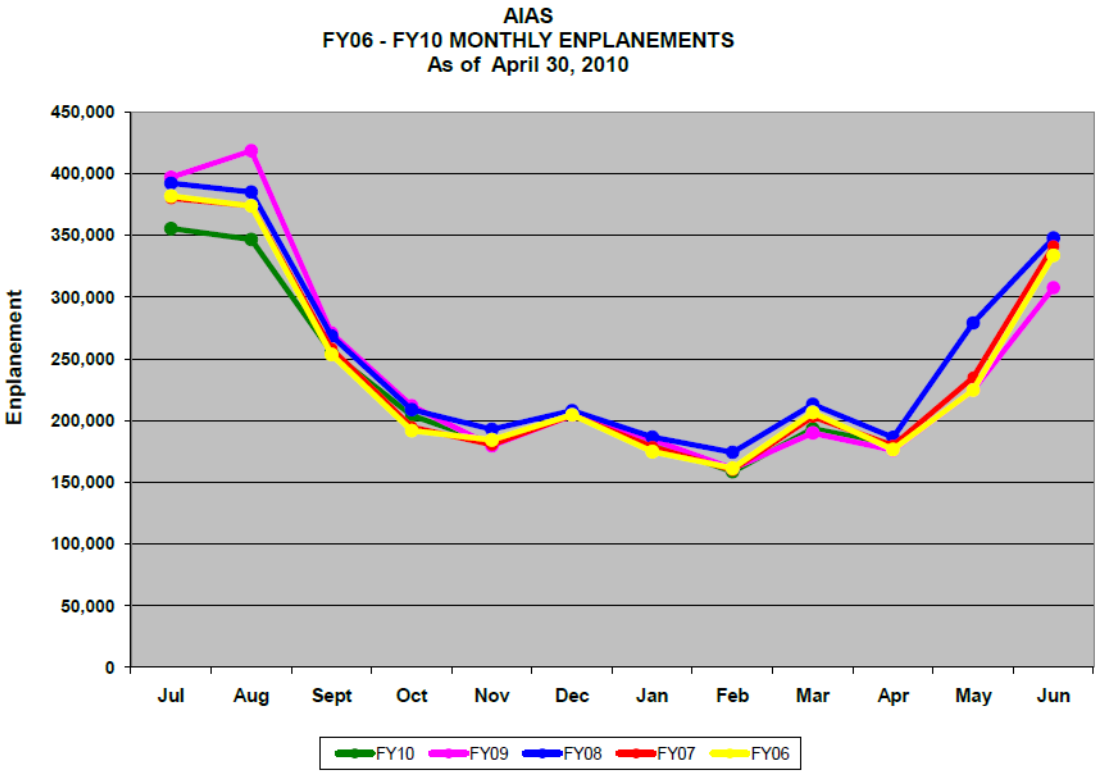
Passenger Service

Aviation serves as a common means of transport within the State of Alaska. Intra-state aviation travel is used in rural communities for the same purposes that surface travel is used for communities on the road system, including recreation, health care, shopping, and attending events. Historically, intra-state travel is not substantially affected by fuel prices or national economy; trends show slow but steady growth in this sector.

Tourism represents a smaller percentage of passengers. In 2005, there were approximately 802,000 passengers on intra-state flights originating or ending at TSAIA. (The total population of the MOA in 2005 was around 266,000.)

International transit passengers have decreased substantially in the last 10 years due to the introduction of long-range aircraft that do not require refueling in Anchorage and the opening of Russian airspace to Asia-Europe flights. From 1998 to 2008, there was an average annual 6.0% decline in this sector. However, since 2006, overall passenger volumes have remained constant (Table 2.4-3).

TABLE 2.4-3 TSAIA MONTHLY PASSENGER VOLUMES (2006-2010)



General Aviation Service

West Anchorage is home to Lake Hood Seaplane Base, one of the busiest floatplane bases in the world. According to the General Aviation Master Plan, LHD and TSAIA generate a large portion of general aviation (GA) traffic in the Anchorage area, in part because the largest number of active pilots and registered aircraft in the State are based in the Anchorage area (ADOT&PF, 2006). Approximately 1,090 general aviation aircraft are based at *TSAIA* and LHD with floatplanes, ski planes, and large turbojet business aircraft flown by private or recreational pilots.

General aviation activity provides access for Anchorage area residents and tourists to roadless areas of the State. To a smaller degree, GA provides rural residents access to the Anchorage area. Overall GA activity has declined steadily since a peak in 1991, due to a number of factors, including socioeconomics, aircraft utilization, maintenance and purchase costs, and pilot trends. The *GA Master Plan* that found GA operations at LHD declined about 2.4% per year from 1989-2003, and GA operations at *TSAIA* declined an average of 1.4% per year over the same period.

Height Restrictions

The Federal Aviation Administration (FAA) conducts aeronautical studies to identify and address obstructions to regulated airspace, and to establish electronic and procedural navigation requirements and aircraft hazard standards under Federal Aviation Regulations Part 77. This is documented by the mapping of three-dimensional imaginary surfaces that reflect the operating characteristics of aircraft at a given airport. The imaginary airspace surfaces typically appear as a series of concentric elevations that become progressively higher with distance from the airport.

In Anchorage, the MOA has identified and codified the airspace zones around TSAIA and other local airports in Title 21, Chapter 65, "Airport Height Zoning Regulations." This portion of Title 21 includes an FAA-certified airport height map (which reflects the FAR Part 77

surfaces). Based on this, the ordinance regulates the permissible height of new structures near airports, prohibiting those that would pose a hazard to aircraft operations. The heights vary depending on location and ground surface elevation of the site. In general, structures cannot exceed 35 feet or the height established on the airport height map, whichever is greater. Any proposed structure within three nautical miles of an airport that exceeds 200 feet above a federally established airport reference point, requires individual FAA approval. The MOA Airport Height Map elevation contours are reflected in Exhibit 2-11.

Access and Safety

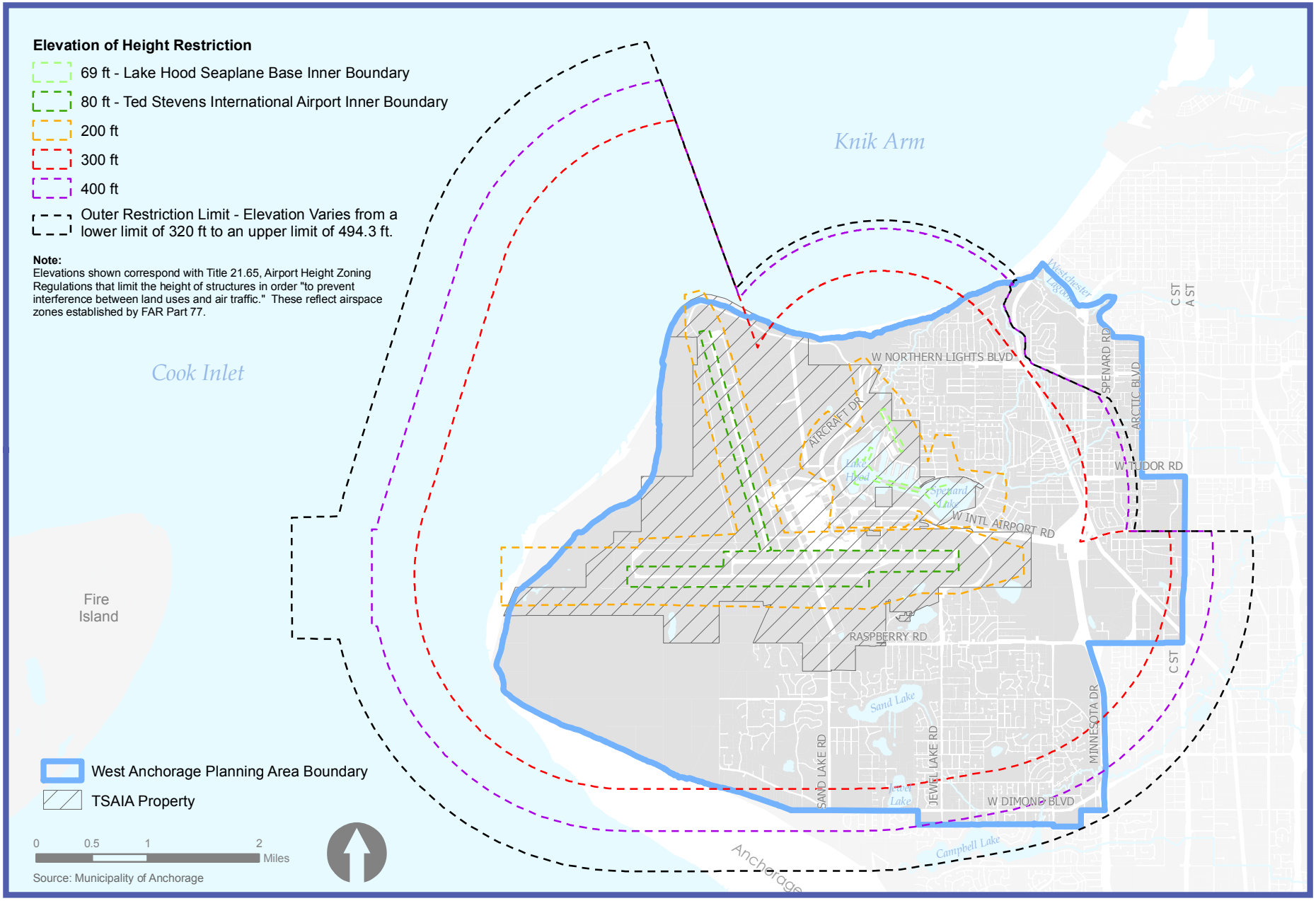
The TSAIA Aircraft Operations Area is surrounded by an eight-foot high security fence. Inside the fence, access is restricted to airport personnel, per Transportation Security Administration (TSA) regulation. While the perimeter fence is required for airport security, it has secondary effects on wildlife movement (predominantly moose) along the coast. Animals are constrained by the coastal bluff on the west and the airport fence on the east becoming narrowest near the end of both runways. Animals traveling along the fence are channeled toward the Tony Knowles Coastal Trail at these locations, increasing the number of human/wildlife interactions.

Lake Hood Seaplane Base is a popular attraction for both residents and visitors. There is a well-used, but unofficial, public walking route around Lake Hood and an existing picnic area on the northern shoreline of Spenard Lake (formerly under maintenance agreement with the Lions Club but presently without a sponsor). TSAIA management believes that controlled access to allow public viewing of aircraft is important to motivate and inspire the next generation of pilots; however, they are concerned about the interaction of pedestrians with aircraft and vehicles since the public frequently uses active taxiways and access roads for jogging, dog walking, and sightseeing. TSAIA initiated a Lake Hood Pedestrian Study in 2010 and is implementing a gateway/signage/pathway plan in 2011 to provide better safety for pilots, vehicles, and pedestrians in the GA area.

Airport Noise

Aircraft are a significant noise source in Anchorage. Within a six-mile radius in the Anchorage Bowl, there are 11 airfields (including TSAIA, LHD, Elmendorf Air Force Base, and Merrill Field Municipal Airport) that operate a diverse fleet of aircraft with carefully orchestrated airspace boundaries to meet federal aviation safety standards. In West Anchorage, airport noise is associated with aircraft and ground activities at TSAIA and GA operations at LHD. The number of GA operations and exposure to its noise fluctuates greatly during the year, peaking during the summer months. Noise in general (and airport noise in particular) can be difficult to manage due to the behavior of sound waves, the high noise levels generated by aircraft operations and the necessity of residential overflights during takeoffs and landings.

The FAA's Part 150 regulation establishes a voluntary program available to airports to mitigate the impacts of airport noise on surrounding communities. The program provides funding to document and assess aircraft noise and to provide enhanced sound insulation to eligible residences. Part 150 results in the creation of Noise Exposure Maps that depict DNL noise contours around an airport. These DNL contours are developed using a nationally standardized method for calculating aircraft noise levels based on noise averaging over the course of a year. Noise is described by the average annual day-night sound level (DNL). DNL is an average measure of noise (in decibels [dB]) during a 24-hour day, with night noise adjusted to account for the sensitivity of people sleeping. Sources of airport noise associated with ground operations have not historically been included as part of Part 150 studies, but TSAIA has prepared a separate ground noise study addressing these sources.



West Anchorage District Plan

Exhibit 2-11: Airport Height Restrictions

These average noise contours are intended to identify those residences with the greatest ongoing noise exposure for FAA sound insulation funding. Currently the funding threshold applies to residences exposed to airport noise exceeding 65 DNL and is only available to residences constructed prior to 1998. As of 2008, approximately 550 of the nearly 700 residential units lying within the TSAIA 65 DNL contour benefited from the Part 150 sound insulation program. The latest TSAIA Noise Exposure Map, approved by FAA in 1999, is reflected in Exhibit 2-12 and illustrates noise contours at 60 DNL and above.

The U.S. Environmental Protection Agency (EPA) sets National Ambient Air Quality Standards (NAAQS) for six criteria air pollutants: carbon monoxide (CO), ozone, sulfur dioxide, nitrogen dioxide, lead, and particulate matter. The airport produces less than 100 tons per year of each criteria pollutant for stationary sources, allowed under the Alaska Department of Environmental Conservation, Owner Request Limited (Alaska Statute 46.14 and 18 AAC50.225). Although Anchorage is in "attainment" for all NAAQS pollutants, the airport is a significant contributor of CO, which is discussed further in Section 2.7.2 and Table 2.7-1. Efforts to reduce airport CO are described in the *Airport Master Plan*. The presence of air toxics is also discussed in Section 2.7.2. Many older cargo planes that use TSAIA are at least partially exempted from current air quality regulations, which may present a further source of local pollutants.

2.5 Parks, Recreation, and Open Space

Exhibit 2-13 shows the 767 acres of parks and open space located in West Anchorage, excluding airport lands currently used for recreational purposes. One of Anchorage's largest parks, Kincaid Park, is located in West Anchorage and consists of large tracts of natural open space, summer/winter recreational trails, a race stadium, and a soccer field complex.

The Northwest Parks District contains a high concentration of parks, but most are characterized as being mini (one to five acres). The Spenard Recreation Center, which is a valuable athletic and community meeting space, is in this area.

The Southwest Parks District is characterized by well-developed recreation trail systems. It has a large concentration of Natural Resource Use areas (areas designated for preservation rather than public use), but a low amount of developed parks available for active recreational use.

Several park and trail facilities occur within the airport boundaries on state-owned land reserved for future airport development, including: Spenard Lake Beach, Point Woronzof parking and overlook, Connors Bog, DeLong Lake, and Little Campbell Lake as well as portions of the Tony Knowles Coastal Trail and Sisson Loop Trail system. These recreational facilities are available for public use through short-term monthly maintenance agreements granted to the Municipality by the State, many of which are expired in holdover status. Other sections of undeveloped land within the airport provide natural buffers. These include areas not under formal lease agreement for such uses, including parts of Turnagain Bog and wooded areas along Point Woronzof Drive, Raspberry Road and near Kulis.

There is a known archeological site in the planning area located along the bluff south of the AWWU facility in Pt. Woronzof Park. The site is deliberately not highlighted or shown in publications for its long term protection. Some preliminary excavation work has occurred at this Dena'ina site, which includes three structures as part of what was a seasonal fishing camp. State and federal regulations would apply to the protection and consideration of this site during any future potential development in the vicinity. The site's location may impact a future runway's alignment or Coastal Trail relocates.

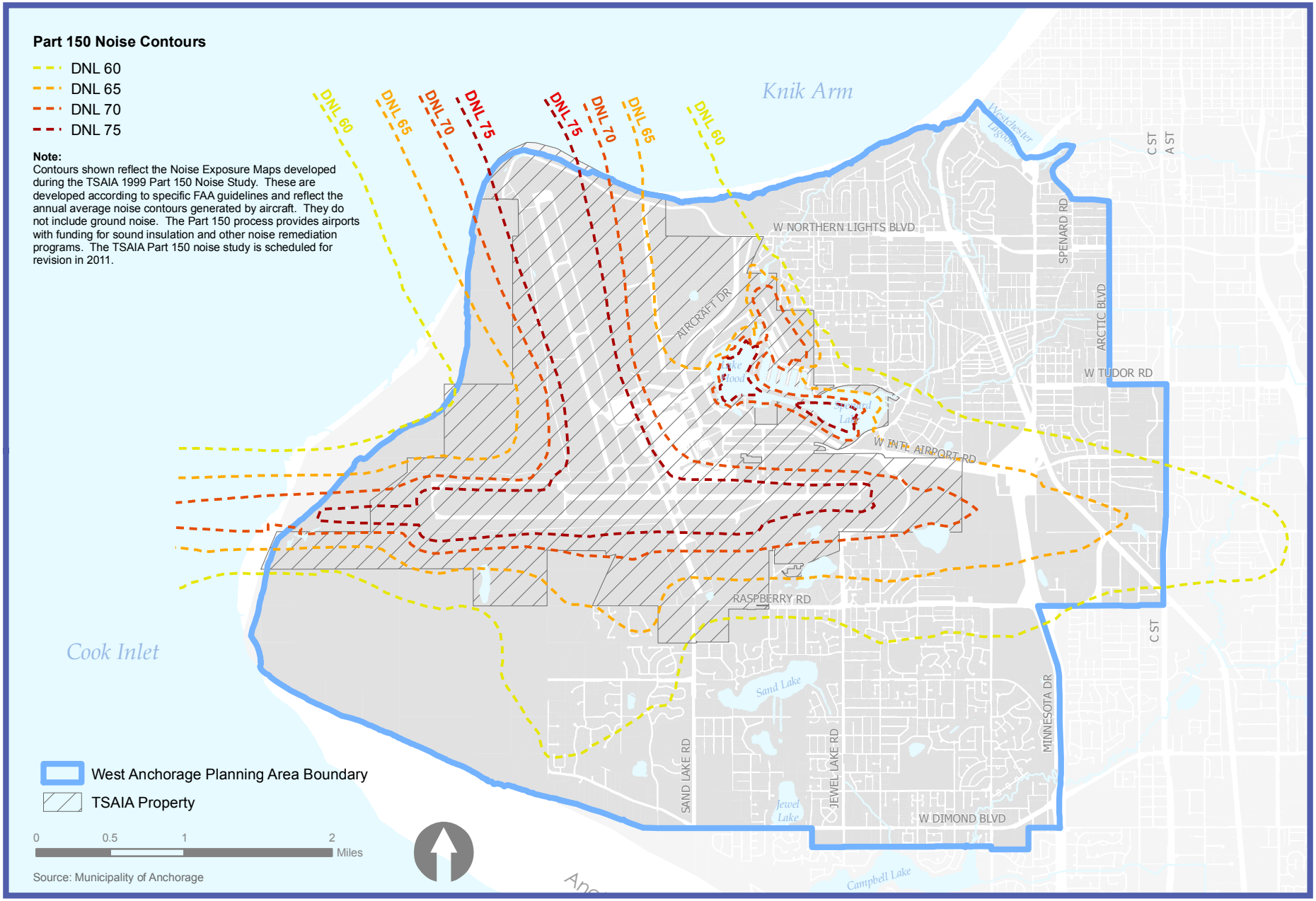
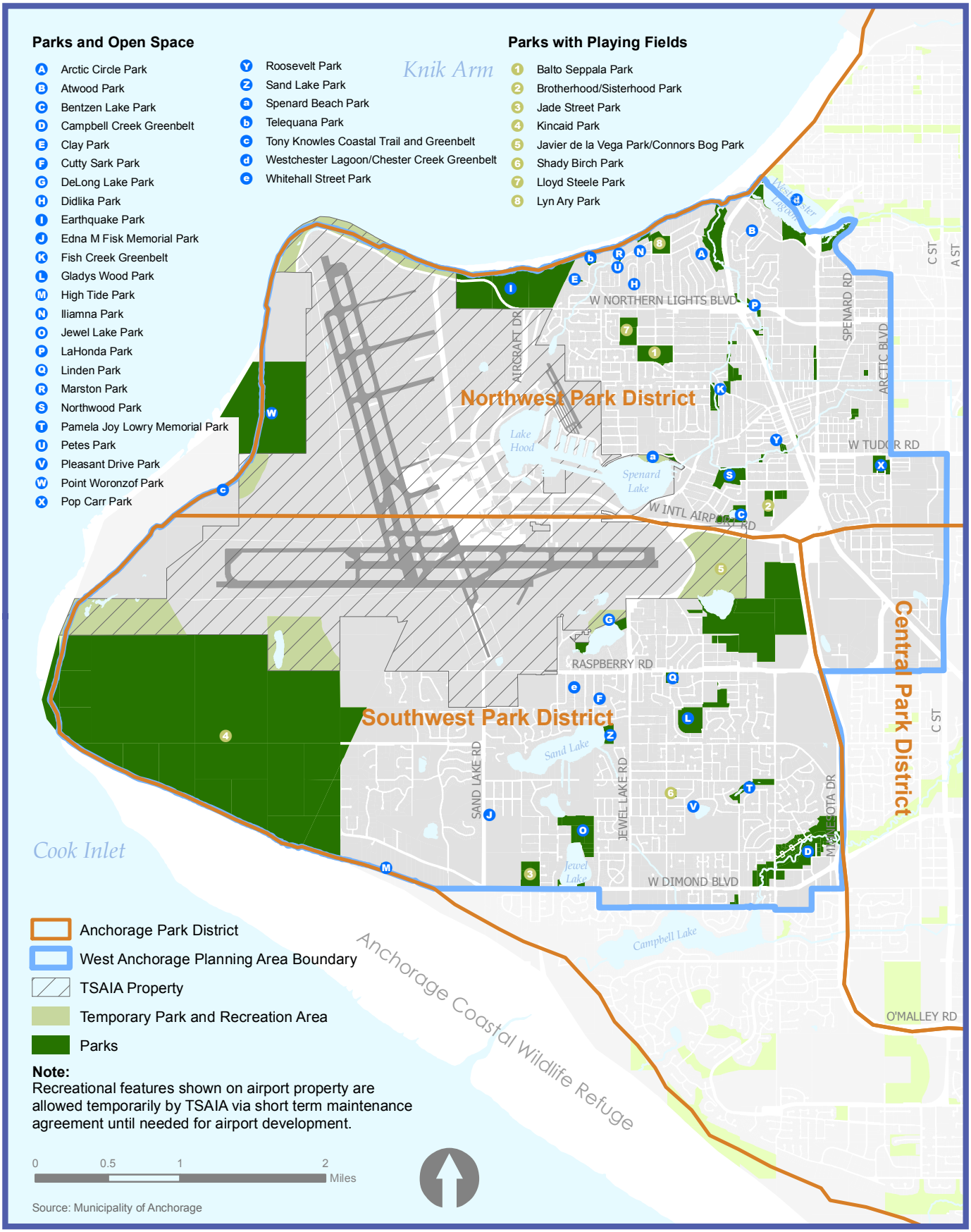


Exhibit 2-12: TSAIA Noise Contours


Parks and Open Space
A Arctic Circle Park
B Atwood Park
C Bentzen Lake Park
D Campbell Creek Greenbelt
E Clay Park
F Cutty Sark Park
G DeLong Lake Park
H Didlika Park
I Earthquake Park
J Edna M Fisk Memorial Park
K Fish Creek Greenbelt
L Gladys Wood Park
M High Tide Park
N Iliamna Park
O Jewel Lake Park
P LaHonda Park
Q Linden Park
R Marston Park
S Northwood Park
T Pamela Joy Lowry Memorial Park
U Petes Park
V Pleasant Drive Park
W Point Woronzof Park
X Pop Carr Park
Y Roosevelt Park
Z Sand Lake Park
a Spenard Beach Park
b Telequana Park
c Tony Knowles Coastal Trail and Greenbelt
d Westchester Lagoon/Chester Creek Greenbelt
e Whitehall Street Park
Parks with Playing Fields
1 Balto Seppala Park
2 Brotherhood/Sisterhood Park
3 Jade Street Park
4 Kincaid Park
5 Javier de la Vega Park/Connors Bog Park
6 Shady Birch Park
7 Lloyd Steele Park
8 Lyn Ary Park
Knik Arm
Northwest Park District
Southwest Park District
Central Park District
Cook Inlet
Anchorage Coastal Wildlife Refuge
W NORTHERN LIGHTS BLVD
W INTL AIRPORT RD
W TUDOR RD
RASPBERRY RD
W DIMOND BLVD
O'MALLEY RD
AIRCRAFT DR
SPENARD RD
ARCTIC BLVD
SAND LAKE RD
JEWEL LAKE RD
MINNESOTA DR
C ST
A ST
Lake Hood
Spenard Lake
Sand Lake
Jewel Lake
Campbell Lake
Anchorage Park District
West Anchorage Planning Area Boundary
TSAIA Property
Temporary Park and Recreation Area
Parks
Note:
Recreational features shown on airport property are allowed temporarily by TSAIA via short term maintenance agreement until needed for airport development.
0 0.5 1 2 Miles
Source: Municipality of Anchorage

2.6 Natural Environment

Notable environmental attributes of West Anchorage include areas of mature forest, mature neighborhood landscapes, frequent wildlife spotting, the Anchorage Coastal Wildlife Refuge, and stocked lakes. Due to the presence of industrial activity in West Anchorage, there is potential for noise and reduced air and water quality. Turnagain neighborhoods located near the coast within the 1964 earthquake slide area have very high exposure to future seismic events. Bluff erosion, especially near Point Woronzof, threatens slope stability.

2.6.1 Water Resources

Surface Waters

West Anchorage is dotted with many small lakes and ponds that serve important community functions. Most lakes in the area provide valuable wildlife habitat and year-round recreational opportunities. Sand Lake, Jewel Lake, Westchester Lagoon, and Campbell Lake are the centerpieces of subdivisions, while Lake Hood/Spenard Lake is the principal floatplane base in Anchorage.

Lakes Hood and Spenard are classified as impaired[8] due to their low dissolved oxygen (DO) levels associated with urban runoff and general aviation activity. This is an improvement from previous years due to implementation of an Alaska Department of Environmental Conservation-approved waterbody recovery plan. Westchester Lagoon contains fecal coliform (FC) bacteria associated with urban runoff.

Chester Creek, Campbell Creek, and Fish Creek are also impaired waterbodies[9] with FC bacteria due to urban runoff. Fish Creek has its headwaters in Midtown and runs through culverts for long segments. Efforts are underway to restore it to a free-flowing waterway because channelized streams are less able to mitigate large runoff events and can result in erosion and degradation of fish habitat. Hood Creek and Chester Creek have been modified from their natural states to accommodate urban development. Campbell Creek remains the least impacted of all the waterways in the area due to lower density development and a greenbelt system at the southern end of the Bowl.

Groundwater Quality and Contaminants

Numerous properties in the southwest section of the West Anchorage District planning area are served by private drinking water wells that utilize groundwater (Exhibit 2-4). Some of these are traditional wells on parcels where public water has yet to be extended and/or are associated with older subdivisions whose plats were based on private well service.

Some sections of West Anchorage have shown moderate nitrate levels in groundwater, but no private wells exceed EPA standards for drinking water. Recent studies of West Anchorage wells performed by the municipal Department of Health and Human Services (DHHS) have shown elevated arsenic levels, some of which may exceed EPA health guidelines. The current EPA limit for arsenic is 10 parts per billion. The Municipality has found that arsenic is a naturally occurring element in some Anchorage gravelly soils and bedrock; therefore, dissolved arsenic from weathered minerals can find its way into groundwater and surface waters. This process appears to be responsible for the elevated levels of arsenic found in groundwater that serves some wells in Anchorage. Private wells that have elevated arsenic levels are treated with simple filters, especially point-of-use filters at a kitchen tap or point-of-entry filters where water enters a home. A summary of the Municipality's findings and recommendations for arsenic in wells is on the DHHS web page.

[8] Category 5/Section 303(d) is a waterbody that is impaired for at least one designated use or one or more water quality standards are not attained. Listed in the ADEC, 2010 "Integrated Water Quality Monitoring and Assessment Report"
[9] Category 4a is an impaired waterbody that was previously listed in Category 5 but for which a total maximum daily load has been completed and approved by EPA (ADEC, 2010).

Anchorage Coastal Zone

The Anchorage Coastal Zone/Designated Recreation Areas include coastal floodplains and the upstream floodplains of creeks draining into coastal waters (Exhibit 2-14). The Anchorage Coastal Zone was established to ensure the preservation of coastal habitat and the maintenance of recreational use and public access to coastal areas, both seen as critical to the quality of life in the Municipality of Anchorage. Any activities with potential to impact the Anchorage Coastal Zone or the underlying physical, biological and cultural resources of a Recreation Use Area are required to undergo a review process. In West Anchorage, the MOA has designated Kincaid Park, the Tony Knowles Coastal Trail, and the Chester Creek Trail as Recreation Use Areas within the coastal zone, while a strip of land bordering Cook Inlet and the Fish Creek Estuary and Westchester Lagoon are inside the Anchorage Coastal Zone Boundary.[10]

Water Pollutants

Lakes and waterways in West Anchorage experience impacts related to their location in an urban environment, primarily from runoff. Storm water runoff collects contaminants from roads, lawns, and paved surfaces on its path to the waterways. These can include fuel spills, oils, and grease associated from vehicle operations.

Low levels of dissolved oxygen are typical in northern bog lakes such as those found in West Anchorage because bog lakes are shallow with high organic content that consume oxygen. West Anchorage lakes that permit float planes experience direct contamination from aviation-related fuels and grease.

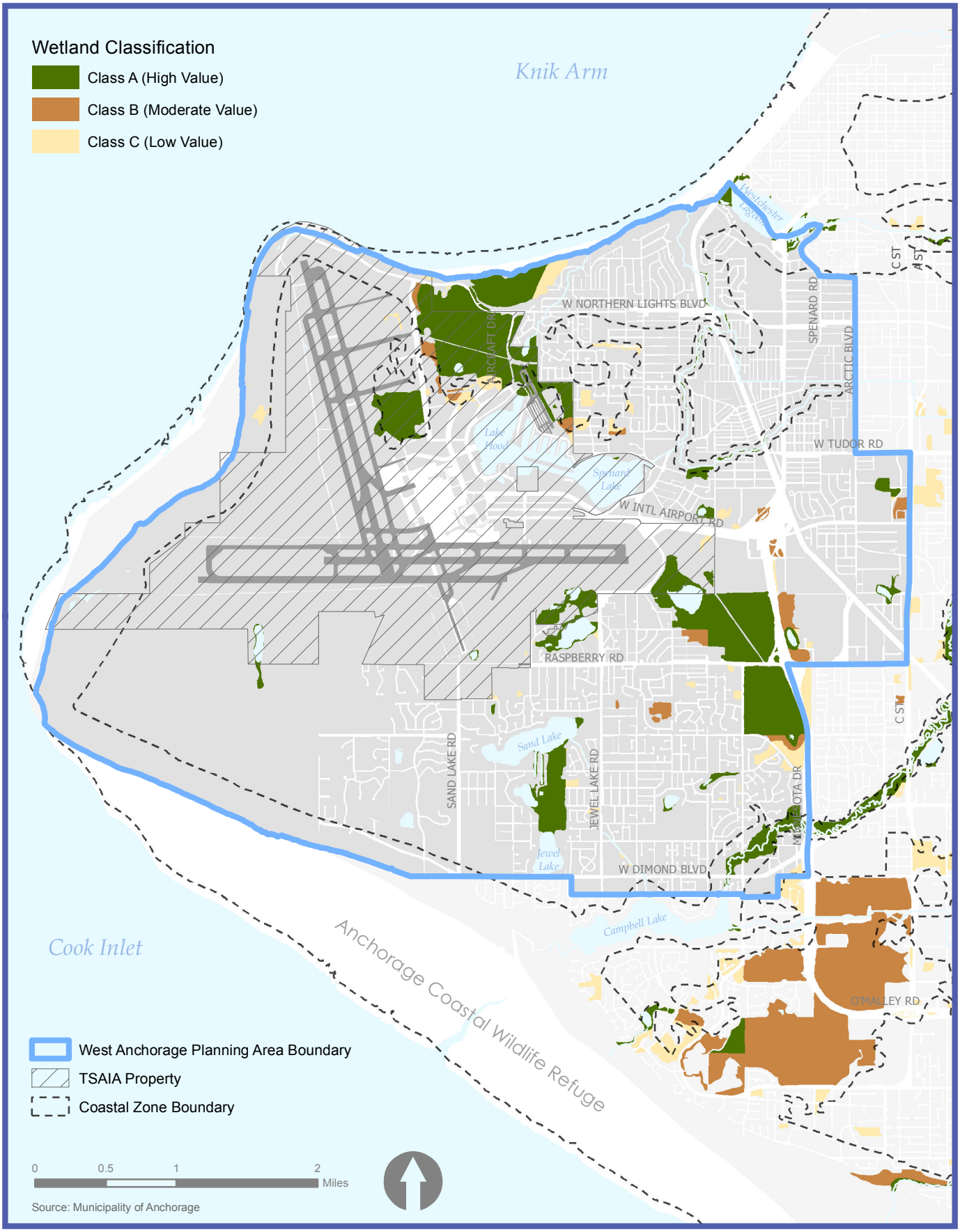
The MOA is covered by a National Pollutant Discharge Elimination System (NPDES) water quality permit, which is managed and monitored by the MOA Watershed Management Section of the Project Management and Engineering Division of Public Works.

Lake Hood and Lake Spenard were listed by ADEC as "impaired" because of impacts by limited inflow, high fecal coliform, lead, nitrates, phosphates, and low dissolved oxygen. Extensive aviation operations and urban runoff add contaminants to Lake Hood and Lake Spenard including fuel, oils and grease, and deicing agents (urea, potassium acetate, propylene, and ethylene glycols). Glycol recovery operations have improved water quality in Lakes Hood and Spenard. An active vegetation harvesting program alleviates deicing chemical impacts to the lakes consistent with the Airport's Waterbody Recovery.

Wetlands

Both freshwater and saltwater wetlands are found in West Anchorage. Saltwater wetlands are located in intertidal areas at the high tide line. Freshwater wetlands are scattered throughout the area and consist mostly of peat bogs. The *Anchorage Wetlands Management Plan* (1996) assigns formal designations for the fresh water wetlands within the planning area. These designations reflect varying ecological function and social values of wetlands. Class A wetlands are considered the highest value. If they cannot be avoided during development, they require substantial compensatory mitigation to minimize impacts to their functions and values. Class B and C wetlands are of less value but still require mitigation before development can be considered (Exhibit 2-14). Historically, a large proportion of the original wetland acreage in the planning area has been filled for development. Larger bogs and patterned ground wetlands still exist in West Anchorage in the TSAIA complex, Connors Bog, and the Sand Lake-Jewel Lake complex. Many of these wetlands are in public ownership, with others located on TSAIA.

[10] The State of Alaska's Coastal Management Program sunset on June 30, 2011, which means that the local *Anchorage Coastal Management Plan* no longer has standing in state matters. Since Anchorage's plan is an element of the Comprehensive Plan, its policies still apply to activities within the municipal coastal boundary.



West Anchorage District Plan

Exhibit 2-14: Wetlands Classifications and Coastal Zone Boundary

2.6.2 Air Quality

The community continues to express concern regarding odors in Kincaid Park, in Point Woronzof Park, along the Tony Knowles Coastal Trail, and in neighborhoods adjacent to the airport. Air emissions associated with jet fuel include inorganic gases like carbon monoxide (CO), carbon dioxide (CO2), nitrogen oxides (NO, NO2NOX), and Volatile Organic Compounds like benzene, oxygenated organics, which include compounds such as formaldehyde, acetaldehyde and aromatic hydrocarbons. In 2002, the DHHS studied ambient air in the winter in order to characterize concentrations for specific volatile organic compounds (VOCs) or generally, air toxics that can cause odors that the public reports. Airport activities did not cause unacceptable levels of carbon monoxide (CO) or VOCs.

The Municipality has been successful meeting air quality standards for CO and continues to monitor pollutant levels. The primary sources of CO in the Bowl are automobile traffic, airport operations, and wood burning (Table 2.6-1). CO levels vary throughout the year and are highest in the winter months due to cold starts and long morning idle times. Strong temperature inversions further compound the problem by trapping CO close to the ground. Exposure to odors in the airport area continues to be an issue in surrounding recreation and neighborhood areas.

Table 2.6-1
CO Emissions in the Anchorage Bowl, Typical Winter Weekday, 2007

Source Category	CO Emitted (tons/day)	Percent of Total
Motor vehicle – on-road travel	50.9	50.5%[a]
Motor vehicle – warm-up idle	16.1	16.0%[a]
Ted Stevens Anchorage International Airport Operations	12.4	12.3%
Merrill Field Airport Operations	0.7	0.7%
Wood burning – fireplaces and wood stoves	6.2	6.2%
Space heating – natural gas	3.8	9.2%
Miscellaneous (railroad, marine, snowmobiles, snow removal, portable electrical generators, welding)	9.3	9.2%
Point sources (power generation, sewage sludge incineration)	1.3	1.3%
TOTAL	**100.7**	**100.0%**

Source: MOA Department of Health and Human Services (DHHS), 2009. "Air Quality in Anchorage: A Summary of Air Quality Monitoring Data and Trends 1980-2008."

[a] A 2006 DHHS study found 77% of winter CO emissions in the MOA come from motor vehicles.

2.6.3 Natural Hazards

Natural hazards known to affect the planning area include earthquakes, wildfires, flooding, severe winter storms, and volcanic eruptions; the risk to development from seismic activity is the most unique to West Anchorage.

Small earthquakes occur frequently in Anchorage. There have been 12 events with a magnitude greater than 4.0, with an epicenter within the MOA boundary since 1900. Of these, only the Good Friday earthquake of 1964 caused any lasting damage, with large sections of the bluff near Earthquake Park sliding into Cook Inlet.

In West Anchorage, the MOA seismic hazard maps identify an area of "very high ground failure susceptibility risk" concentrated around Earthquake Park. This area roughly coincides with the Bootlegger Cove clay formation, while additional areas of "high risk" can be found along the coast, Westchester Lagoon, portions of Chester Creek, and Campbell Lake.

2.6.4 Fish and Wildlife

West Anchorage has an abundance of wildlife, largely resulting from the Municipality's extensive network of open space and greenways that provide effective wildlife habitat. These corridors allow travel from the Chugach State Park throughout the Bowl. High-value urban wildlife habitat in West Anchorage includes the Chester Creek Trail corridor, the Tony Knowles Coastal Trail corridor, Kincaid Park, the Anchorage Coastal Wildlife Refuge and adjacent forested bluff, Earthquake Park, the Fish Creek Estuary, and large tracts of undeveloped land surrounding the airport, including intertidal fringes.

Wetlands throughout the area provide important feeding and nesting habitat for sensitive migratory species, such as snow geese and sandhill cranes. The wood frog is the only native amphibian species present. Beluga whales are periodically observed along the coast, traveling in and out of upper Cook Inlet. These whales were listed as a "species of concern" in 1988 and then listed as an Endangered Species in 2008. The National Marine Fisheries Service designated critical habitat essential for beluga whale conservation in sections of Turnagain and Knik Arms in April 2011.

Anadromous streams in the planning area include Fish Creek, Chester Creek, and Campbell Creek, which have varying returns of all five salmon species. Recent habitat improvements have been undertaken at Westchester Lagoon to restore salmon runs to Chester Creek. DeLong and Jewel Lakes are stocked with rainbow trout for sport fishing annually. Invasive northern pike are present in many of the planning area's lakes, with Alaska Department of Fish and Game (ADF&G) efforts to eradicate them achieving only moderate success. Other fish commonly found in area lakes include grayling, arctic char, and stickleback.

For a complete listing of fish and wildlife found within the Municipality, including bird areas and nearshore areas valuable to juvenile and adult salmon and beluga whales, refer to the 2000 plan *Living with Wildlife in Anchorage: A Cooperative Planning Effort* and the 2007 *Anchorage Coastal Management Plan* resource maps. *Anchorage 2020* provides a map indicating important wildlife habitats and community preferences for natural open spaces.