

APPENDIX 2

Existing Conditions Summary and
Data Collection Analysis Report



Existing Conditions Summary and Data Collection Analysis Report

IRIS Project No. CSHWY00298



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ACRONYMS

AADT	annual average daily traffic
ABP	Anchorage Bicycle Plan
ACWA	Alaska Clean Water Actions
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
ADT	Average Daily Traffic
AHRS	Alaska Heritage Resources Survey
AKEPIC	Alaska Exotic Plants Information Clearinghouse
AMATS	Anchorage Metropolitan Area Transportation Solutions
AMC	Anchorage Municipal Code
APDES	Alaska Pollutant Discharge Elimination System
APE	Areas of Potential Effect
APP	Anchorage Pedestrian Plan
AWWU	Anchorage Water and Wastewater Utility
CEA	Chugach Electric Association
CO	carbon monoxide
CSS	Context Sensitive Solutions
CIPP	Cured-in-place pipe
DCM	Design Criteria Manual
DOT&PF	State of Alaska Department of Transportation and Public Facilities
EAFB	Elmendorf Air Force Base
EJ	Environmental Justice
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Administration
FHWA	Federal Highways Administration
GCI	General Communications, Inc.
H2H	highway to highway
HHS	United States Health and Human Services
HPS	high pressure sodium
IC	Institutional Controls
ISD	intersection sight distance
ITS	intelligent transportation system
LMP	Limited Maintenance Plan
LRTP	Long Range Transportation Plan
LWCF	Land and Water Conservation Fund
MBTA	Migratory Bird Treaty Act
MCR	Midtown Congestion Relief
ML&P	Municipal Light and Power
MOA	Municipality of Anchorage
mph	miles per hour
MTP	Metropolitan Transportation Plan
NAAQS	National Ambient Air Quality Standards
NAC	noise abatement criteria



NEPA.....	National Environmental Protection Agency
NHS.....	National Highway System
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OS&HP	Official Streets and Highways Plan
PEL.....	Planning and Environmental Linkages
PTR	permanent traffic recorder
RIRO.....	right in/right out
ROW.....	right-of-way
SHPO	State Historic Preservation Office
SWPPP.....	Storm Water Pollution Prevention Plan
TMC.....	turn movement counts
TMDL.....	total maximum daily loads
USACE	United States Army Corps of Engineers
USDA.....	United States Department of Agriculture
USFWS.....	United States Fish and Wildlife Service
WIM	weigh-in-motion



EXECUTIVE SUMMARY

The Existing Conditions Summary and Data Collection Analysis Report defines the study corridor, documents existing conditions using available data, and identifies data needs for further evaluation. It serves as an intermediary status report on the study team's review efforts and provides foundational information that will be further developed in existing conditions analysis to help identify sensible solutions to address safety, congestion, public commentary, and environmental concerns in the corridor. The report outlines the following elements.

Study Area Definition

The report defines the study corridor and study area used for existing and projected conditions analysis. Although the primary focus of the Planning and Environmental Linkages study is the Seward Highway corridor extending from the Tudor Road interchange to approximately the 20th Avenue intersection, the study area extends west past C Street and east beyond Lake Otis Parkway. The larger study area enables consideration of network transportation conditions, natural resources, and development patterns adjacent to the Seward Highway corridor that will likely affect identification and development of appropriate corridor solutions.

Analysis of Available Existing Conditions Data

The report outlines current conditions relating to planning and land use; the human environment and social context; the natural environment and physical context; and transportation features, modes, and operations. Areas noted in the report that will require additional investigation, coordination, and analyses of available data are identified in the Existing Conditions and Data Collection Analysis Summary table (Table ES-1).

Data Collection Needs

Data collection needs are outlined in the Existing Conditions and Data Collection Analysis Summary table (Table ES-1) to assist in framing future analysis required for the study effort.



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Table ES-1: Existing Conditions and Data Collection Analysis Summary Table

Roadway Features

Data Type	Available Data	Additional Analysis for PEL Study	Data Collection Needs
2.1 Roadway Ownership			
2.1.1 Ownership	Refer to Section 2.1.1 Figure 2	<ul style="list-style-type: none"> Considered for concept development 	<ul style="list-style-type: none"> Nil
2.2 Roadway Classifications and Designations			
2.2.1 Functional Classification	Refer to Section 2.2.1.1 Figure 3	<ul style="list-style-type: none"> Considered for concept development 	<ul style="list-style-type: none"> Nil
2.2.2 NHS Designations	Refer to Section 2.2.2.1 Figure 4	<ul style="list-style-type: none"> Considered for concept development 	<ul style="list-style-type: none"> Nil
2.2.3 Regional Truck Routes	Refer to Section 2.2.3.1 Figure 5	<ul style="list-style-type: none"> Truck movement facilitation 	<ul style="list-style-type: none"> Emergency access routes and response times Routes serving WB-67 trucks Oversized vehicle routing, dimensions and frequency Field inventory of vertical obstructions
2.2.4 Snow Maintenance Priorities	Refer to Section 2.2.4.1 Figure 6	<ul style="list-style-type: none"> Considered for concept development 	<ul style="list-style-type: none"> Disposal areas and other snow clearing practices How trails and walkways are cleared
2.3 Roadway Characteristics and Features			
2.3.1 Lane Configuration	Refer to Section 2.3.1.1	<ul style="list-style-type: none"> Typical cross section diagram preparation of existing Seward Highway corridor and concepts Available ROW widths and potential impacts Considered for concept development 	<ul style="list-style-type: none"> Field inventory of travel lane width, sidewalks, medians, etc Acquire as-built drawings where available ROW maps will be downloaded Existing traffic control and lane configurations of intersections specified in Figure 16 will be documented with related turn movement counts Signal timing plans throughout the day Driveway permit information sought Inventory of land uses, internal connections to adjacent driveways, and curb types Estimates of driveway volumes from traffic video collection
2.3.2 Traffic Control and Intersection Configuration	Refer to Section 2.3.2.1 Figure 16	<ul style="list-style-type: none"> Comparison with Alaska Highway Preconstruction Manual Stopping sight distance and intersection sight distance considered for driveway approaches 	<ul style="list-style-type: none"> Collect vehicle speed sample from Seward Highway and main cross streets Determine alternative routes and collect travel times to use as a comparison of how alternative routes affect speeds
2.3.3 Driveway Access	Refer to Section 2.3.3.1 Figure 8	<ul style="list-style-type: none"> 85th percentile speed calculated and compared to existing speed limits Crash data analysis to identify the effect of speed on crash statistics Comparative analysis of alternative route travel times and effects on vehicle speeds following identification of corridor concepts 	<ul style="list-style-type: none"> Additional data such as superelevation, design speed, profile, geometry, etc., will be obtained through record drawings Fieldwork along the Seward Highway to identify potential stopping sight distance or intersection sight distance limitations
2.3.4 Speed Limits	Refer to Section 2.3.4.1 Figure 9	<ul style="list-style-type: none"> Vertical geometry considered for corridor concepts 	<ul style="list-style-type: none"> Condition of existing pedestrian and stream culverts will be checked and documented
2.3.5 Horizontal and Vertical Geometrics	Refer to Section 2.3.5.1 Figure 10	<ul style="list-style-type: none"> Consideration of MOA feedback desiring culvert removal for concept development 	<ul style="list-style-type: none"> Review of as-built drawings of Seward Highway Field data collection of location, height, mast arm, spacing, age, use of LED, etc., for luminaires to supplement as-built drawing information
2.3.6 Structures	Refer to Section 2.3.6.1 Table 2 Figure 11	<ul style="list-style-type: none"> Identification of existing lighting and maintenance concerns from DOT&PF maintenance staff Identification of different lighting layouts and needs associated with concepts development 	
2.3.7 Lighting	Refer to Section 2.3.7.1		



Data Type	Available Data	Additional Analysis for PEL Study	Data Collection Needs
2.3.8 Pedestrian and Bicycle Facilities			
	Refer to Section 2.3.8.1 Figure 12	<ul style="list-style-type: none"> Identify pedestrian and bicycle connectivity deficiencies 	<ul style="list-style-type: none"> Additional coordination/inventory effort to add Seward Highway trail and others as identified to study area database Inventory of existing trail condition and ADA compliance through field investigation
2.3.9 Intelligent Transportation System (ITS) Architecture			
	Refer to Section 2.3.9.1	<ul style="list-style-type: none"> Corridor concepts will consider ITS improvement opportunities and modifications to existing facilities 	<ul style="list-style-type: none"> Additional information gathered from record drawings and coordination with DOT&PF and MOA ITS staff
2.4 Multimodal Traffic Volumes			
2.4.1 Annual Average Daily Traffic (AADT)			
	Refer to Section 2.4.1.1 Figure 13 Figure 14 Figure 15	<ul style="list-style-type: none"> Daily and seasonal traffic for cross streets using traffic data from other PTR locations in study area using data through November 12, 2017 	<ul style="list-style-type: none"> Nil
2.4.2 Truck Volumes			
	Refer to Section 2.4.2.1	<ul style="list-style-type: none"> Nil 	<ul style="list-style-type: none"> Intersection turn movement counts will include heavy truck percentages for each intersection movement
2.4.3 Intersection Turn Movement Volumes			
	Refer to Section 2.4.3.1 Figure 16	<ul style="list-style-type: none"> Turn movements will be documented and LOS analysis performed for study intersections in Figure 16 	<ul style="list-style-type: none"> Nil
2.4.4 Pedestrian and Bicycle Volumes			
	Refer to Section 2.4.4.1	<ul style="list-style-type: none"> Bicycle and pedestrian crossing needs will be identified for the Seward Highway corridor and contribute to concept development 	<ul style="list-style-type: none"> Nil
2.4.5 Transit Routes and Ridership			
	Refer to Section 2.4.5.1 Figure 17 Figure 18	<ul style="list-style-type: none"> Considered for concept development 	<ul style="list-style-type: none"> Inventory of transit stop facilities on Northern Lights and Benson Boulevards New ridership trends following the October 2017 system redesign implementation
2.5 Traffic Safety			
2.5.1 Safety			
	Refer to Section 2.5.1	<ul style="list-style-type: none"> Detailed traffic analysis will be performed for the Seward Highway corridor study area and intersecting segments of crossing streets Summary crash statistics, such as crash rate, will be calculated for major intersections in the larger study area 	<ul style="list-style-type: none"> Field studies to evaluate the issues that could be contributing to increased crash rates and pedestrian fatalities
Utilities			
Data Type	Available Data	Additional Analysis for PEL Study	Data Collection Needs
3.1 Utilities	Refer to Section 3.1.1	<ul style="list-style-type: none"> A review and update of utility information will be required and completed as part of the existing conditions review 	<ul style="list-style-type: none"> To be determined during the review of utility information
Social, Economic, and Community Characteristics			
Data Type	Available Data	Additional Analysis for PEL Study	Data Collection Needs
4.1 Plans and Policies			
4.1.1 Anchorage Bowl Comprehensive Plan 2020			
	Refer to Section 4.1.1.1	<ul style="list-style-type: none"> Further and more in-depth review in support of concept development 	<ul style="list-style-type: none"> Nil
4.1.2 Anchorage 2040 Land Use Plan (Anchorage 2040)			
	Refer to Section 4.1.2.1	<ul style="list-style-type: none"> Further and more in-depth review in support of concept development Consideration of traffic level of service implications, and Secondary Road network 	<ul style="list-style-type: none"> Nil Nil
4.1.3 The Official Streets and Highway Plan			
	Refer to Section 4.1.3.1	<ul style="list-style-type: none"> Further and more in-depth review in support of concept development 	<ul style="list-style-type: none"> Nil
4.1.4 2035 and 2040 Metropolitan Transportation Plan (MTP)			
	Refer to Section 4.1.4.1	<ul style="list-style-type: none"> The 2035 MTP will be obsolete prior to the completion of the PEL Study 	<ul style="list-style-type: none"> Nil



Data Type	Available Data	Additional Analysis for PEL Study	Data Collection Needs
4.1.5 2007 Anchorage Pedestrian Plan (APP)	Refer to Section 4.1.5.1	<ul style="list-style-type: none"> Monitor development of the 2040 MTP and its impact on existing and future conditions 	<ul style="list-style-type: none"> The APP is currently being updated as part of the new Anchorage Non-Motorized Transportation Plan
4.1.6 2010 Anchorage Bicycle Plan (ABP)	Refer to Section 4.1.6.1	<ul style="list-style-type: none"> Further and more in-depth review in support of concept development 	<ul style="list-style-type: none"> The ABP is currently being updated as part of the new Anchorage Non-Motorized Transportation Plan
4.1.7 Anchorage Municipal Code Title 21 Land Use Code	Refer to Section 4.1.7.1	<ul style="list-style-type: none"> Further and more in-depth review in support of concept development Nil 	<ul style="list-style-type: none"> Nil
4.1.8 Context Sensitive Solutions	Refer to Section 4.1.8.1	<ul style="list-style-type: none"> The MOA is currently updating its CSS Strategy. The principles of CSS will be considered through the concept development process and public outreach 	<ul style="list-style-type: none"> Nil
4.1.9 2012 Anchorage Water Master Plan	Refer to Section 4.1.9.1	<ul style="list-style-type: none"> Confirm project dates as part of concept development 	<ul style="list-style-type: none"> Nil
4.1.10 2014 Anchorage Wastewater Master Plan	Refer to Section 4.1.10.1	<ul style="list-style-type: none"> Communication with AWWU is recommended to identify opportunities for infrastructure improvement projects within the project corridor. Potential impacts to existing AWWU infrastructure will be assessed following the identification of corridor concepts. 	<ul style="list-style-type: none"> Nil
4.1.11 Chester Creek Watershed Plan	Refer to Section 4.1.11.1	<ul style="list-style-type: none"> Consideration of icing and glaciation of Chester Creek during winter months as part of concept development 	<ul style="list-style-type: none"> Nil
4.1.12 CEA Distribution Facilities Undergrounding Plan 2017-2021 and ML&P 5-Year Plan 2017-2021 for the Removal of Non-Conforming Overhead Lines in Accordance with MOA Title 21.07.050	Refer to Section 4.1.12.1	<ul style="list-style-type: none"> Nil 	<ul style="list-style-type: none"> Nil
4.2 Social, Economic and Community Characteristics			
4.2.1 Socio-Economic Conditions	Refer to Section 4.2.1.1 Figure 19	<ul style="list-style-type: none"> Determination and analysis of most appropriate data grouping based on likely extent of concepts and corresponding final study area 	<ul style="list-style-type: none"> Analysis of data based on study area
4.2.2 Environmental Justice	Refer to Section 4.2.2.1	<ul style="list-style-type: none"> Spatial-specific analysis of environmental justice populations following initial concept selection 	<ul style="list-style-type: none"> Analysis of data based on study area and initial concept selection
4.2.3 Land Ownership, Land Use, and Right-of-Way (ROW)	Refer to Section 4.2.3.1 Figure 20	<ul style="list-style-type: none"> ROW analysis of the Seward Highway corridor will be performed to determine compliance with ROW requirements Identify new ROW easements and construction permit requirements if improvement concepts extend beyond existing ROW limits 	<ul style="list-style-type: none"> Nil
4.3 Special Land Use Designations			
4.3.1 Historic Properties	Refer to Section 4.3.1.1 Figure 21	<ul style="list-style-type: none"> Cultural resources survey 	<ul style="list-style-type: none"> Desktop and field analysis of structures located in area of potential effect
4.3.2 Section 4(f) Properties	Refer to Section 4.3.2.1 Figure 22	<ul style="list-style-type: none"> Evaluation of Section 4(f) properties in the study area (Figure 22) 	<ul style="list-style-type: none"> Nil
4.3.3 Section 6(f) Properties	Refer to Section 4.3.3.1 Figure 23	<ul style="list-style-type: none"> Evaluation of proximity to section 6(f) properties to determine if environmental documentation is required following concept development 	<ul style="list-style-type: none"> Dependent on type of potential project effects to Section 6(f) properties, primary and intended uses would be determined and boundaries obtained from MOA
4.3.4 Hazardous Sites	Refer to Section 4.3.4.1 Figure 24	<ul style="list-style-type: none"> Active sites and sites with Institutional Controls may require coordination with ADEC during concept development 	<ul style="list-style-type: none"> Reports related to sites impacted by the preferred improvement concept will be obtained from ADEC



Natural Environment and Physical Context

Data Type	Available Data	Additional Analysis for PEL Study	Data Collection Needs
5.1 Aquatic Resources			
5.1.1 Water Bodies and Water Quality	Refer to Section 5.1.1.1 Figure 25	<ul style="list-style-type: none"> Potential effects to approved total maximum daily loads will be assessed 	<ul style="list-style-type: none"> Assessment of total maximum daily loads, monitoring status and studies will be needed to determine the potential effect of any concept
5.1.2 Floodplains	Refer to Section 5.1.2.1	<ul style="list-style-type: none"> No additional analysis is anticipated unless concepts impact the mapped floodplain 	<ul style="list-style-type: none"> Nil
5.1.3 Wetlands	Refer to Section 5.1.3.1	<ul style="list-style-type: none"> Field-based wetland delineation may be needed dependent on improvement concepts 	<ul style="list-style-type: none"> Field-based wetland delineation may be needed dependent on improvement concepts
5.2 Soils and Geology			
5.2.1 Soils and Geology Conditions	Refer to Section 5.2.1.1 Figure 26 Figure 27	<ul style="list-style-type: none"> Detailed analysis of soils and geology will be required in areas recommended for improvement concepts 	<ul style="list-style-type: none"> An engineering review will be undertaken of available soils/geology data as part of concept development
5.3 Biological Resources			
5.3.1 Threatened and Endangered Species	Refer to Section 5.3.1.1	<ul style="list-style-type: none"> Nil 	<ul style="list-style-type: none"> Nil
5.3.2 Fish and Wildlife	Refer to Section 5.3.2.1	<ul style="list-style-type: none"> If an improvement concept impacts Chester Creek, a Fish Habitat Permit will be required from Alaska Department of Fish and Game. Potential effects assessment will include accessing DOT&PF's wildlife-vehicle collisions data 	<ul style="list-style-type: none"> The most current DOT&PF wildlife-vehicle collisions data will be obtained
5.3.3 Migratory Birds	Refer to Section 5.3.3.1	<ul style="list-style-type: none"> Areas with shrub or tree cover will be assessed to determine areas potentially affected by the Migratory Bird Treaty Act 	<ul style="list-style-type: none"> If needed, a windshield survey of affected areas would be conducted to determine the presence of eagle nests
5.3.4 Invasive Species	Refer to Section 5.3.4.1 Figure 28	<ul style="list-style-type: none"> Field surveys for noxious weeds should take place prior to concept implementation 	<ul style="list-style-type: none"> Existing DOT&PF records of noxious weed monitoring will be obtained
5.4 Ambient Environment			
5.4.1 Noise	Refer to Section 5.4.1.1	<ul style="list-style-type: none"> Noise studies will likely be needed for any Type I projects recommended from the PEL study 	<ul style="list-style-type: none"> Sensitive receptors within concept locations will be mapped following selection Noise measurements will be undertaken following the identification of a preferred concepts
5.4.2 Air Quality	Refer to Section 5.4.2.1	<ul style="list-style-type: none"> Air quality conformity analysis will be completed to determine further analysis needed once concepts are identified 	<ul style="list-style-type: none"> Data from carbon monoxide monitoring sites will be collected once preferred improvement concepts are selected
5.4.3 Visual Resources	Refer to Section 5.4.3.1	<ul style="list-style-type: none"> The visual character of the study area will be generally described once improvement concepts are identified 	<ul style="list-style-type: none"> Nil.



1.0 INTRODUCTION

1.1 Study Overview and History

The Midtown Congestion Relief initiative (MCR) is focused on the area surrounding the Seward Highway Corridor from the Tudor Road interchange to approximately the 20th Avenue intersection through Midtown Anchorage (see Figure 1). The intersections in this corridor have some of the longest delays and highest crash rates in Alaska. Traffic along this corridor is expected to roughly double in the next 20 to 30 years and, without significant improvements, congestion will increase dramatically in the Midtown region. The Seward Highway also creates challenges for multi-modal traffic trying to travel between the residential areas to the east, and the commercial areas to the west.

This initiative was preceded by unfinished projects that similarly sought to address traffic congestion issues on the Seward Highway where it transitions from a controlled access freeway south of Tudor Road to a slower speed major arterial road north of 36th Avenue. This new effort represents a fresh start in the study area to evaluate corridor concepts, select a preferred concept, and implement/construct the selected improvements. Planning and Environment Linkages (PEL) is a project streamlining initiative identified by the Federal Highway Administration (FHWA) to shorten delivery for road projects in the United States. It is a project approach that incorporates information developed during project planning into the National Environmental Policy Act (NEPA) process, which reduces duplicative work and costs, and leads to more informed and faster decisions, more transparent planning practices, and better coordination among stakeholders.

The MCR PEL will begin with a traffic study to evaluate the inter-related issues surrounding the closely-spaced, signalized intersections between 20th and 36th Avenues with a focus on congestion relief in the Midtown area. An extensive public and stakeholder outreach combined with technical planning and environmental analysis will be used to define the corridor vision and develop a realistic implementation plan.

1.2 Purpose of PEL Study

The PEL study will establish a shared corridor vision, garner public and agency concurrence on the scope of individual projects, and identify environmental concerns in anticipation of environmental documentation efforts. The outcome of the PEL effort will be a planning document that identifies a logical corridor build-out plan with several distinct projects that have independent purpose and need, logical termini, and independent utility. This effort is state funded but will follow the federal process in anticipation of federal funding for final design and construction. After the PEL study is complete and pending the availability of construction funding, DOT&PF will initiate implementation of the highest priority project(s) recommended by the PEL study.

1.3 Purpose of this Report

This report defines scope of data needs for the PEL Study; documents available data; and documents data gaps and how and when it should be collected. It serves as an intermediary status report on the study team's review efforts and provides foundational information that will be

further developed in existing conditions analysis to help identify sensible corridor solutions to address safety, congestion, public commentary, and environmental concerns.

The credibility of the PEL process is reliant on the quality and sufficiency of the conditions data, as well as the ability to use this information for future analysis of the study corridor. Appendix A summarizes data collection needs, and discrepancies that will need to be addressed in order to complete the PEL process. This report addresses the following elements.

- **Study Area Definition**

The report defines the study corridor and study area used for existing and projected conditions analysis.

- **Existing Conditions**

The report outlines current conditions relating to planning and land use; the human environment and social context; the natural environment and physical context; and transportation features, modes, and operations using available data.

- **Additional Analysis**

The report summarizes additional analysis that will be carried out as part of either existing conditions or the analysis of improvement alternatives throughout the PEL effort.

- **Data Collection Needs**

Data collection needs are summarized throughout this report to assist in framing future analyses.

- **Basis for Goals and Objectives**

Key findings from this report will be used to support development of corridor goals and objectives.

1.4 Study Corridor and Study Area

Although the primary focus of this PEL analysis is the Seward Highway corridor extending from the Tudor Road interchange to approximately the 20th Avenue intersection through Midtown Anchorage (outlined in blue in Figure 1), the study area extends west past C Street and east beyond Lake Otis Parkway (outlined in green in Figure 1). The larger study area enables consideration of traffic and transportation conditions, natural resources, and development patterns in the broader area that will likely affect identification and development of appropriate Seward Highway corridor solutions. Furthermore, there could be improvement projects to the multi-modal and secondary road network that are integral to the success of the preferred corridor concept.



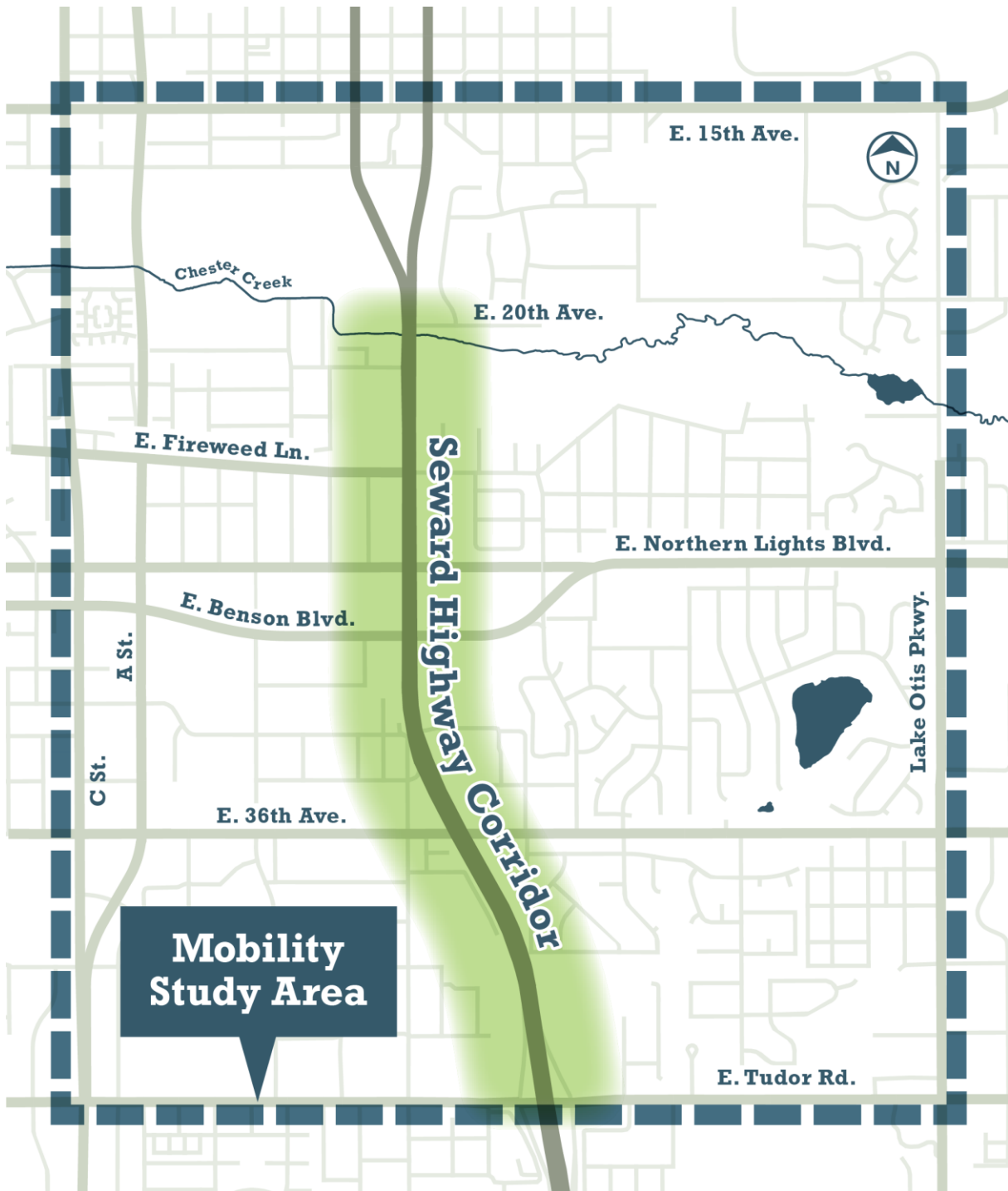


Figure 1. Study Area



2.0 ROADWAY FEATURES

2.1 Roadway Ownership

2.1.1 Ownership

2.1.1.1 *Available Data*

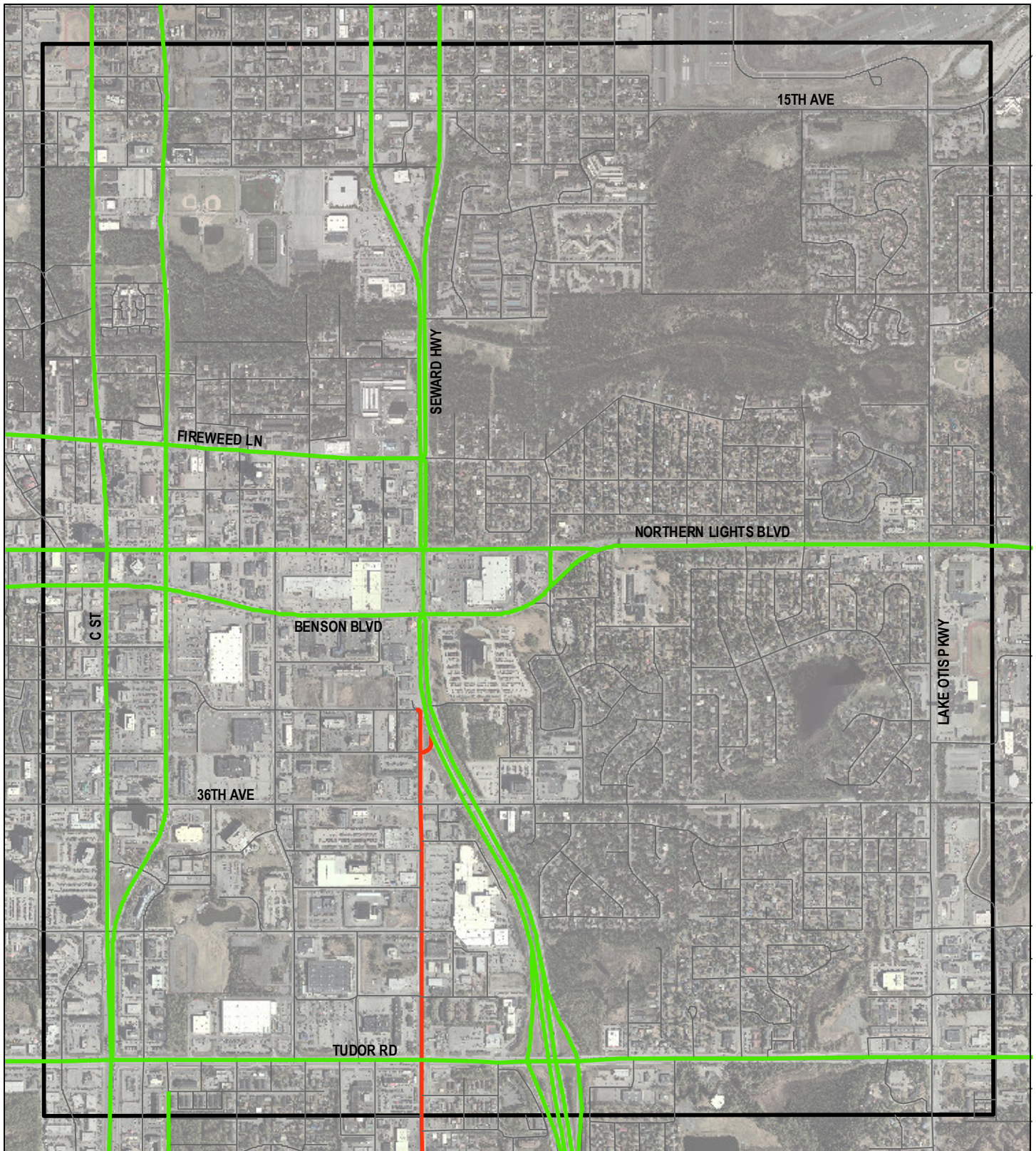
The Seward Highway is owned and maintained by DOT&PF, as shown in Figure 2 (State Highway Agency). Other major roadways within the study area (including Northern Lights Boulevard, Benson Boulevard, Tudor Road, A Street, C Street, and Fireweed Lane west of the Seward Highway) fall under DOT&PF ownership and management responsibilities. The Municipality of Anchorage (MOA) owns and operates the remaining major roadways within the study area.

2.1.1.2 *Additional Analysis for the PEL Study*

The roadway ownership information will facilitate coordination with the two agencies and will be considered when identifying appropriate design standards when developing concepts.

2.1.1.3 *Data Collection Needs*

None identified.



- Study Area
- State-DOT&PF (Summer and Winter)
- MOA (Summer and Winter)
- MOA (Summer) State-DOT&PF (Winter)



Figure 2: Roadway Management Responsibility

2.2 Roadway Classifications and Designations

Roadways are assigned classifications and designations that assist agencies with design, maintenance, operations, and management decisions.

2.2.1 Functional Classification

2.2.1.1 Available Data

Functional classification is a hierarchical system used by DOT&PF and the MOA to classify each road based on its relative emphasis on mobility versus land access. The intent is to allow drivers to transition between the adjacent levels of the hierarchy (land access to increasing levels of mobility and back down the hierarchy to land access) while traveling between destinations to improve safety and efficiency of travel throughout the network. Table 1 lists the classifications used by DOT&PF and the MOA.

Table 1: Functional Classification Hierarchy

Functional Classifications		
	DOT&PF Urban	MOA (OS&HP)
	Principal Arterial - Interstate	Freeway
	Principal Arterial - Other Freeways and Expressways	Expressway
	Other Principal Arterial	Major Arterial
	Minor Arterial	Minor Arterial
	Collector	Collector
	Local Road	Local Road

Freeways, expressways, and interstates provide the greatest mobility but are intended to have limited access (i.e., higher travel speeds primarily serving long-distance travel). Local roads focus on land access and have limited mobility (i.e., lower travel speeds primarily serving adjacent land uses). Arterial and collector roads are intermediate classifications that provide transitions between other roads. Arterial roads focus more on mobility and provide connections between the freeway system and collector roads, while collector roads focus more on land access and provide connections between arterial and local roads.

Figure 3 shows DOT&PF classifies the Seward Highway as an Interstate roadway and the majority of the crossing roadways are Other Principal Arterial Roads. Figure 4 shows the MOA classifies the Seward Highway as a Freeway and the majority of the crossing roadways are Major Arterial Roads. Details of the MOA's functional classifications are provided in the Anchorage Official Streets and Highways Plan (OS&HP)¹. Both agencies classify the Seward Highway as the highest classification roadway, signifying the intent to focus on mobility and limited access.

2.2.1.2 Additional Analysis for the PEL Study

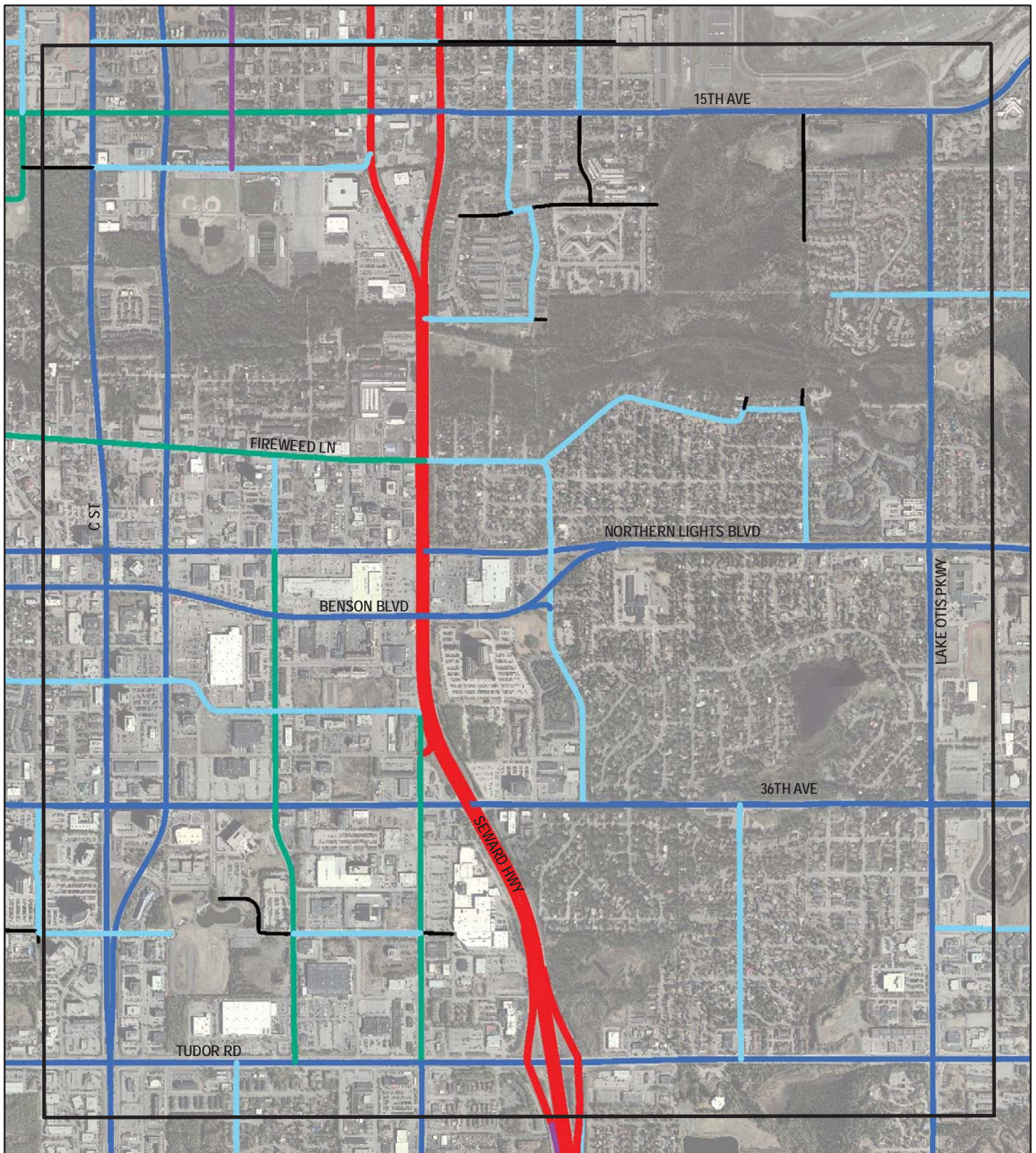
The roadway functional classification gives perspective regarding changes to roadway mobility versus access. Each roadway's classification will be considered when identifying appropriate design standards and determining right-of-way (ROW) needs for corridor concepts.

2.2.1.3 Data Collection Needs

None identified.

¹ *Official Streets and Highways Plan*, Municipality of Anchorage, Adopted as an element of the Comprehensive Plan, June 24, 2014 by Assembly Ordinance 2014-63

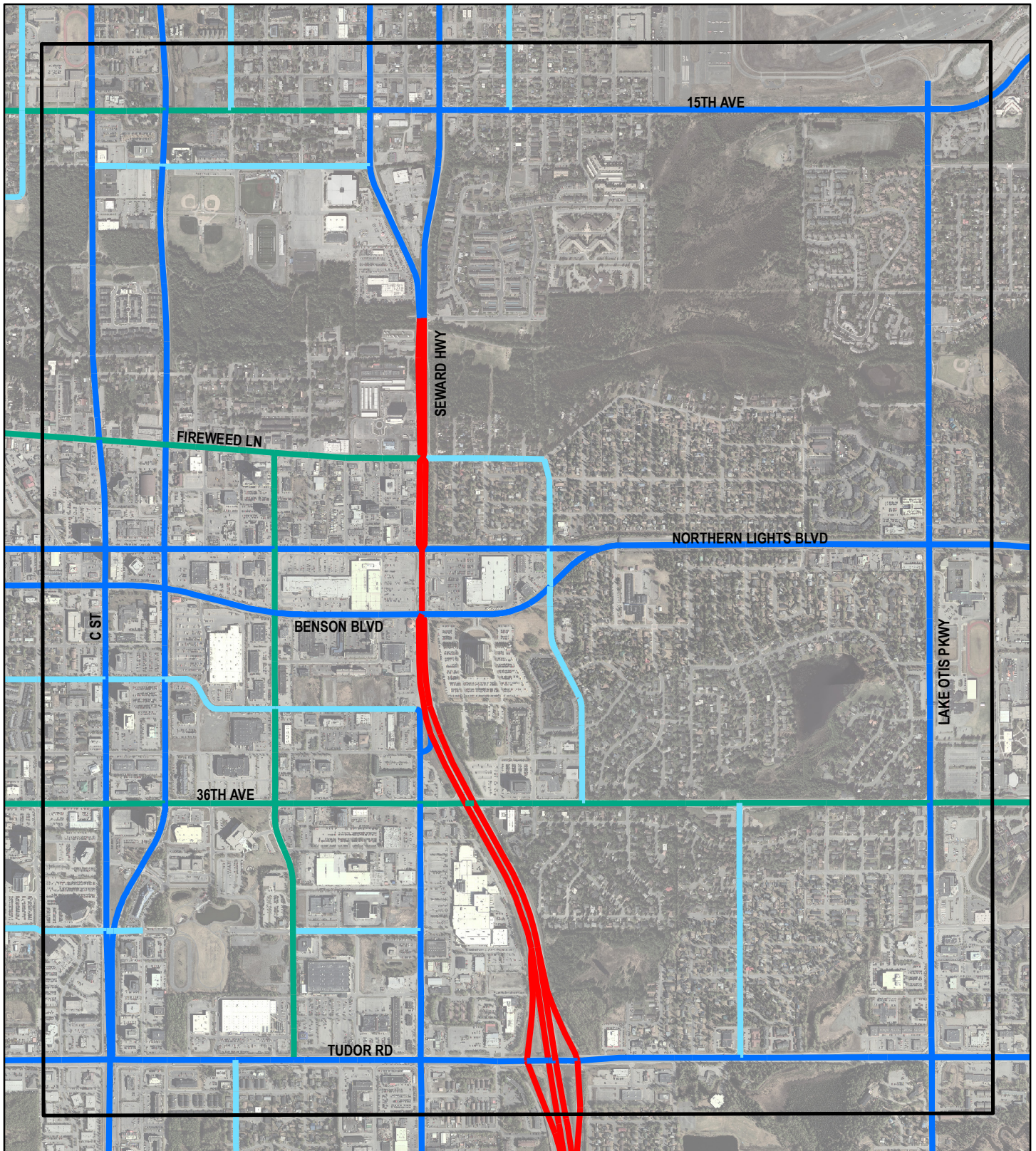




- | | | |
|----------------------------|-----------------|-----------------|
| Study Area | INTERSTATE | MAJOR COLLECTOR |
| PRINCIPAL ARTERIAL - OTHER | MINOR COLLECTOR | LOCAL |
| MINOR ARTERIAL | | |



Figure 3: DOT&PF Functional Classifications



- Study Area
- Freeway
- Major Arterial
- Minor Arterial
- Collector



Figure 4: MOA Functional Classifications

2.2.2 NHS Designations

2.2.2.1 Available Data

The National Highway System (NHS) is a network of strategic highways within the United States that are important to the nation's economy, defense, and mobility. It includes the Interstate Highway System, as well as other roads serving major airports, ports, rail or truck terminals, railway stations, pipeline terminals, and other strategic transport facilities. States are encouraged to focus federal funds on improving the efficiency and safety of this network.

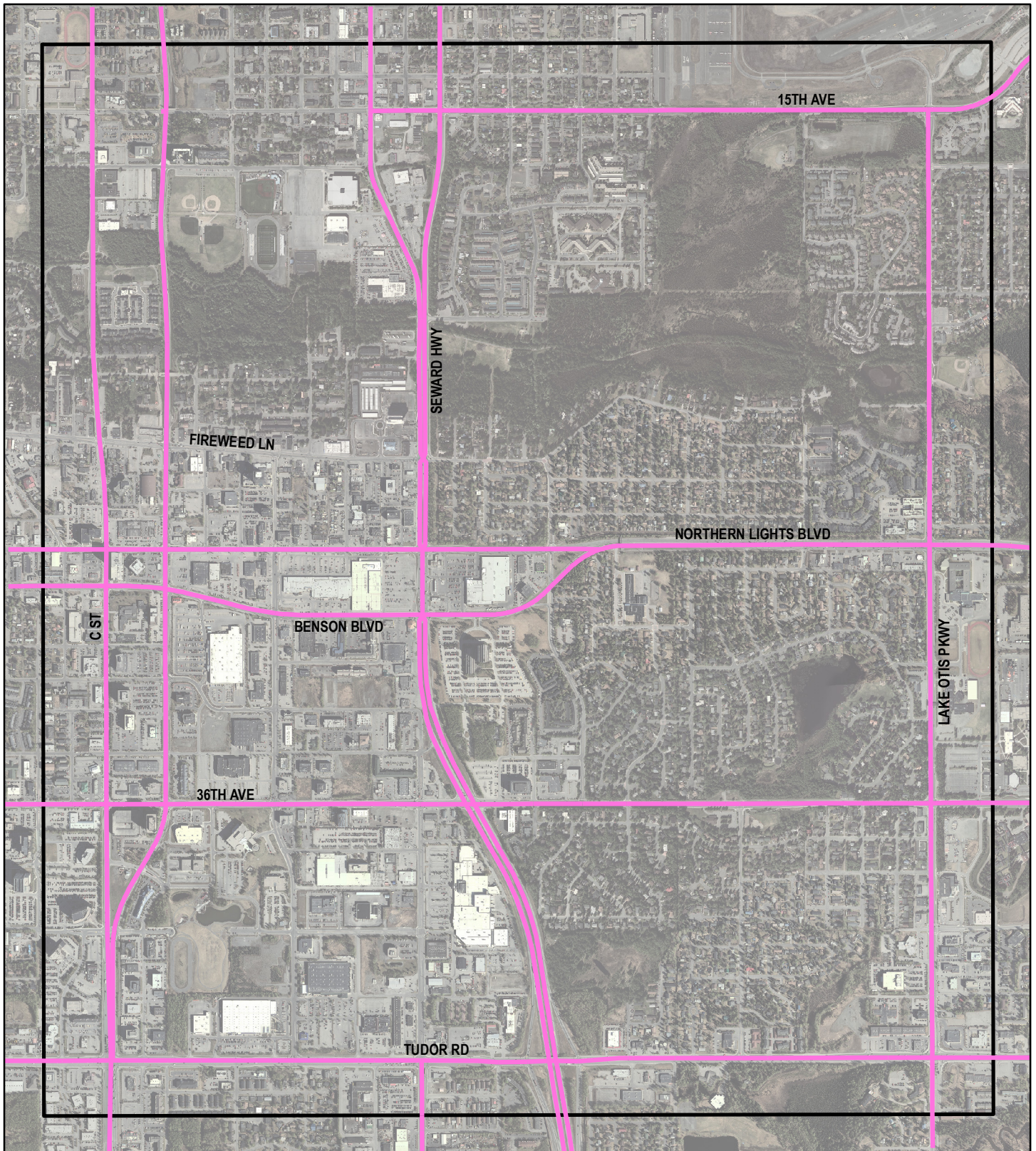
Figure 5 shows the study area roadways that are part of the NHS network. These include the Seward Highway, all the signalized cross roads in the study area (i.e., 15th Avenue east of Gambell Street, Northern Lights Boulevard, Benson Boulevard, 36th Avenue, and Tudor Road), and the three primary north-south arterials that parallel the Seward Highway (i.e., Lake Otis Parkway, A Street, and C Street).

2.2.2.2 Additional Analysis for the PEL Study

The NHS designations affect design needs and will inform the feasibility of concepts, including the potential need for obtaining design exceptions or waivers.

2.2.2.3 Data Collection Needs

None identified.





-  Study Area
-  NHS Network



Figure 5: National Highway System (NHS) Network

2.2.3 Regional Truck Routes

2.2.3.1 Available Data

A regional truck route network has been identified for Anchorage as part of the Freight Mobility Study prepared for the Anchorage Metropolitan Area Transportation Solutions (AMATS), and it is shown in Figure 6. Routes include the Seward Highway, A Street, C Street, and Tudor Road. The Freight Mobility Study indicates that identifying, signing, and enforcing the truck route network is a means to concentrate heavy duty truck movements on these roadways and protect communities, reduce neighborhood impacts, and alleviate traffic bottlenecks.

2.2.3.2 Additional Analysis for the PEL Study

Any changes considered for freight route roadways should facilitate truck movements. Specific routes and turn movements should also be considered to accommodate occasional oversized loads.

2.2.3.3 Data Collection Needs

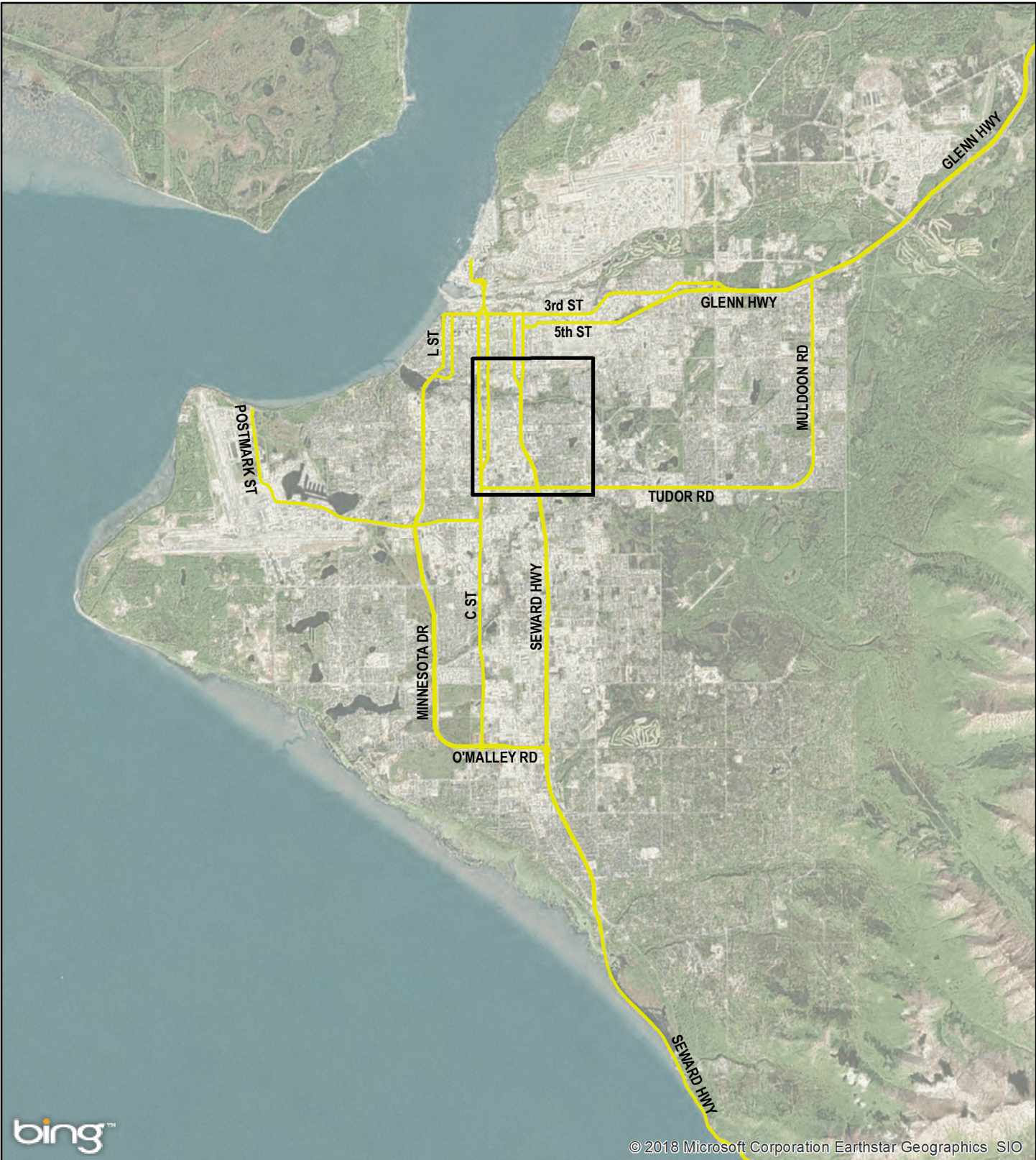
Emergency access routes and response times will be obtained from the local fire and police departments.

Feedback from the trucking industry will be solicited to account for user specific needs, such as key routes for serving WB-67 trucks. Feedback from MOA and DOT&PF is also needed to confirm which routes have been designated for WB-67 design.

Current oversized vehicle routing, dimensions, and frequencies through the study area will be obtained from DOT&PF's Measurement Standards & Commercial Vehicle Enforcement Division. These will include both through-routes and turn movements of particular interest.

A field inventory of vertical obstructions (such as traffic signal heads, overhead traffic signs, and bridge overcrossings) and their clearances is required.





- Study Area
- Regional_Truck_Routes



Figure 6: Regional Truck Routes

2.2.4 Snow Maintenance Priorities

2.2.4.1 Available Data

One of the primary maintenance needs for study area roadways is snow clearing in the winter. Figure 7 identifies the snow clearing priorities for DOT&PF. These priorities are referenced by the following colors.

- Green – Priority Level 1 (Highest priority) includes high-volume, high-speed highways, expressways, minor highways, and all safety corridors and other major urban and community routes. It may take up to 24 hours to clear these roads after a winter storm. The mainline Seward Highway is designated as Priority Level 1.
- Yellow – Priority Level 2 includes routes of lesser priority based on traffic volume, speeds, and uses. Typically, these are major highways and arterials connecting communities. It may take up to 36 hours to clear these roads after a winter storm. Tudor Road, C Street, A Street, Benson Boulevard, Northern Lights Boulevard, Fireweed Lane, and the Old Seward Highway are designated as Priority Level 2.
- Orange, Purple, Red – Priority Levels 3, 4, and 5 (respectively) correspond to roads of decreasing priority because they serve less traffic and reach into more outlying areas. Seward Highway interchange ramps at the southern end of the study area south of Tudor Road are designated as Priority Level 3 (orange). No roadways designated as Priority Level 4 or 5 occur within the study area.

2.2.4.2 Additional Analysis for the PEL Study

The Seward Highway is one of DOT&PF's most critical snow clearing priorities, and corridor concepts will consider how to facilitate snow clearing activities.

2.2.4.3 Data Collection Needs

Additional details are needed regarding disposal areas and other snow clearing practices, such as areas shared with MOA Maintenance and how trails and walkways are cleared.

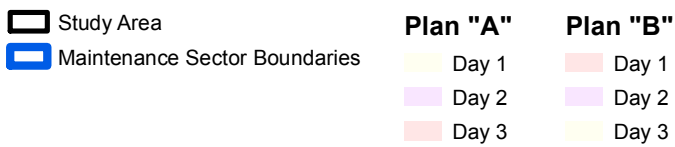
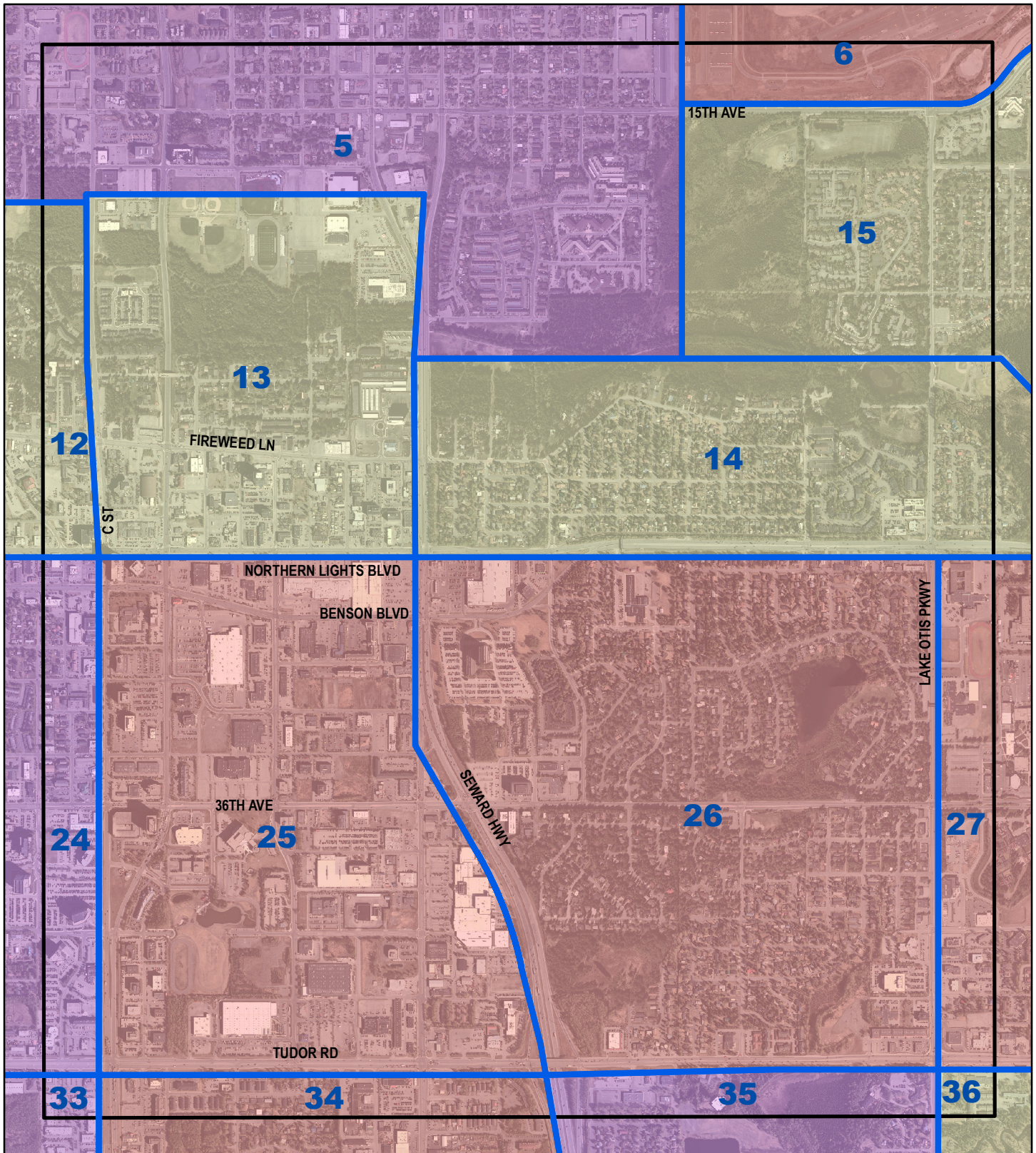


Figure 7: MOA Winter Road Maintenance Priority

2.3 Roadway Characteristics and Features

Roadway characteristics refer to the physical attributes associated with the roadway, such as the horizontal and vertical geometrics, number of lanes, intersection configuration, traffic control, speed limits, driveway access, lighting, pedestrian and bicycle facilities, and intelligent transportation system (ITS) architecture.

2.3.1 Lane Configuration

2.3.1.1 Available Data

The Seward Highway includes three lanes in each direction between Tudor Road and Fireweed Lane (with an additional northbound auxiliary lane between the northbound Tudor Road on-ramp and the 36th Avenue right-turn lane), four lanes in each direction between 15th Avenue and Fireweed Lane (with the 2,000-foot section north of Chester Creek operating as one-way streets as the corridor separates to continue as the Ingra Street and Gambell Street couplet). There are various right- and left-turn lanes (including some dual left-turn lanes) along the length of the corridor.

2.3.1.2 Additional Analysis for the PEL Study

Typical cross section diagrams will be prepared of the existing Seward Highway corridor, as well as of the corridor concepts to facilitate comparison. Available ROW widths and potential impacts will be considered in these diagrams.

2.3.1.3 Data Collection Needs

Fieldwork is needed to measure widths of travel lanes, sidewalks, the median, etc. As-built drawings will also be acquired where available, and ROW maps will be acquired and considered as part of concept development.

2.3.2 Traffic Control and Intersection Configuration

2.3.2.1 Available Data

All intersections along the Seward Highway between the Tudor Road interchange and 15th Avenue are at grade, and all the major street crossings are multi-lane and signalized. The minor streets are stop-controlled by signs, and are typically single approach lanes that are limited to right-in/right-out (RIRO) movements. The major intersections on parallel routes and cross streets in the study area are also signalized and typically multi-lane. The MOA maintains signal timing data within Synchro models of various parts of the municipality for both the a.m. and p.m. peak hours, and these models have been provided for use in the analysis.

2.3.2.2 *Additional Analysis for the PEL Study*

Traffic control and intersection configuration are key inputs in the intersection level of service analysis and corridor simulation. Potential changes to these intersection characteristics (such as grade separation, intersection geometries, and signalization) are also key considerations for the improvement concepts.

2.3.2.3 *Data Collection Needs*

Existing traffic control and lane configurations of the intersections specified in Figure 16 will be documented in conjunction with the related turn movement counts. Signal timing plans throughout the day are required to better understand how signal timing changes throughout the day.

2.3.3 **Driveway Access**

2.3.3.1 *Available Data*

Driveway access is limited along much of the Seward Highway, except for a few segments, particularly along the west side of the highway. Figure 8 shows the number of driveways along each segment of the Seward Highway between intersections with public streets. On the east side of the highway, the only segment with numerous closely spaced driveways is between Northern Lights Boulevard and Benson Boulevard. On the west, numerous driveways are clustered north of Northern Lights Boulevard, south of Benson Boulevard, and near 15th Avenue.

Traffic videos of the driveways have been collected and are available for future reference.

2.3.3.2 *Additional Analysis for the PEL Study*


The driveway locations will be compared to driveway spacing and corner clearance standards provided in the Alaska Highway Preconstruction Manual. These standards are based in part on the total parcel frontage and connections to other adjacent driveways. Stopping sight distance (SSD) and intersection sight distance (ISD) will also be considered for the driveway approaches.

2.3.3.3 *Data Collection Needs*

Driveway permit information for all the driveways along the Seward Highway between 20th Avenue and Tudor Road will be requested from DOT&PF. An inventory will also be performed of land uses served, internal connections to adjacent driveways, and curb types.

Estimates of driveway volumes will be made by reviewing the traffic videos collected along the Seward Highway.



 Study Area


 Number of Driveways along Seward Highway



Figure 8: Driveway Locations

2.3.4 Speed Limits

2.3.4.1 Available Data

Speed limits for study area roadways are shown in Figure 9. The Seward Highway operates with a 45 mile per hour (mph) speed limit between 15th Avenue and 36th Avenue. South of 36th Avenue, the speed limit increases to 55 mph. The signalized cross streets on the southern end of the study area (i.e., Northern Lights Boulevard, Benson Boulevard, 36th Avenue, and Tudor Road) operate with posted speeds ranging from 35 mph to 45 mph, while the streets on the north (i.e., 15th Avenue and Fireweed Lane) operate with slower posted speeds ranging from 25 mph to 35 mph.

2.3.4.2 Additional Analysis for the PEL Study

The 85th percentile speed will be calculated and compared to existing speed limits. The speed limit transition between 36th and 15th Avenue will be analyzed to determine actual vehicle speed. Crash data will be analyzed to identify the effect of speed on crash statistics such as crash rate and severity. Comparative analysis of alternative route travel times and effects on vehicle speeds will be performed following the identification of corridor concepts.

2.3.4.3 Data Collection Needs

Collect vehicle speed samples from Seward Highway and main cross streets. Determine various alternative routes and collect travel times to use as a comparison of how alternative routes affect speeds.

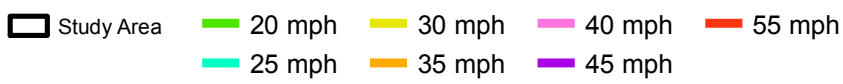
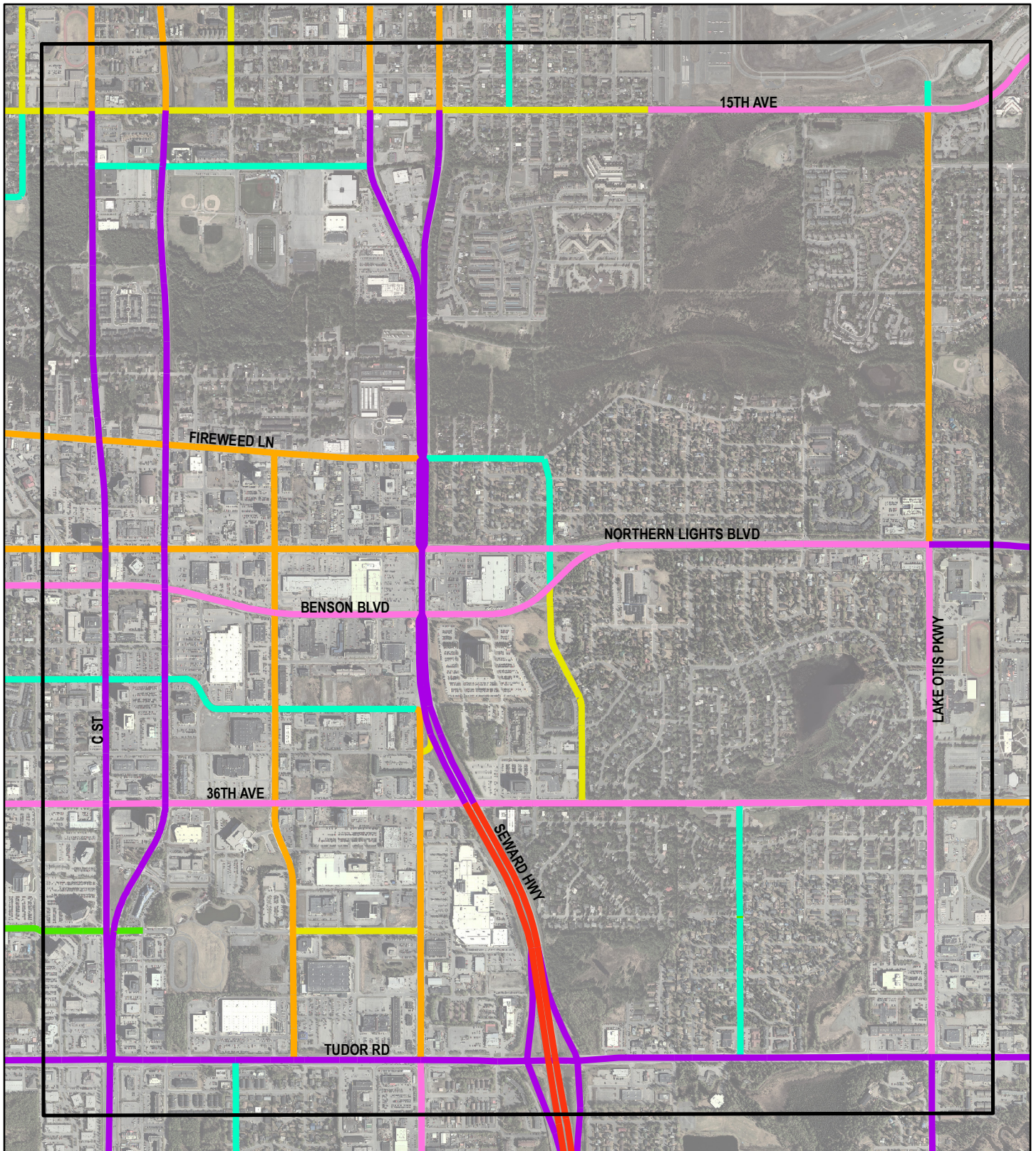


Figure 9: Speed Limits

2.3.5 Horizontal and Vertical Geometrics

2.3.5.1 Available Data

The Seward Highway is primarily straight and runs north-south but has some horizontal curves north of 20th Avenue and south of 33rd Avenue. To the north, the northbound and southbound directions of the Seward Highway curve away from each other to tie into the Ingra Street and Gambell Street couplet. To the south, the Seward Highway has two curves that result in a slight northwest-southeast direction and also shift the highway alignment to the east.

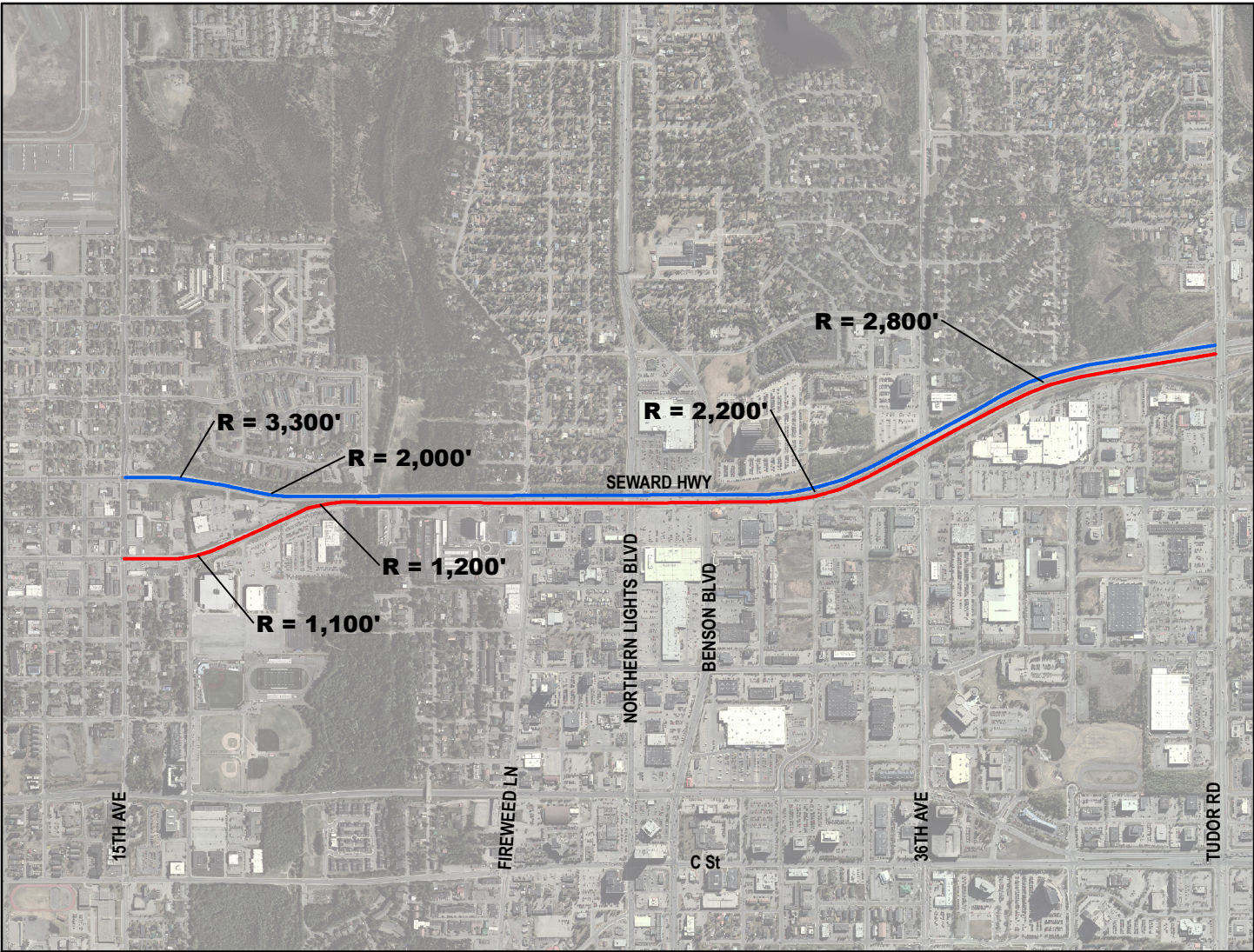
The Seward Highway is relatively flat with few vertical curves, with the exception of the significant drop in elevation near Chester Creek and 20th Avenue that results in slopes that run towards the creek. LiDAR data is available for the entire corridor. From it approximate longitudinal slopes of the Seward Highway and approximate curve radii have been determined and are shown in Figure 10. Some record drawings have been compiled. From the 1959 Seward Highway record drawing the longitudinal slope for Seward highway heading north towards 20th avenue was -4.52% with a 5.95% continuing north towards 15th avenue.

2.3.5.2 Additional Analysis for the PEL Study

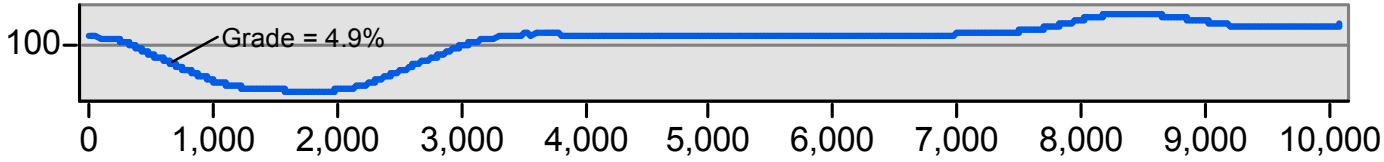
Vertical geometry will be a key consideration for corridor concepts, particularly with one of the concepts consisting of a depressed freeway.

2.3.5.3 Data Collection Needs

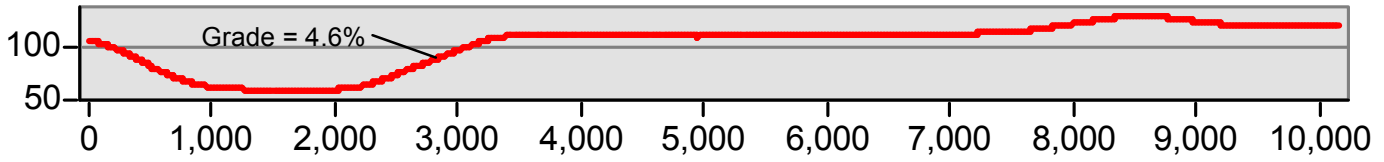
Additional data as available (such as superelevation, design speed, profile, geometry, etc) for the Seward Highway and cross streets will be obtained through record drawings. Fieldwork is required along Seward Highway to identify potential stopping sight distance or intersection sight distance limitations.



Northbound Vertical Geometry



Southbound Vertical Geometry



- Notes:
1. All radiuses are approximate
 2. 2015 LiDAR from the Municipality of Anchorage was used to create the vertical geometry



Figure 10: Seward Highway Horizontal and Vertical Geometry

2.3.6 Structures

2.3.6.1 Available Data

Two large culverts cross the Seward Highway within the study area and were built in 1975. One of the culverts is the drainage structure for Chester Creek, and the other (at the same location) is a pedestrian underpass for the Chester Creek Green Belt. Table 2 presents information developed for the previous Highway to Highway (H2H)* project effort. A pedestrian tunnel and stream culvert cross Lake Otis Parkway on the east edge of the study area. In addition to these culverts, bridges are located at both the A Street and C Street Chester Creek crossings as well as at the Tudor Road Overpass. Study area structures are illustrated in Figure 11.

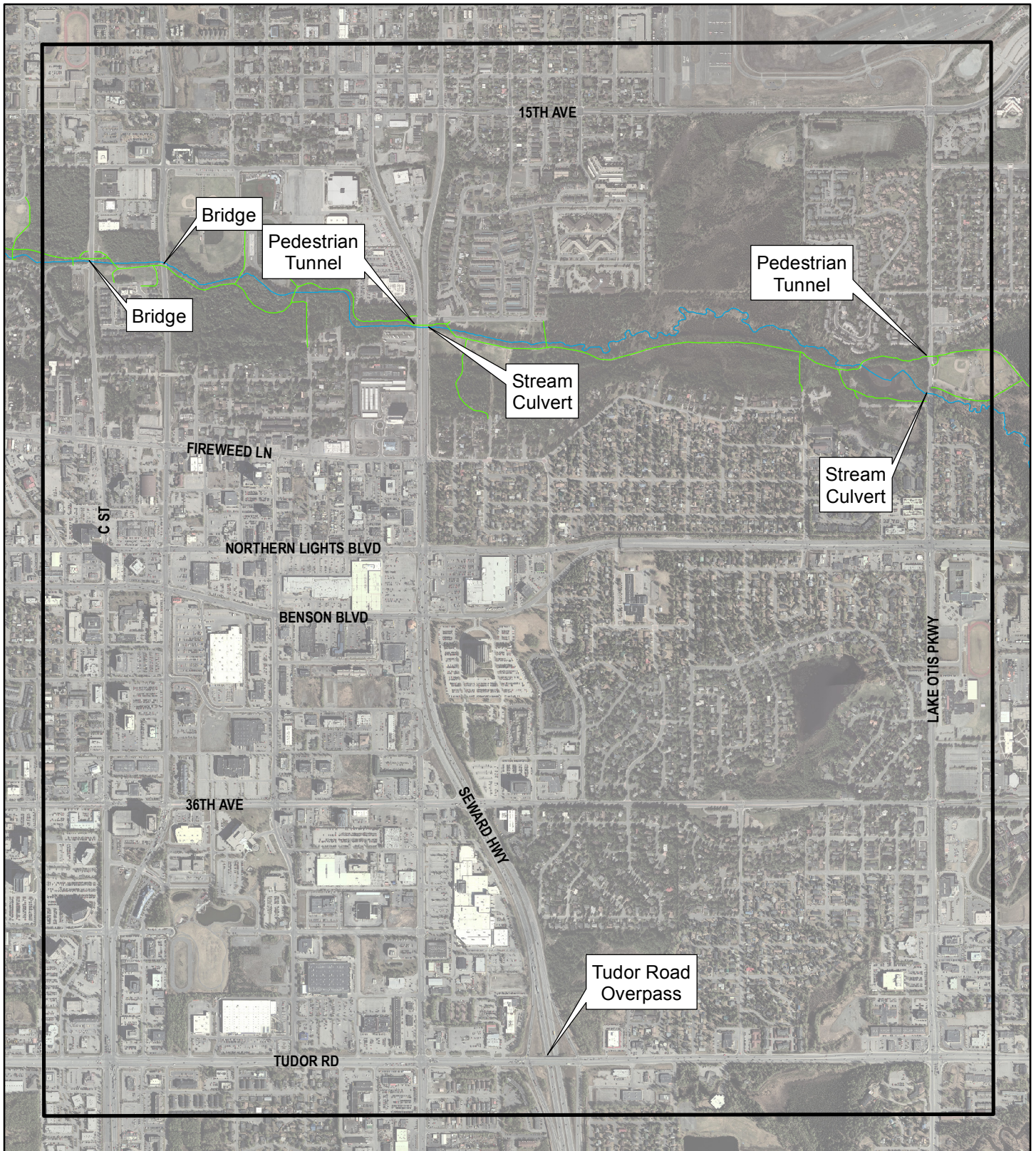
Chester Creek Underpass record drawings for the 1975 DOT&PF project have been obtained.

Table 2: Culvert Data – Chester Creek and Chester Creek Trail

Chester Creek at New Seward Highway	
Bridge number	1352
Type of structure	Corrugated Metal Pipe
Facility Crossed	Seward Highway
Facility Passed	Chester Creek
Year Built/Modified	Unknown but original culvert has been replaced
Condition	Poor
Size	6 foot
Length (ft)	≈ 170 feet
Overflow Culvert	2 foot (plugged)
Chester Creek Trail at New Seward Highway	
Bridge number	N/A
Type of structure	Corrugated Metal Pipe Arch
Facility Crossed	Seward Highway
Facility Passed	Chester Creek Greenbelt Trail
Year Built/Modified	N/A
Condition	Fair
Size	9X11 foot
Length (ft)	≈ 140 feet

*Source: H2H Seward Highway to Glenn Highway Connection Existing Engineering Conditions Final (October 2009).





- Study Area
 - Chester Creek Trail
 - Chester Creek
- Note:
1. 15th bridges excluded



Figure 11: Structures

2.3.6.2 *Additional Data Analysis for the PEL Study*

The Chester Creek Watershed Plan is discussed in Section 4.1.12. The MOA desired that the culverts be removed and a bridge constructed at this location to assist with fish passage and pedestrian crossing movements.

2.3.6.3 *Data Collection Needs*

The condition of the existing pedestrian and stream culverts will be checked and documented.

2.3.7 **Lighting**

2.3.7.1 *Available Data*

Street lights on the Seward Highway are owned and maintained by the State of Alaska DOT&PF with the exception of signalized intersections where MOA street maintenance maintains them for intersection lighting. If lighting is found on a trail, in a tunnel or on city property the MOA Facility Maintenance Division is responsible for maintaining these lights. Green pedestrian lights found at bus stops are maintained by MOA transit. If the light is mounted to a wooden power pole in the project area, it is maintained by ML&P. ML&P provides power for the project area.

The lighting along the Seward Highway between Tudor Road and 15th Avenue is primarily provided by high pressure sodium (HPS) luminaires along both sides of the highway. Luminaires line the corridor in a mixture of parallel and staggered layouts. The Tudor Road interchange has two high-towers located in the northeast and southwest quadrants of the interchange.

2.3.7.2 *Additional Data Analysis for the PEL Study*

Feedback from maintenance staff will be solicited to identify existing lighting and maintenance concerns that corridor concepts could address. In addition, different lighting layouts and needs associated with corridor concepts will be identified.

2.3.7.3 *Data Collection Needs*

Additional data (such as location, height, mast arm, spacing, age, use of LED, etc.) for the luminaires and load centers will be obtained from record drawings or collection in the field.

2.3.8 **Pedestrian and Bicycle Facilities**

2.3.8.1 *Available Data*

Pedestrian and bicycle facilities are provided along and across the Seward Highway, primarily through the use of sidewalks and trails. Figure 12 shows the study area trails. The MOA database does not include the existing trails along the east side of the Seward Highway but Figure 12 has been revised to show it. Other paths are provided heading east-west across the Seward Highway. Chester Creek Park provides a network of trails known as the Lanie Fleischer Chester Creek Trail, which crosses under the Seward Highway and accommodates both bicyclists and pedestrians. Tudor Road and Benson Boulevard both have paved pedestrian trails to the north and south of



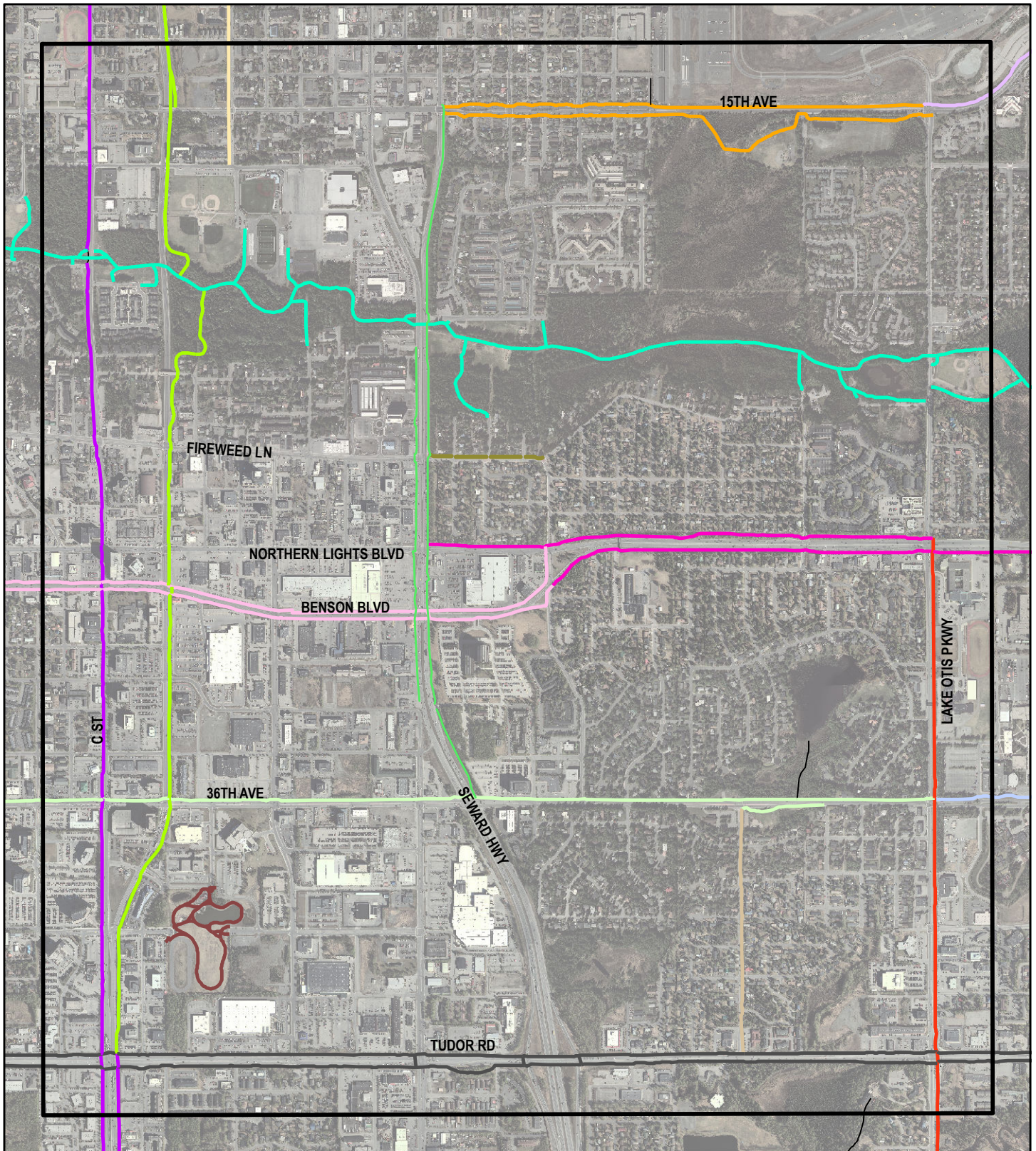
the roadway, running parallel, while 36th Avenue has one paved trail to the north. The paved bike trail paralleling the east side of A Street and connecting to the multi-use trails on both sides of C Street south of 36th Avenue provides a continuous north-south multi-use trail through the study area that connects to Downtown Anchorage. The Seward Highway and Lake Otis Parkway also have trails that run alongside portions of the roadways.

2.3.8.2 Additional Data Analysis for the PEL Study

Pedestrian and bicycle connectivity deficiencies will be identified along and across the Seward Highway corridor and throughout the study area.

2.3.8.3 Data Collection Needs

The MOA trails database does not currently include the trails along the east side of the Seward Highway. Additional coordination and/or inventory effort will be performed to add this and other existing trails in the study area to the database. Existing trail condition and ADA compliance will be categorized through field investigation as many of these are old, in disrepair and not meeting current standards. Pedestrian and cyclist field counts will need to be collected as part of the pedestrian and bicycle connectivity analysis.



- | | | | |
|---------------------|--------------------------------|----------------------|-----------------------------|
| Study Area | 15th Ave. Trail | Cordova Street Trail | Northern Lights Blvd. Trail |
| 36th Ave. Trail | Cuddy Family Midtown Park Loop | Debarr Rd. Trail | Providence Dr. Trail |
| A Street Trail | Fireweed Ln. Trail | Seward Hwy. Trail | Tudor Road Trail |
| Benson Blvd. Trail | Lake Otis Pkwy. Trail | Unnamed | |
| C Street Trail | Macinnes St. Trail | | |
| Chester Creek Trail | | | |

Roadside sidewalks not shown for clarity

Figure 12: Trails



2.3.9 Intelligent Transportation System (ITS) Architecture

2.3.9.1 Available Data

ITS refers to the application of sensing, analysis, control, and communications technologies that process and share information to improve safety, mobility and efficiency of the transportation system. While the 2016 Alaska Iways Architecture update and the MOA 2015 ITS update do not mention specific ITS infrastructure located on or planned for the section of the Seward Highway between Tudor Road and 15th Avenue, some related devices do exist on the corridor, including advance warning signals on northbound Seward Highway between Tudor Road and 36th Avenue.

South of the study area, the weigh-in-motion (WIM) station on the Seward Highway south of 76th Avenue is also part of DOT&PF's ITS architecture and is being reconstructed with the "Seward Highway: Dimond to Dowling" project. This WIM station collects the following data through automated traffic data recorders.

- vehicle weight
- vehicle classification
- vehicle speed
- continuous traffic volume

2.3.9.2 Additional Data Analysis for the PEL Study

Corridor concepts will consider ITS improvement opportunities and modifications to the existing facilities.

2.3.9.3 Data Collection Needs

Additional information about existing ITS infrastructure will be determined via record drawings and coordination with DOT&PF and MOA ITS staff.

2.4 Multimodal Traffic Volumes

Multimodal traffic volumes reflect demand for travel modes within the study area.

2.4.1 Annual Average Daily Traffic (AADT)

2.4.1.1 Available Data

Annual average daily traffic (AADT) is the estimated number of vehicles traveling over a given road segment during an average 24-hour day. It is usually obtained from sample counts that are adjusted for seasonality. DOT&PF provides AADT estimates for the roads shown in Figure 13. In 2015, the Seward Highway experienced bi-directional AADT volumes ranging from 51,500 to 57,100 vehicles between 15th Avenue and 36th Avenue. South of 36th Avenue, the AADT volumes were approximately 21,900 vehicles. AADT volumes on the major cross roads range between 15,000 and 39,000 vehicles.



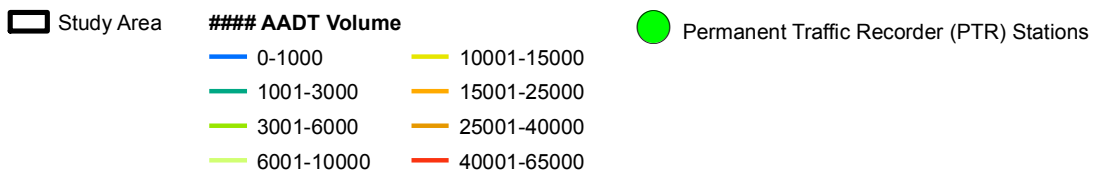
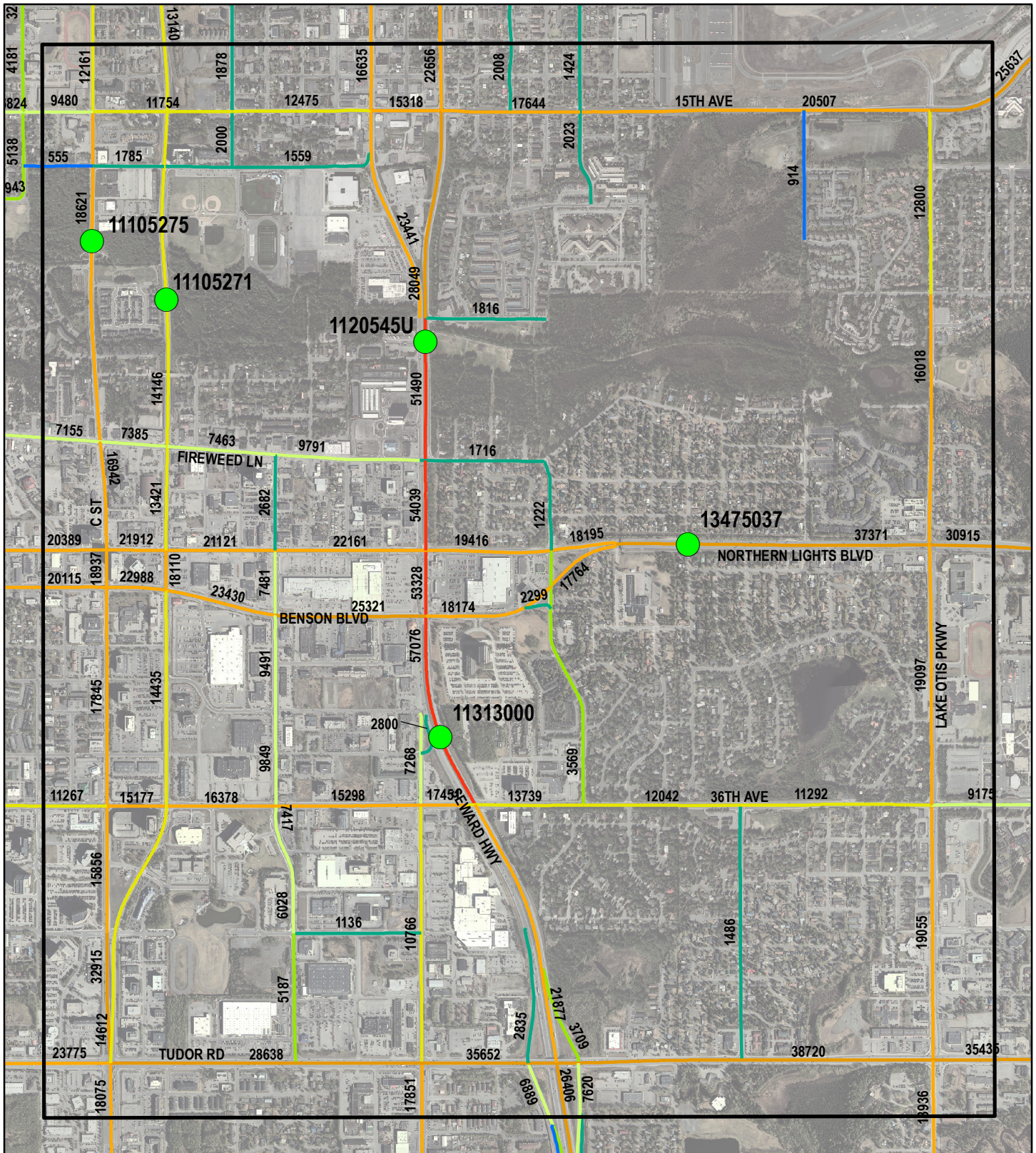


Figure 13: 2015 AADT Volumes

DOT&PF also maintains permanent traffic recorder (PTR) stations on select roads across its network. PTRs consist of traffic volume counting equipment that automatically count vehicles passing over detectors on an ongoing basis, with the exception of periods of detector failure or construction impacts. The Seward Highway has two PTR stations between 15th Avenue and Tudor Road, as shown on Figure 13. The station between 36th Avenue and Benson Boulevard (PTR Station 11313000) is new and only began collecting traffic data in 2017.

Analysis of the seasonal and 24-hour trends at the Seward Highway PTR at Chester Creek (PTR Station 1120545U) was performed for 2015, which includes a year of complete data.² Figure 14 shows the average daily traffic (ADT) by week (i.e., average of Sunday through Saturday for each week of the year). ADT volumes generally exhibited a gradual increase from January through June, with the exception of the week of Memorial Day, when volumes dropped before increasing again. Starting in July, volumes began a gradual decline, with the weeks associated with Labor Day and Thanksgiving also exhibiting the greatest drops in traffic volumes. However, these weeks were followed by a few weeks of increases (likely associated with the Permanent Fund Dividend and Christmas shopping seasons) before beginning to decline once more through the end of the year. Based on these trends, the preferable months to collect traffic counts are April through October. However, counts could be collected in the other months as long as they avoid severe weather conditions (i.e., ice and snow) and have appropriate seasonal factors applied.

² Detector failure occurred between December 17, 2015 and February 2, 2016, which includes two weeks of 2015 and a full month of 2016. In addition, 28 other days of detector failure occurred in 2016, spread over the months of June to October.



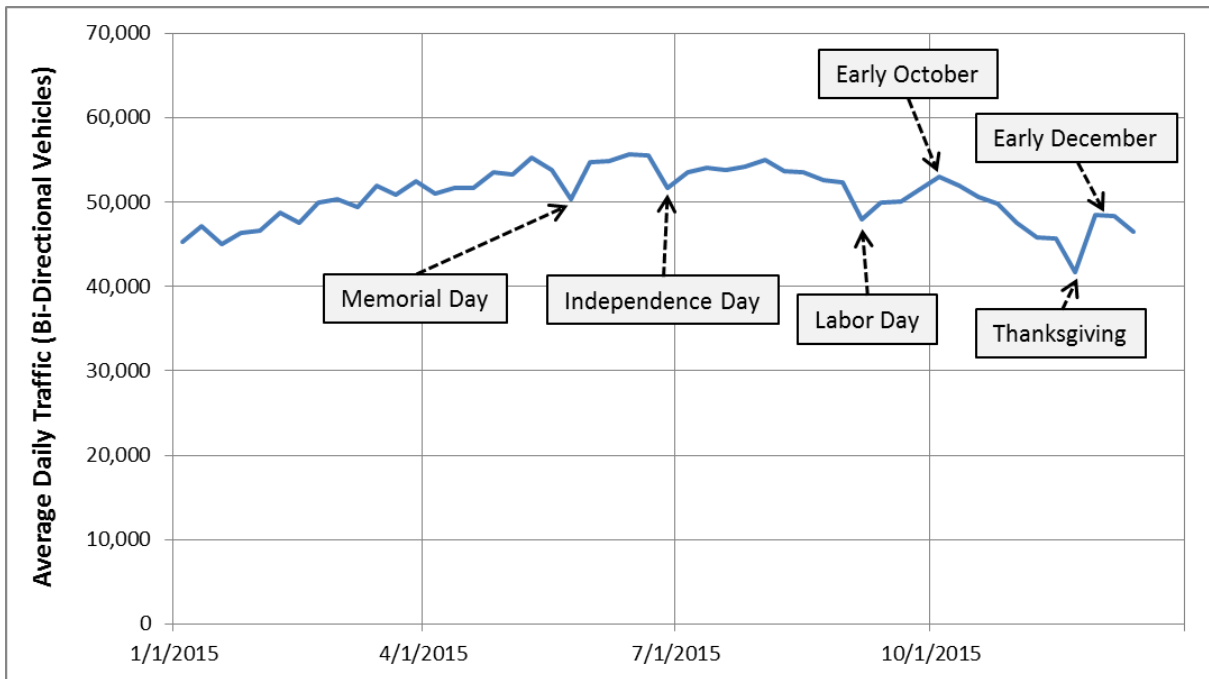


Figure 14: Average Daily Traffic by Week (2015, Ingra/Gambell at Chester Creek)

Figure 15 shows the hourly traffic volumes on the Seward Highway at Chester Creek during a typical weekday (Tuesday through Thursday), based on average volumes throughout the year (with the exception of mid-week holidays or days adjacent to holidays). Peaks occur during the morning and evening commuter periods, with the highest volumes between 4 to 5 p.m. The data also shows that northbound volumes are typically higher than southbound volumes for all hours of the day, but particularly during the a.m. peak period when a proportionately higher amount of the traffic is heading northbound. Therefore, the p.m. peak hour is the most critical analysis period, but some a.m. peak hour analysis may be beneficial at select intersections where particular turn movement volumes are expected to be higher during the morning commute.

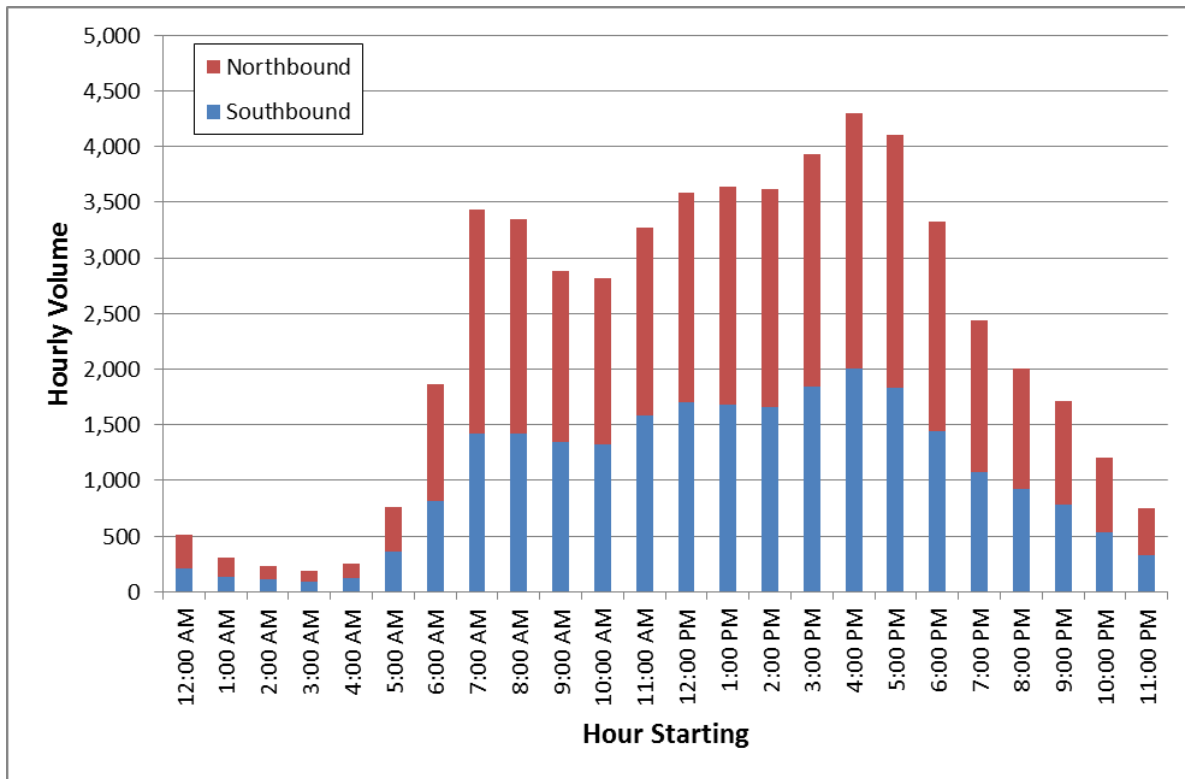


Figure 15: 24-Hour Trend for Average Weekday (2015, Ingra/Gambell at Chester Creek)

2.4.1.2 Additional Analysis for the PEL Study

Daily and seasonal traffic trends will be evaluated for cross streets using traffic data from other PTR locations in the study area. These PTR locations are shown in Figure 13 and include Northern Lights Boulevard, A Street, and C Street. Tudor Road also has a PTR outside east of the study area. The analysis will include PTR data through November 12, 2017, which is when the data was most recently provided by DOT&PF. This data will also allow analysis of volume fluctuations occurring during the October turn movement counts.

2.4.1.3 Data Collection Needs

None identified.

2.4.2 Truck Volumes

2.4.2.1 Available Data

DOT&PF collects vehicle classification data at the WIM station on the Seward Highway south of 76th Avenue. This station is a permanent counter that categorizes vehicles into 13 groups by number and spacing of axles. The team will request the most recent year of suitable data as the WIM station is currently under construction.



Vehicle classification data is reported in the 2013 DOT&PF Annual Traffic Volume Report, aggregated by month. Per this data, 93 percent of vehicles on the Seward Highway are standard-sized vehicles (passenger cars/SUVs/vans/pick-up trucks), six percent are single-unit trucks and less than one percent are heavy trucks.

2.4.2.2 Additional Analysis for the PEL Study

None identified.

2.4.2.3 Data Collection Needs

The intersection turn movement counts will include heavy truck percentages for each intersection movement.

2.4.3 Intersection Turn Movement Volumes

2.4.3.1 Available Data

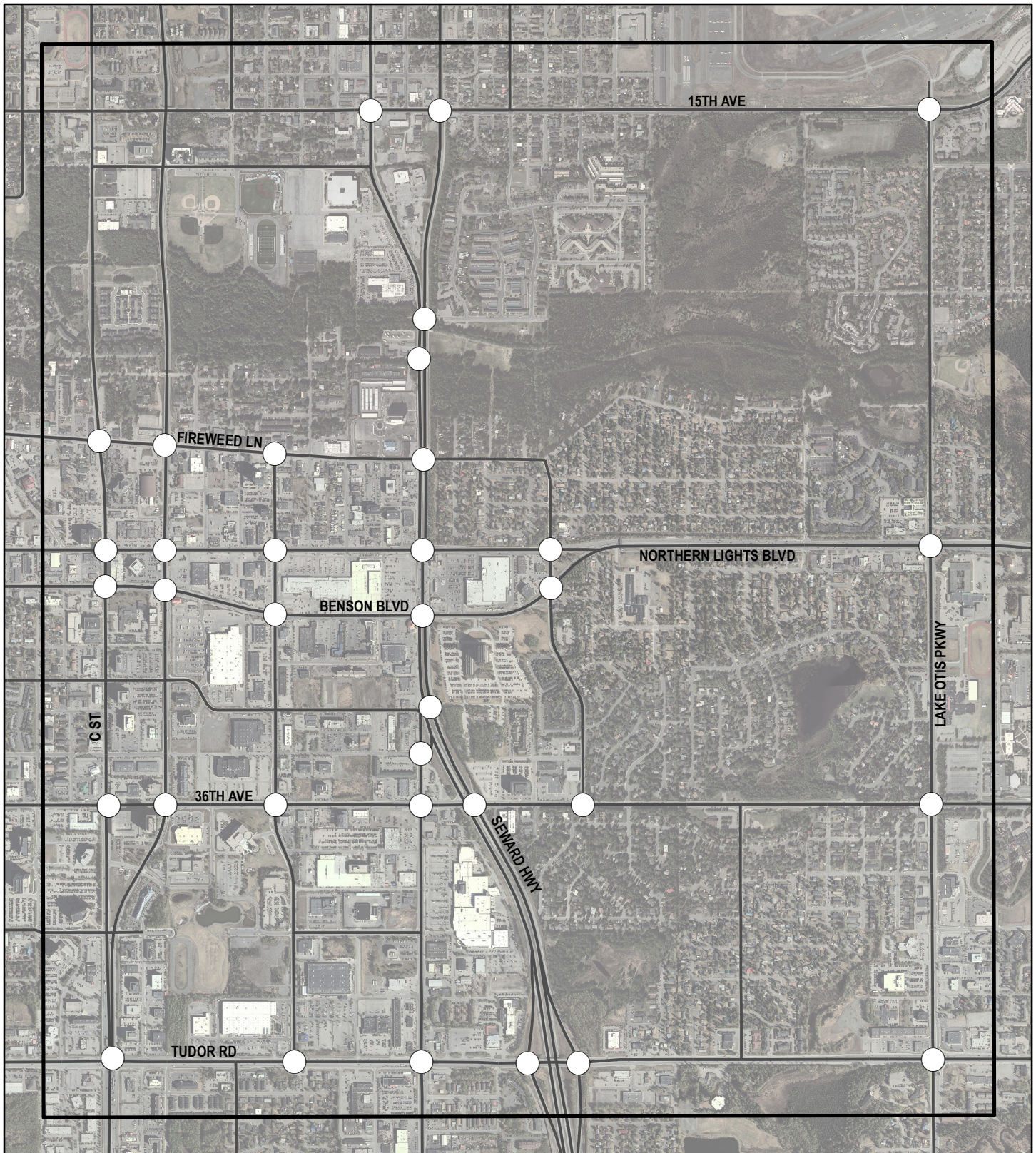
Intersection turn movements are important for understanding how drivers travel around the transportation system and will be the basis for intersection analyses.

2.4.3.2 Additional Analysis for the PEL Study

Turn movement counts (TMCs) were collected for the study intersections identified in Figure 16 using video recordings from October 2017. The counts will be the basis for performing intersection operations analysis. Bluetooth reader devices also collected sample travel time and routing information through the study area in April 2018. This data will be used in conjunction with the turn movement counts to allow for a greater understanding of study area travel patterns.

2.4.3.3 Data Collection Needs

No additional data collection is identified.



Study Area



Turn Movement Count data assembled



Figure 16: Traffic Analysis Intersections

2.4.4 Pedestrian and Bicycle Volumes

2.4.4.1 Available Data

Limited pedestrian and bicycle volume data are available for the study area. Some bicycle and pedestrian counts are available for the Chester Creek trail.

2.4.4.2 Additional Analysis for the PEL Study

Bicycle and pedestrian crossing needs will be identified for the Seward Highway study corridor and will contribute to concept development.

2.4.4.3 Data Collection Needs

The intersection turn movement counts that cover the hours of 7 a.m. to 7 p.m. include bicycle and pedestrian crossing volumes for each intersection leg. No additional data collection is identified.

2.4.5 Transit Routes and Ridership

2.4.5.1 Available Data

The MOA's People Mover Bus System launched a revised route structure on October 23, 2017. This system increased peak bus frequency to 15-minute headways on Northern Lights and Benson Boulevards, and on Tudor Road. These routes have bus stops located immediately to the east and west of the Seward Highway, which are the same stop locations as the prior system. The revised route structure also eliminated some service, including the prior route on 36th Avenue across the Seward Highway and on Old Seward Highway in the study area.

Figure 17 shows the bus routes prior to October 23, 2017, and the most recent year of bus ridership (i.e., average weekday ridership in 2016). Figure 18 shows the new bus routes (post-October 2017).

2.4.5.2 Additional Analysis for the PEL Study

Transit routes will be considered for the Seward Highway study corridor and will contribute to corridor concepts.

2.4.5.3 Data Collection Needs

An inventory will be performed of the transit stop facilities on Northern Lights and Benson Boulevards immediately to the east and west of the Seward Highway. Trends will be obtained from MOA's Public Transportation Department as new ridership volumes become available following the October 2017 system redesign implementation.

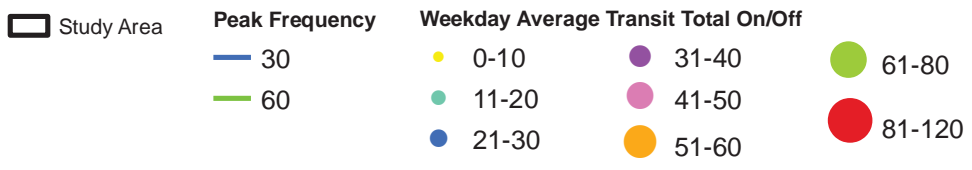
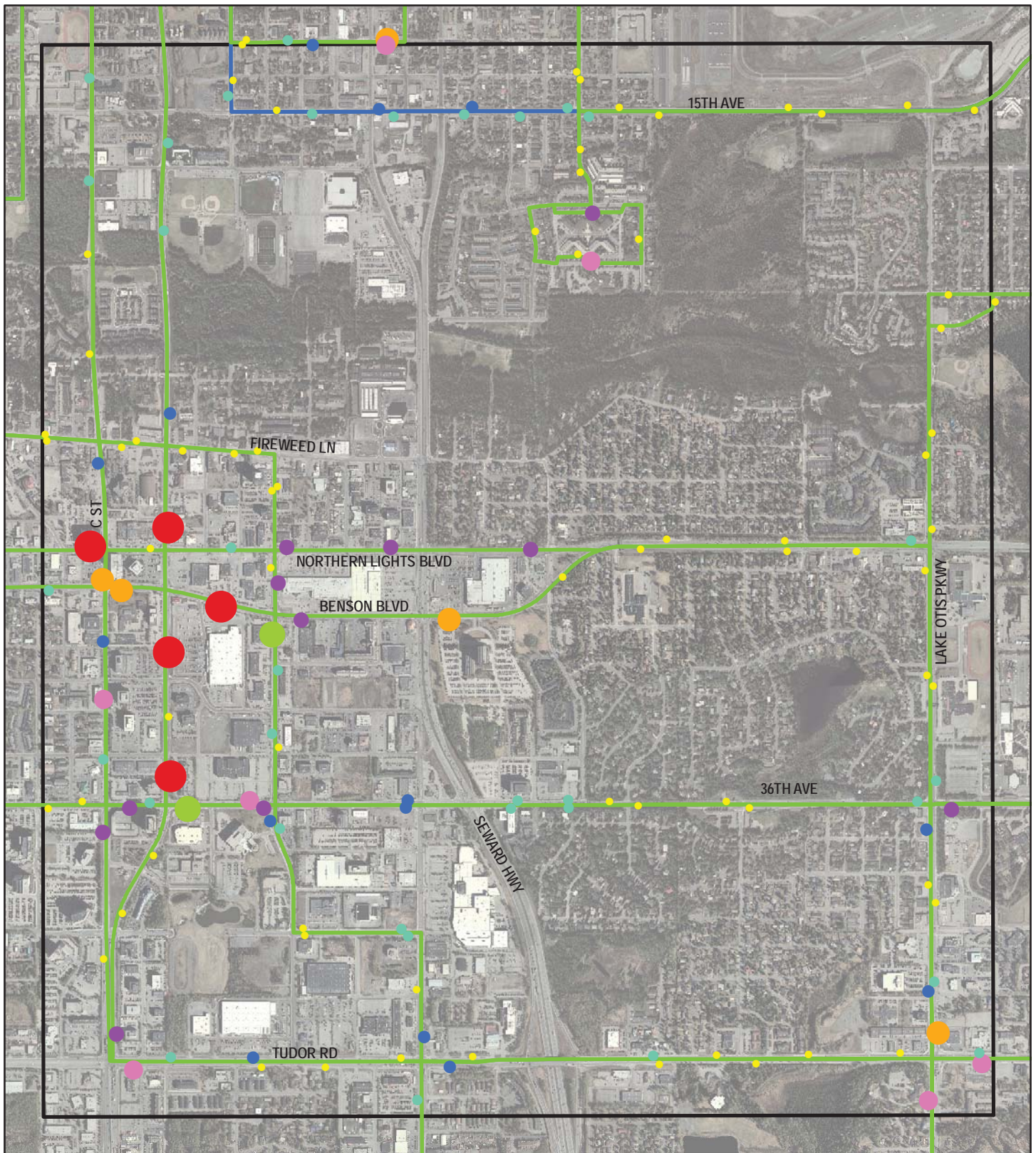


Figure 17: Current (Pre-October 2017) Bus Routes and Ridership

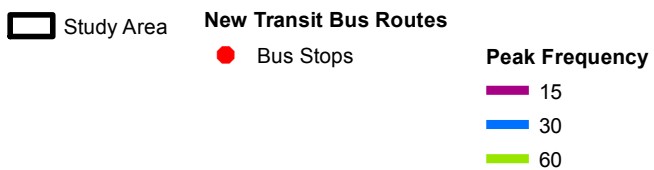
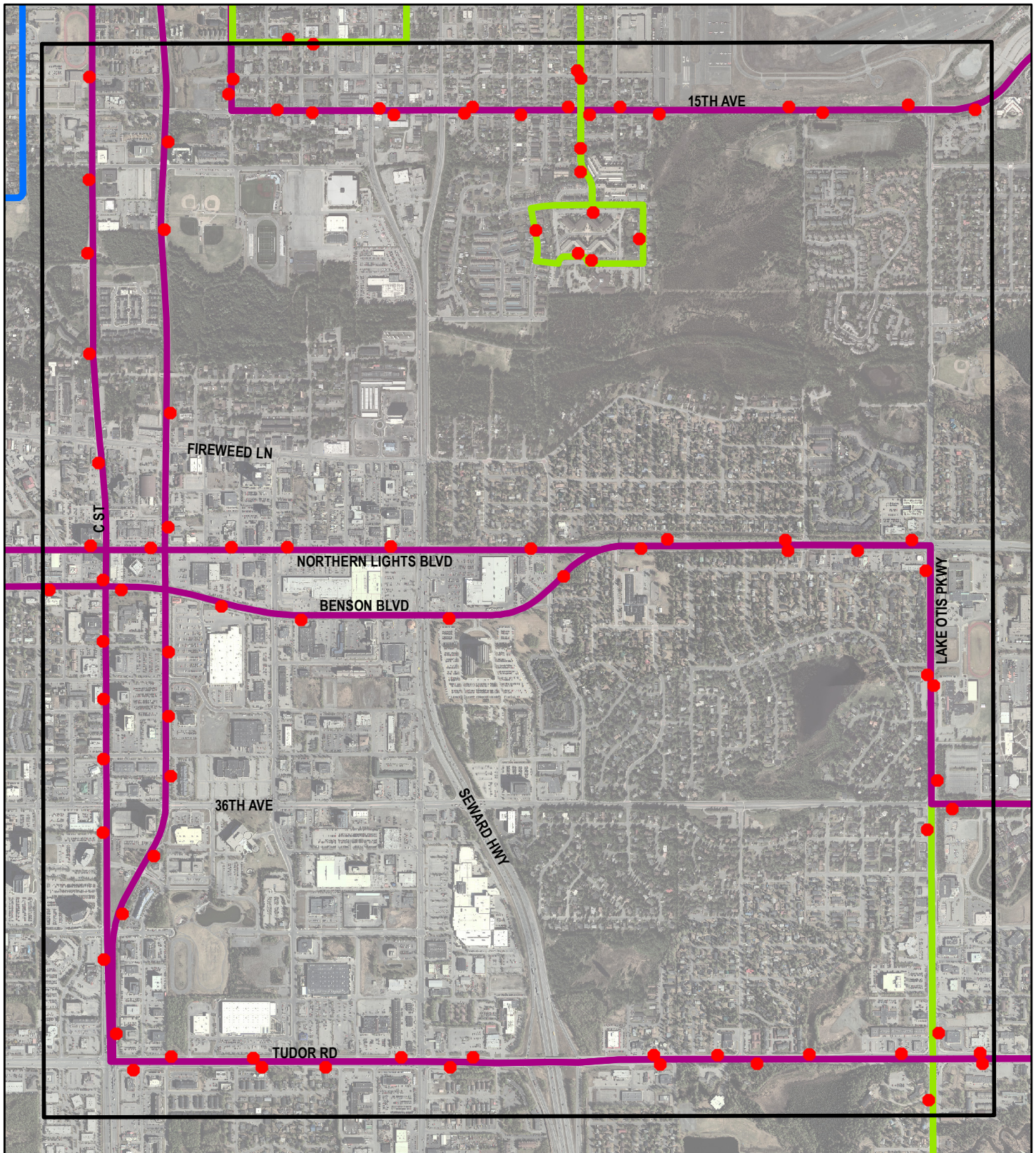


Figure 18: New (Post-October 2017) Bus Routes

2.5 Traffic Safety

2.5.1 Safety

2.5.1.1 *Available Data*

DOT&PF manages crash databases of historical crash records for the project study area and has provided the most recent 10 years of crash data (2005 to 2014) for the study corridor, key cross streets, and major roadways in the study area. Crash records from 2009 to 2014 include geocoded location data.

2.5.1.2 *Additional Analysis for the PEL Study*

Detailed traffic safety analysis will be performed for the Seward Highway corridor between Tudor Road and 20th Avenue and intersecting segments of crossing streets. Summary crash statistics, such as crash rate, will be calculated for major intersections in the larger study area.

2.5.1.3 *Data Collection Needs*

Following the crash data analysis, there will be field studies to evaluate the issues that could be contributing to the increased crash rates and to the pedestrian fatalities.

3.0 UTILITIES

3.1 Utilities

3.1.1 Available Data

A Utility Research Memorandum (HDR 2009) was prepared for the H2H (Seward Highway to Glenn Highway) project in which utilities along the Seward Highway and Glenn Highway were identified. Relevant information outlined in the memorandum for the Seward Highway will be used for this PEL study. The following discussion provides a summary of utilities along Seward Highway between Tudor Road and 20th Avenue.

A variety of public and private entities provide telecommunications, water, wastewater, electrical, and natural gas utility services within the study area. Additionally, MOA and DOT&PF provide storm drain, street lighting, and traffic signalization. Known utility locations are listed below according to service providers. Subsurface utility investigations would be required for any projects resulting from the preferred corridor concept.

Alaska Communication Systems provides telecommunications services. Its utilities are located as follows within the study area.

- 36th Avenue: fiber optic and duct system
- Fireweed Lane: duct system
- 20th Avenue: fiber optic cable

The Anchorage Water and Wastewater Utility (AWWU) provides sanitary sewer services. Its sewer infrastructure is located as follows within the study area.

- 22nd Avenue: 24-inch reinforced concrete pipe (crosses Seward Highway)
- 22nd Avenue (east side): Lift Station No. 6 Eastchester
- 36th Avenue: 12-inch asbestos concrete pipe (crosses Seward Highway)
- 36th Avenue (east side): Lift Station No. 5

AWWU also provides water services with infrastructure located as follows:

- 36th Avenue (crosses Seward Highway): 12-inch cast iron pipe
- Fireweed Lane (crosses Seward Highway): 8-inch cast iron pipe
- Northern Lights Boulevard (crosses Seward Highway): 12-inch cast iron pipe
- Northern Lights Boulevard to 36th Avenue (west side of Seward Highway): 12-inch cured-in-place pipe (CIPP) and 12-inch cast iron pipe

Chugach Electric Association (CEA) provides electricity to its customers. CEA facilities are located on Municipal Light and Power (ML&P) poles within the study area. Its known utilities are located as follows within the study area.



- Tudor to Northern Lights Boulevard: 35kv transmission line
- Northern Lights Boulevard: 35kv transmission line

Enstar Natural Gas Company provides natural gas services. Its utilities are located as follows within the study area.

- 34th Avenue to Northern Lights Boulevard (west side of Seward Highway): 6-inch steel pipe
- Fireweed Lane: 8-inch steel pipe

General Communications, Inc. (GCI) provides telecommunications services. GCI's major fiber optic lines follow the Seward Highway (20th Avenue to 36th Avenue) supplying service to areas such as Elmendorf Air Force Base (EAFB) and the Matanuska-Susitna Valley. Its utilities are located as follows within the study area.

- 36th Avenue: fiber optic cables cross the Seward Highway
- Northern Lights Boulevard: fiber optic cables cross the Seward Highway
- 36th Avenue to Northern Lights Boulevard (east side): fiber optic cable
- Fireweed Lane to 20th Avenue (west side): fiber optic cable

ML&P provides electrical services. ML&P's 2008-2016 five-year plan outlined construction of a substation in the Midtown area, although the exact location has not been determined. The status of the substation project will be verified with ML&P. Its known utilities are located as follows within the study area.

- Numerous 12kv distribution crossings, both overhead and underground
- 36th Avenue to Northern Lights Boulevard: 115kv transmission line
- Northern Lights Boulevard to 19th Avenue: 35kv transmission line
- Seward Highway and Northern Lights Boulevard: free standing moment tower
- Northern Lights Boulevard (Seward Highway to UAA Drive): 115kv transmission line

3.1.2 Additional Analysis for the PEL Study

A review of and update of utility information will be required and is proposed to be completed as part of the existing conditions review for the PEL study.

3.1.3 Data Collection Needs

Additional data collection needs regarding the type, location, status, life cycle, planned maintenance, permit status, and routing/backfeeding options will be determined during the review of utility information for the PEL study.

4.0 SOCIAL, ECONOMIC, AND COMMUNITY CHARACTERISTICS

4.1 Plans and Policies

The following sections summarize relevant plans and policies affecting the study corridor and study area. This review is intended to facilitate consistency and alignment with long-range planning and policy development conducted by other jurisdictions. Additional plans will be reviewed for relevance to the PEL study.

4.1.1 Anchorage Bowl Comprehensive Plan 2020

4.1.1.1 Available Data

Adopted by the Anchorage Assembly in February 2001, the 2020 Anchorage Bowl Comprehensive Plan (Anchorage 2020) is the guiding master plan for development in the Anchorage Bowl, the major urbanized area of the MOA. The plan was prepared to guide policy decisions regarding future land use and plans to accommodate an increase in population within the geographic limitations of the area. It outlines Anchorage today and provides strategies to create strong economic and community centers while considering public facilities and issues, as well as housing and transportation into the next 20 years. Anchorage 2020 represents goals expressed by Anchorage citizens that were approved by their representatives, following a significant public process.

Anchorage 2020 states that traffic congestion is the biggest issue associated with automobile travel (page 32). The Anchorage 2020 goal for Land Use and Transportation is to address the designation of land for various private and public uses, and how they are connected (page 37). One of the main issues that will influence future growth, as addressed in Chapter 4 of Anchorage 2020, are the downtown and midtown areas, which create the most congested and busiest transportation corridors (issue number 1, page 46). Issue number 4 is the overall need for transportation improvements, citing that safe, efficient movement of people and goods throughout town is vital to the quality of life and the local economy (page 48). Chapter 5, Plan Implementation includes the following policies:

1. The Land Use Policy Map shall guide land use decisions until such time as other strategies are adopted that provide more specific guidance (see transportation specific plans)
29. Anchorage 2020 goals, policies, strategies, and maps shall guide development of the Long Range Transportation Plan (LRTP) for the location of road improvements and new alignments (see Anchorage Bowl 2025 Long Range Transportation Plan with 2027 Revisions)
30. Transportation and land use policies and programs shall include (only applicable shown):
 - d) congestion management and roadway improvements
32. Congestion management techniques shall be applied to maximize efficient use of existing road system



4.1.1.2 *Additional Analysis for the PEL Study*

Further and more in-depth review of the Anchorage Bowl Comprehensive Plan will be undertaken in support of the existing conditions analysis, and to understand the implications of the plan on proposed corridor concepts once they are identified.

4.1.1.3 *Data Collection Needs*

None identified at present. If revisions to the Anchorage Bowl Comprehensive Plan occur, a further evaluation will be required to understand the implications of any changes.

4.1.2 **Anchorage 2040 Land Use Plan (Anchorage 2040)**

4.1.2.1 *Available Data*

The Anchorage Assembly approved the Planning and Zoning Commission's recommended draft of the Anchorage 2040 Land Use Plan on September 26, 2017. The plan addresses changes that the community has experienced due to urbanization and prepares for continued growth, development, and sustainability. One of the main goals of the 2040 Land Use Plan is to maximize land use efficiencies while protecting communities and preserving natural resources, with strategies such as infill housing and redevelopment that also create strong economic and neighborhood centers. Anchorage 2040 is to be used in conjunction with the Metropolitan Transportation Plan (MTP) and Anchorage Bike and Pedestrian Plans, which are formed to comply with Anchorage 2020.

4.1.2.2 *Additional Analysis for the PEL Study*

Further and more in-depth review of Anchorage 2040 will be undertaken in support of existing conditions analysis, and to understand the implications of the plan on proposed alternatives once these are identified. In particular, preliminary discussions with Senior AMATS Transportation Planner, Vivian Underwood, have suggested the need to evaluate the Secondary Road Network as part of the traffic modeling.

4.1.2.3 *Data Collection Needs*

No additional data collection identified.

4.1.3 **The Official Streets and Highway Plan**

4.1.3.1 *Available Data*

The Anchorage OS&HP provides a means for the community to prepare for future development and growth by establishing the location, classification, and minimum ROW requirements of those streets and highways required to accommodate future transportation needs of the community. The OS&HP establishes the policies and standards for creating the necessary highway transportation system and consists of maps which graphically depict the hierarchy of streets and highways, both existing and planned, that will form the transportation system.

The adopted 2014 OS&HP designates the Seward Highway as a Freeway, street class V, which requires a minimum 150-foot ROW to accommodate the average daily traffic count, which is over 40,000 vehicles.

4.1.3.2 Additional Analysis for the PEL Study

Further and more in-depth review of the OS&HP will be undertaken in support of the existing conditions analysis, and to understand the implications of the plan on proposed alternatives once these are identified.

4.1.3.3 Data Collection Needs

None identified at present.

4.1.4 2035 and 2040 Metropolitan Transportation Plan (MTP)

4.1.4.1 Available Data

The 2035 MTP was approved by the AMATS in August 2015. The 2035 MTP for the Anchorage Bowl and Chugiak-Eagle River is the comprehensive, multimodal blueprint for transportation systems aimed at meeting the current needs of the growing community. The 2035 MTP is the Municipality's interim plan, creating a guiding document while the MTP 2040 update is being prepared. As of October 2017, the MTP 2040 is considering alternatives for transit, bicycle, pedestrian, and roadway. It is anticipated that the 2040 MTP will be adopted by the MOA in November 2019.

The 2035 MTP addresses transportation facilities and service needs that will be required as the community grows and changes through 2035. Anchorage is anticipated to see an increase of more than 65,000 new residents and nearly 45,000 new jobs by 2035, putting demands on the transportation system. The 2035 MTP anticipates these changes, and provides goals and strategies to make growth possible and effective.

The 2035 MTP highlights many of the needs and challenges this PEL study has been tasked to address. The goals and objectives identified in the 2035 MTP further assist by providing a long-term vision and strategy to address those needs.

AMATS is currently developing the 2040 MTP, and anticipates that it will be adopted in winter 2019.

4.1.4.2 Additional Analysis for the PEL Study

Limited additional data collection is required as it is expected the 2035 MTP will be obsolete prior to the completion of the PEL study. The existing conditions analysis will monitor the development of the MTP 2040 and its impact on existing and future conditions throughout the duration of the PEL study.

4.1.4.3 *Data Collection Needs*

None identified at present.

4.1.5 2007 Anchorage Pedestrian Plan (APP)

4.1.5.1 *Available Data*

The 2007 Anchorage Pedestrian Plan (APP) is an element of the MOA Non-motorized Transportation Plan. Its purpose is to establish a 20-year framework for improvements that will enhance the pedestrian environment and increase opportunities to choose walking as a mode of transportation. The APP outlines seven goals targeting improvements in non-motorized transportation, and an overall goal of doubling the number of pedestrian trips made by Anchorage residents while simultaneously reducing the number of injuries from pedestrian-vehicle crashes.

The APP provides an inventory of existing sidewalks in the Anchorage Bowl, focusing on the major road network. It then sets out more than one hundred priority projects to improve the pedestrian network in Anchorage, including improving connections, crossings and adequate sidewalk facilities. The projects that are located in the study area and progress on their completion will be explored as part of the existing conditions analysis.

4.1.5.2 *Additional Analysis for the PEL Study*

Further and more in-depth review of the APP will be undertaken in support of the existing conditions analysis, and to understand the implications of the plan on proposed concepts once these are identified. Efforts will be made to include elements of the plan within the area affected by the corridor concepts.

4.1.5.3 *Data Collection Needs*

The APP is currently being updated as part of the new Anchorage Non-Motorized Transportation Plan.

4.1.6 2010 Anchorage Bicycle Plan (ABP)

4.1.6.1 *Available Data*

The 2010 Anchorage Bicycle Plan (ABP) is an element of the MOA Non-motorized Transportation Plan, and its purpose is to expand the bicycle infrastructure in Anchorage and the use of bicycles for transportation. The ABP outlines six goals to improve the bicycle network in the Anchorage Bowl, and has an overall goal of doubling the amount of utility bicycling while reducing the number of bicycle crashes by one-third.

The ABP provides an inventory of existing bicycle facilities in the Anchorage Bowl, specifically focusing on multi-use pathways, bicycle lanes, and bike route signs. It also sets out a recommended bicycle network to create an integrated system that promotes safer and more convenient utility bicycle travel throughout Anchorage. The recommended network focuses on providing facilities on a network of major roads, including the Seward Highway, Lake Otis

Parkway, C Street, Benson Boulevard, and Northern Lights Boulevard within the study area. The types of facilities sought are also outlined in the plan.

4.1.6.2 Additional Analysis for the PEL Study

Network improvements located in the study area and progress toward their implementation will be explored as part of the existing conditions analysis, and will also be considered in the development of improvements recommended in the PEL study. Further and more in-depth review of the ABP will be undertaken in support of the existing conditions analysis, and to understand the implications of the plan on proposed concepts once these are identified.

4.1.6.3 Data Collection Needs

The ABP is currently being updated as part of the new Anchorage Non-Motorized Transportation Plan

4.1.7 Anchorage Municipal Code Title 21 Land Use Code

4.1.7.1 Available Data

Anchorage Municipal Code (AMC) Title 21, identifies the OS&HP as an adopted element of the comprehensive plan for Anchorage (AMC 21.01.080). The OS&HP establishes street classifications for existing and proposed primary roads, and these classifications directly relate to the design criteria established for each particular type of street.

Transportation and Connectivity (21.07.060) is intended to support the creation of a safe and highly connected transportation system within the municipality in order to provide choices for drivers, bicyclists, and pedestrians; increase effectiveness of municipal service delivery; promote walking and bicycling; connect neighborhoods to each other and to local designations such as employment, schools, parks and shopping centers; reduce vehicle miles of travel and travel times; improve air quality; reduce emergency response times; support the pattern of designated land uses; mitigate the traffic impacts of new development; create road and trail connectivity to free up arterial capacity while protecting neighborhood identity and safety; and in high-volume traffic corridors, maintain an adequate degree of crossings for local circulation and minimize road and traffic impacts on adjacent uses.

AMC 21.07.060.D.1, states that all streets shall meet the standards and requirements set forth in subsections 21.08.030F.2., Street Grades, 21.08.030F.4., Street Alignment, and 21.08.030F.5., Street Intersections.

4.1.7.2 Additional Analysis for the PEL Study

None identified.

4.1.7.3 Data Collection Needs

None identified.



4.1.8 Context Sensitive Solutions

4.1.8.1 Available Data

The Context Sensitive Transportation Projects strategy creates a framework to involve stakeholders and decision makers in projects that may affect the lives, goals, and objectives or mission of a group that may be impacted. All employees, agencies, and consultants, involved in the planning, development, construction, maintenance and operation of transportation projects within the MOA are required to comply with the Context Sensitive Solutions (CSS) strategy. The FHWA guidance provides the definition of a CSS strategy that “is a collaborative, interdisciplinary approach to project development, involving all stakeholders at the earliest phase, to ensure that transportation projects are in harmony with communities and preserve environmental, scenic, aesthetic, and historic resources while maintaining safety and mobility. It involves taking into consideration the land use and environment adjacent to the roadway when planning and designing a project so as to make the improvement blend in with the surrounding community.” DOT&PF will meet the intent of CSS as defined by FHWA in its public outreach approach for this initiative.

4.1.8.2 Additional Analysis for the PEL Study

The MOA is currently updating its CSS Strategy. Any changes that occur will be incorporated into the public outreach approach for this initiative. Additionally, the principles of CSS will be considered through the alternatives development process.

4.1.8.3 Data Collection Needs

None identified.

4.1.9 2012 Anchorage Water Master Plan

4.1.9.1 Available Data

AWWU’s 2012 Water Master Plan is a 20-year master plan with major review occurring approximately every five to seven years. The objective of this plan is to provide a guide for future expansion of the water system as outlined through a list of future planned projects or updates within AWWU’s water system. Two water rehabilitation and repair projects are identified in the 2012 Water Master Plan within the study area boundary.

Seward Highway: AWWU project 1189: Northern Lights - 33rd Avenue (Rehabilitation and Repair)

Pipe replacement in the Seward Highway ROW between Northern Lights Boulevard and 33rd Avenue is scheduled sometime within the 2018 to 2031 timeframe. Estimated 2012 cost is \$3.2 million.



Lake Otis: AWWU project 1186: Lake Otis -38th to 42nd Avenue (Rehabilitation and Repair)

Pipe replacement in the Lake Otis Parkway ROW is scheduled to go out to bid in 2018. This pipe will be upsized for future use as backbone transmission main. Estimated 2012 cost is \$3.75 million.

4.1.9.2 Additional Analysis for the PEL Study

Design or construction of the projects identified by AWWU could proceed at any time during the study or implementation of improvements. Communication with AWWU is recommended to confirm project dates and reduce the potential for conflicts, as well as to identify additional potential AWWU projects within the study area. Potential impacts to existing AWWU infrastructure will be assessed following the identification of corridor concepts.

4.1.9.3 Data Collection Needs

None identified.

4.1.10 2014 Anchorage Wastewater Master Plan

4.1.10.1 Available Data

The AWWU 2014 Wastewater Master Plan is a 20-year master plan that addresses sewage collection, treatment, and disposal and is updated every five to seven years. The objective of this plan is to provide a guide for future expansion of the sewer collection and treatment system as outlined through a list of future planned projects or updates within AWWU's sewer system. No sewer projects within the PEL study area were identified in the 2014 Wastewater Master Plan. Lift Station 5 is located near the intersection of 36th Avenue and Seward Highway.

4.1.10.2 Additional Analysis for the PEL Study

Communication with AWWU is recommended to identify opportunities for AWWU wastewater infrastructure improvement projects within the boundaries of the preferred corridor concept and reduce the potential for conflicts. Potential impacts to existing AWWU infrastructure will be assessed following the identification of corridor concepts.

4.1.10.3 Data Collection Needs

None identified.

4.1.11 Chester Creek Watershed Plan

4.1.11.1 Available Data

Alaska Administrative Code Title 18 Chapter 70, AMC Title 21, and the Alaska Pollutant Discharge Elimination System (APDES) Chester Creek permit call for watershed planning in Anchorage. The Chester Creek Watershed Plan draft was developed through a collaboration of approximately 18 agencies and groups. This plan addresses the issues confronting Chester Creek Watershed and



was developed as a tool for planners, scientists, community members, and others to make decisions to reverse water quality declines and enhance resources. A main area of focus in the watershed plan is to restore fish passage and replace several undersized culverts that freeze, clog, and flood certain areas. Two of those culverts are within the study area limits.

Lake Otis (approximately 15th Avenue to Tudor): The existing culvert has velocity and perch issues at the culvert outlet. The plan recommends replacing the culvert and wood fish ladder with a bridge or large embedded pipe. Additionally, runoff from the road is not treated prior to discharge to the creek. Installing a pretreatment basin for Lake Otis Parkway runoff is recommended to improve water quality.

Seward Highway (approximately 15th Avenue to Tudor): The plan recommends replacing the existing Seward Highway culvert with a bridge for fish, animals, and pedestrian passage.

4.1.11.2 Additional Analysis for the PEL Study

Chester Creek is prone to icing and glaciation during winter months, which can lead to flooding. This should be considered during concept development.

4.1.11.3 Data Collection Needs

None identified.

4.1.12 CEA Distribution Facilities Undergrounding Plan 2017-2021 and ML&P 5-Year Plan 2017-2021 for the Removal of Non-Conforming Overhead Lines in Accordance with MOA Title 21.07.050

4.1.12.1 Available Data

CEA and ML&P have developed five-year master plans to address overhead utility lines that do not conform to Title 21 of the AMC. The code requires these utilities to relocate a percentage of the existing overhead facilities underground as long as it is safe and practical. Additionally,

Title 21 requires any other utility that attaches to the ML&P or CEA poles to place its lines underground at the same time.

CEA prepared Old Seward Highway from Telephone Avenue to 36th Avenue for a future undergrounding project by installing conduit and vaults in 2017. This project worked in conjunction with ML&P to construct a new substation on Telephone Avenue. The ML&P Master Plan identifies Old Seward Highway from Tudor Road to 36th Avenue as a potential undergrounding project. This project did not make the 2017-2021 5-Year Plan and is not currently scheduled for construction, but will be re-evaluated each year.

4.1.12.2 Additional Analysis for the PEL Study

None identified.



4.1.12.3 Data Collection Needs

None identified.

4.2 Social, Economic, and Community Characteristics

Social, economic, and community characteristics are important to understanding how proposed transportation improvements affect local residents and people who work and recreate in the study area. To conduct this analysis, it requires understanding the economic and demographic conditions of the study area population (per Section 109(h) of the Federal Aid Highway Act). FHWA's Technical Advisory T 6640.8A guides such analysis. Additionally, Title VI of the Civil Rights Act of 1964 protects individuals from discrimination on the grounds of race, age, color, religion, disability, sex, and national origin. Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, signed by the President on February 11, 1994, directs Federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of Federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Transportation improvements can affect the social environment both positively and negatively by altering economic development patterns or changing land use.

4.2.1 Socio-Economic Conditions

4.2.1.1 Available Data

The social environment of the study area consists mainly of a mixture of commercial businesses, residential areas, and some recreational open space. The 2010 Census provides social and economic data at different spatial scales. As shown in Figure 19, the study area includes data from the following Census spatial groups:

- All of Tract 15 (Blocks 1 - 5)
- All of Tract 9.02 (Blocks 1 - 3)
- Portion of Tract 14 (Blocks 3 - 5)
- Portion of Tract 19 (Blocks 1 - 5)
- Portion of Tract 12 (Blocks 2, 3)
- Portion of Tract 10 (Blocks 3 - 5)
- Portion of Tract 9.01 (Blocks 1, 3)
- Portion of Tract 16.01 (Block 1, 3)
- Portion of Tract 16.02 (Block 1)
- Portion of Tract 18.01 (Block 1)
- Portion of Tract 18.02 (Block 1, 3)



Social and economic characteristics of the study area that are available from the Census include (but are not limited to):

- Total population
- White Population (not Hispanic)
- Percent Minority
- Median Age (years)
- Percent 65 & over
- Median Household Income (Income and Benefits in 2014 Inflation-Adjusted Dollars)
- Average Household Size (Rounded)
- 2014 United States Health and Human Services (HHS) Poverty Guidelines for Alaska - three person household
- Population With Less Than High School Education (percent of total population)
- Population Density (per square mile)
- Housing Units Built before 1950 (number)
- Households (percentage of MOA)
- Renter Occupied Housing (percentage of total population)
- Not in Labor Force (percentage of total population)

4.2.1.2 Additional Analysis for the PEL Study

Not all data is available from both the tract scale and block group; some data is only available from the tract scale (e.g., median household income, households receiving food stamps) or the block group scale (e.g., percent of vacant housing, median age). Selecting the appropriate data will depend on determining the most appropriate grouping of data based on the likely extent of alternatives and the corresponding final study area for demographics.

4.2.1.3 Data Collection Needs

Once the study area is refined to its final iteration, data will be downloaded from the Census that corresponds to the appropriate tracts and block groups for comparison.



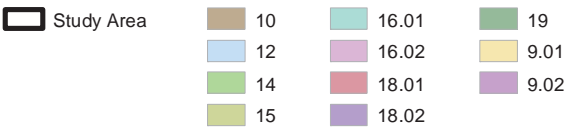
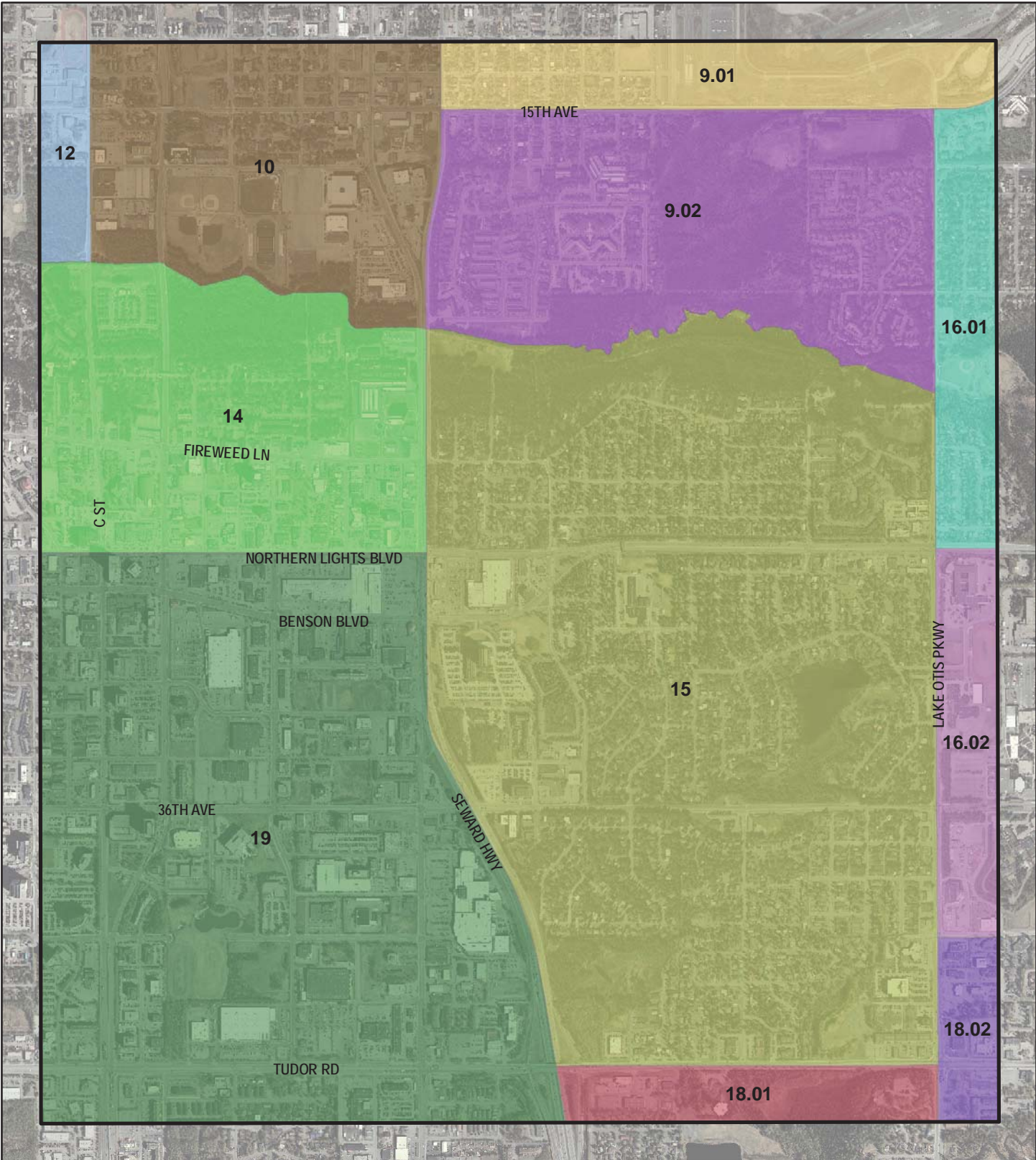


Figure 19: Census Tracts



4.2.2 Environmental Justice

4.2.2.1 Available Data

The United States Environmental Protection Agency’s (EPA) Environmental Justice (EJ) Viewer was used to identify areas of minority and low-income populations within the study area. The EJ viewer provides different data than the data described in Section 3.1.2.1 above, as it combines low income and minority data across the different tracts and block groups and compares it to regional, statewide, and national datasets to determine results. It is used specifically to determine if an EJ population is present within a particular area. Table 3 details EJ populations present in the study area.

Table 3: Environmental Justice Metrics

Population Metric	Study Area Average	MOA	State Average	U.S. Average
EJ Indicator: Minority (percentage of total population)	43	40	38	38
EJ Indicator: Low Income (percentage of total population)	27	22	26	34

Based on this data, the study area has a minority population, and therefore, an EJ population. Community cohesion and metrics related to determining large-scale community impacts will be evaluated on a project-by-project basis during the MOA CSS process, as discussed in Section 3.1.1.7.

4.2.2.2 Additional Analysis for the PEL Study

A more spatially-specific analysis of EJ populations will occur when concepts are better defined.

4.2.2.3 Data Collection Needs

Once concepts are refined, the mapper will be used to extricate data that corresponds to the new boundaries.

4.2.3 Land Ownership, Land Use, and Right-of-Way (ROW)

4.2.3.1 Available Data

The study area includes land held in a mix of private and public ownership. Major non-residential owners include the MOA, University of Alaska, BP, DOT&PF, Fred Meyer/Kroger, Cal Worthington (leased by Kendall Auto Group), Fireweed Business Center, Shiloh Missionary Baptist Church, First National Bank, Seritage SRC Financial (Mall at Sears), Calais Company, Centerpoint LLC, and the Anchorage School District.



Land uses in the study area include single-family and multi-family residential, commercial, industrial, institutional, and recreation and open space. Study area land use is illustrated in Figure 20.

4.2.3.2 Additional Analysis for the PEL Study

One of the primary purposes of the MOA's OS&HP is to identify the ROW requirements of the road transportation system based on the facility type. The OS&HP specifies that as a designated Freeway, the Seward Highway should have a 150-foot minimum ROW width. A ROW analysis of the Seward Highway corridor will be performed to determine which segments meet this ROW width requirement. The analysis will also identify where new ROW easements and construction permits from adjacent landowners may be required if improvement alternative limits extend beyond existing ROW limits.

4.2.3.3 Data Collection Needs

None identified.

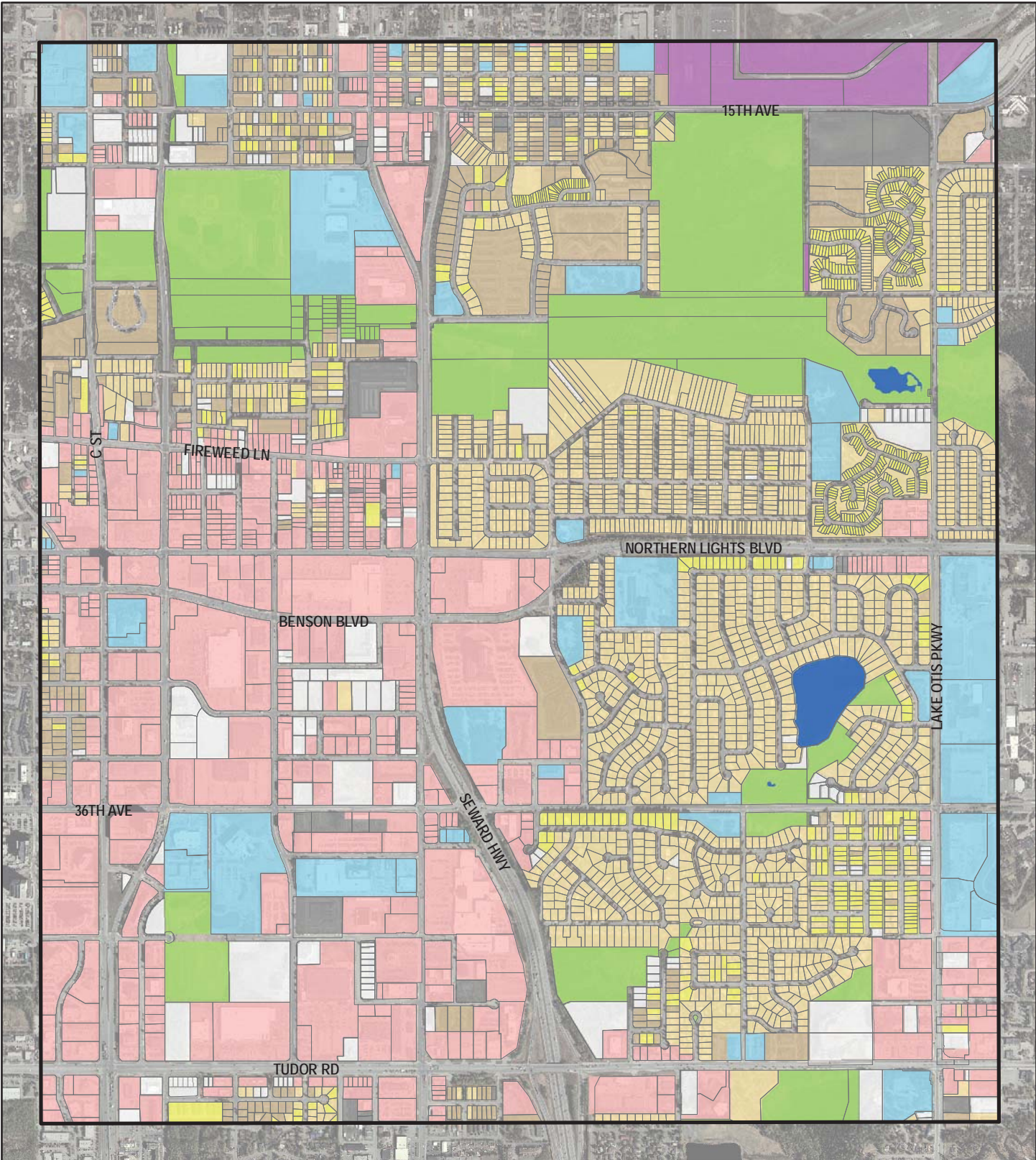


Figure 20: Land Use

4.3 Special Land Use Designations

Public parks in the study area include Chester Creek Sports Complex and the Chester Creek Greenbelt, home to Chester Creek and Hillstrand Pond, Cuddy Family Midtown Park, and Jacobson Park, that abuts Lake Otis Parkway. The study area also includes a number of private charter schools and one public school, Rogers Park Elementary.

4.3.1 Historic Properties

4.3.1.1 *Available Data*

Significant historic resources are afforded special consideration by Section 106 of the National Historic Preservation Act of 1966, as amended. Historic resources may include archaeological artifacts or features, and historic standing structures more than 45 years old. Significant historic resources are those that are listed or may be eligible for inclusion on the National Register of Historic Places (NRHP). For the purposes of this study, only properties listed on the NRHP or officially eligible for the NRHP are listed as previously-identified historic sites.

The Alaska Department of Natural Resources (ADNR) Office of History and Archaeology database identified no NRHP-listed properties within the corridor vicinity. No known buried archaeological resources have been identified in the study area. As shown in Figure 21, only one (1) property is documented in the Alaska Heritage Resources Survey (AHRS) that is currently considered eligible for the NRHP in the study area. However, this property is considered eligible as a contributing property to a potential historic district, leaving the possibility that as-yet undocumented structures nearby may also be eligible as part of the same potential district. There are 89 other properties in the database that are not currently on the NRHP, but are potentially eligible historic properties. Additionally, there are numerous structures in the study area for which dates of construction cannot be determined without a survey of municipal records. Some of these may have reached the age threshold for consideration of significance.

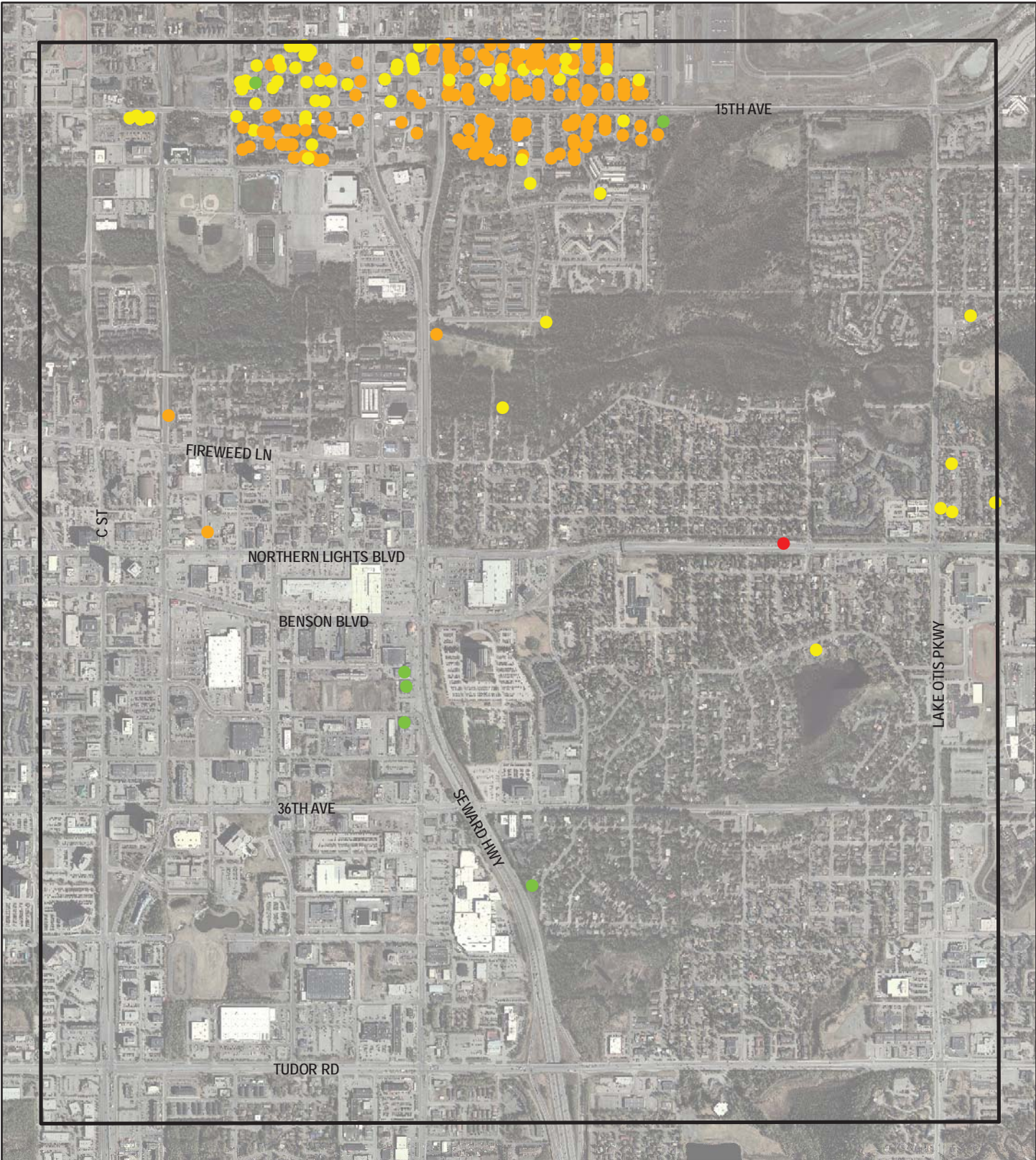
4.3.1.2 *Additional Analysis for the PEL Study*

A cultural resources survey would be required in a defined Area of Potential Effect (APE) for each concept in consultation with the State Historic Preservation Office (SHPO). Survey would require review of previous studies to determine the scope and scale of research conducted in the area. Specific structures will then be assessed as needed following the identification of corridor concepts and potential building impacts. Additional sites may be identified, and previously identified sites will be evaluated for eligibility for the NRHP. Alaska Building Inventory Forms (BIF) will be filled out for each structure located in the APE.

4.3.1.3 *Data Collection Needs*

Desktop analysis will begin with the AHRS and previously recorded structures. The Municipality of Anchorage Property Appraisal site would be examined for information on dates of structures located within the APE. Field analysis would include ground-truthing parcels for demolition, unrecorded structures, and condition of existing structures. Photographic recordation, as possible without right-of-entry, would be done. All data will be included in fillable BIFs, with an evaluation of significance to the National Register.





- Study Area
- Eligible
- > 45 Years
- Unknown Age
- Not Eligible or Destroyed

Note: This map depicts only those structures documented in the AHRS and further research will be necessary to determine the age of undocumented buildings in the study area



Figure 21: Historic Properties

4.3.2 Section 4(f) Properties

4.3.2.1 Available Data

Section 4(f) of the U.S. Department of Transportation Act of 1966 was enacted to protect publicly owned parks, recreation areas, wildlife and waterfowl refuges, and public and private historic sites of local, state, and national significance. Federally funded transportation projects cannot impact Section 4(f)-protected properties unless there are no feasible and prudent avoidance alternatives and all possible planning to minimize harm has occurred. Prior to approving a project that “uses” a Section 4(f) resource, FHWA must find that there is no prudent or feasible alternative that completely avoids the 4(f) resource. “Use” can occur when land is permanently incorporated into a transportation facility or when there is a temporary occupancy of the land that is adverse to a Section 4(f) resource. Constructive “use” can also occur when a project’s proximity impacts are so severe that the protected activities, features, or attributes that qualify a resource for protection under Section 4(f) are “substantially impacted.” Potential effects on recreational use would need to be considered in accordance with Section 4(f) for projects that result from this study.

Section 4(f) properties include publicly owned parks, refuges, recreation areas, and ‘other areas’.

- “Publicly owned” is defined as:
 - Fee simple ownership - the land is solely owned by a government entity for park, recreation, or refuge purposes.
 - Permanent easement - the land is not necessarily owned by a government agency, but the agency possesses an easement.
 - Lease agreement - similar to a public easement but with a lease agreement typically intended for the long-term.
- Parks, recreation areas, and refuges must be open to the public, defined as:
 - A property that is open to the public is one where access is permitted to the entire public during normal hours of operation. A property would not be considered open to the public if access was permitted only to select groups. For example, if a publicly owned recreational facility (such as a state university softball complex, for example) is open only to students, faculty, and staff, then it would not be considered open to the public.
 - Wildlife and waterfowl refuges are treated somewhat differently when it comes to the issue of public access. Many wildlife and waterfowl refuges allow public access, while others may restrict public access either to sensitive areas or during certain times of the year for the protection of refuge habitat and species. A refuge would not have to provide unrestricted access to the public to be considered a Section 4(f) property.
- Depending on their characteristics, other 4(f) properties may include
 - Wildlife Management Areas,
 - School Playgrounds,
 - Public Multiple-Use Land Holdings,



- Wild & Scenic Rivers,
- Scenic Byways,
- Bodies of Water (publicly owned lakes and/or adjacent publicly owned lands that function primarily for park, recreation, or refuge purposes),
- Planned Facilities,
- Bikeways (publicly owned, shared use or bike paths (or portions thereof) designated or functioning primarily for recreation), and
- Trails.

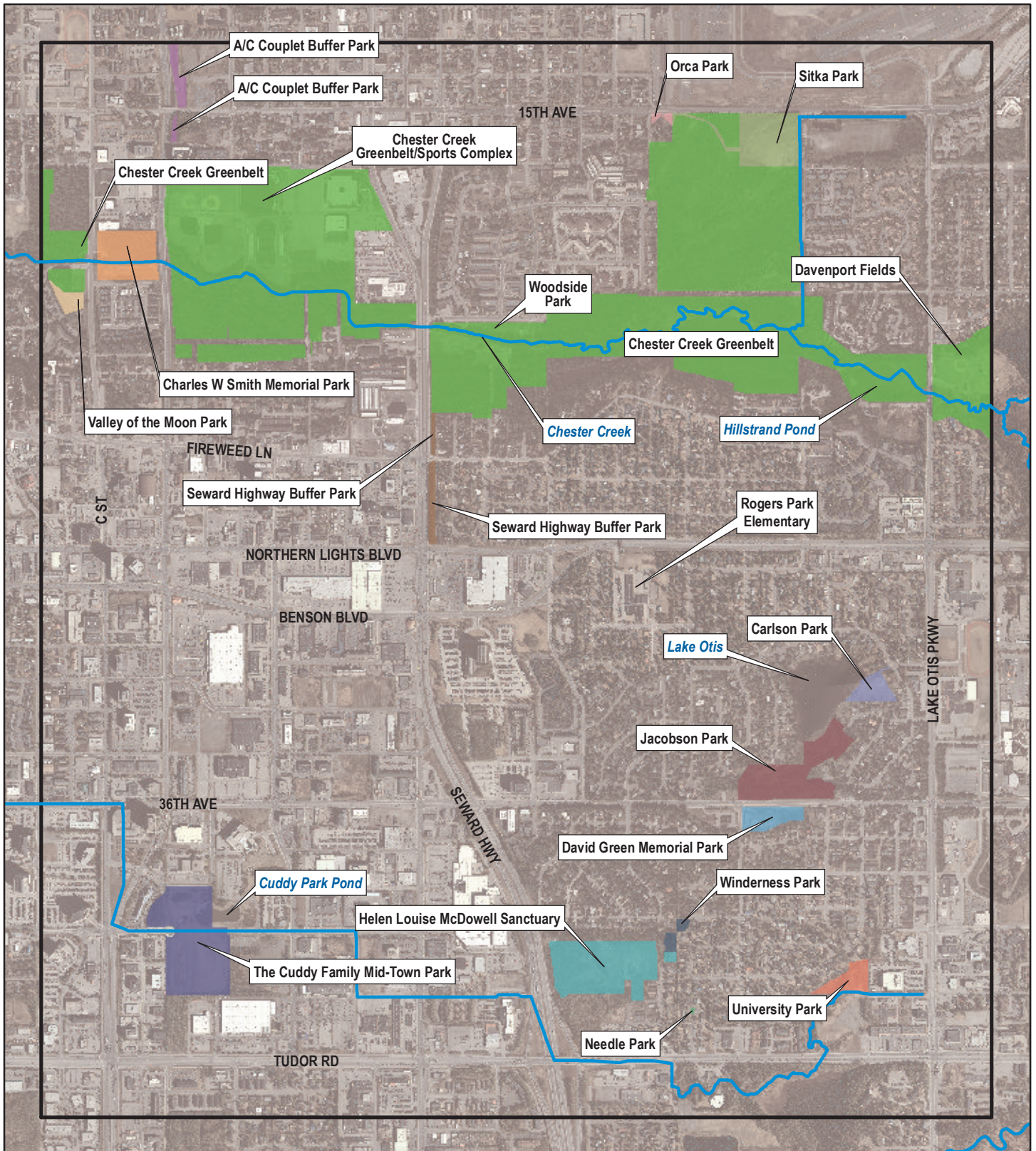
4.3.2.2 Additional Analysis for the PEL Study

Potential Section 4(f) properties in the study area will be evaluated to determine if they meet the criteria of Section 4(f) and are shown in Figure 22.

4.3.2.3 Data Collection Needs

None identified.





- | | | | |
|-------------------------------|---------------------------------|---------------------------|----------------------------|
| Study Area | A/C Couplet Buffer Park | David Green Memorial Park | Seward Highway Buffer Park |
| Carlson Park | Helen Louise McDowell Sanctuary | Sitka Park | University Park |
| Charles W Smith Memorial Park | Jacobson Park | Needle Park | Valley of the Moon Park |
| Chester Creek Greenbelt | Needle Park | Orca Park | Winderness Park |
| Cuddy Family Mid-Town Park | | | |



Figure 22: Potential Section 4(f) Properties

4.3.3 Section 6(f) Properties

4.3.3.1 Available Data

Section 6(f) of the Land and Water Conservation Fund (LWCF) Act of 1965 provides matching grants to States and local governments for the acquisition and development of public outdoor recreation areas and facilities (as well as funding for shared federal land acquisition and conservation strategies). The program is intended to create and maintain a nationwide legacy of high quality recreation areas and facilities and to stimulate non-federal investments in the protection and maintenance of recreation resources across the United States.

Section 6(f)(3) of the LWCF Act prohibits the conversion of property acquired or developed with grants from this fund to a non-recreational purpose without the approval of the National Park Service. Importantly, Section 6(f) applies to all transportation projects (and others) involving possible conversions of the property, whether or not federal funding is being used for the project.

Six parcels within two parks in the study area were funded by the LWCF and are shown in Figure 23.

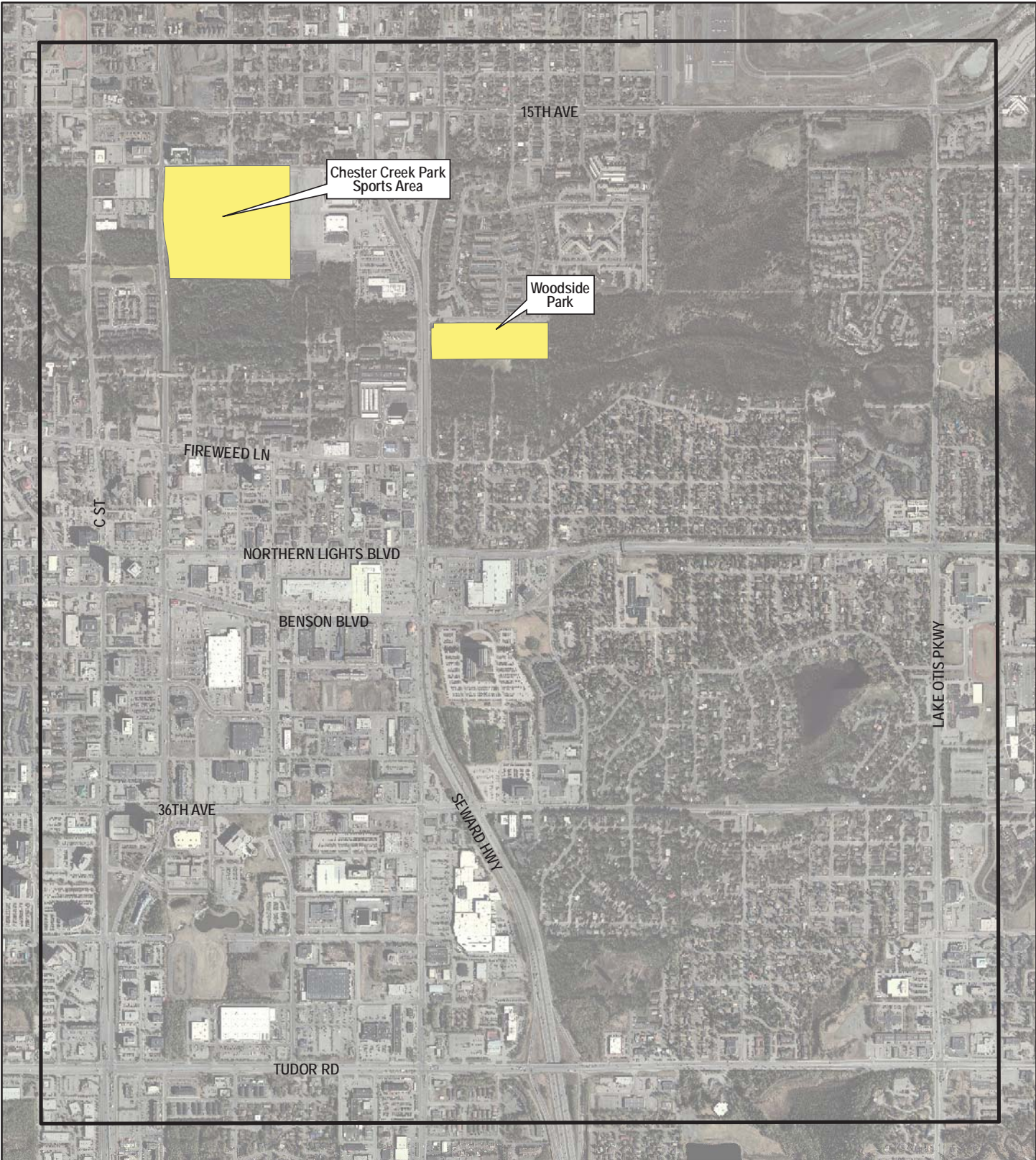
4.3.3.2 Additional Analysis for the PEL Study

When the preferred improvement concept is determined, proximity to the Chester Creek Park Sports Area and Woodside Park will be evaluated to determine if environmental documentation under the LWCF Act is required.

4.3.3.3 Data Collection Needs

Depending on the type of potential project effects to 6(f) properties, primary and intended uses of the park would be determined and boundaries of the 6(f) parcels would be obtained from the MOA.





- Study Area
- Section 6(f) Parcels



Figure 23: Section 6(f) Properties

4.3.4 Hazardous Sites

4.3.4.1 Available Data

Part of the due diligence for any construction project is to identify potentially contaminated sites in order to avoid excavating where soil disturbance is prohibited and to avoid unknowingly subjecting a contractor to hazardous materials. To understand these risks, a search of the Alaska Department of Environmental Conservation (ADEC) contaminated sites database was conducted to determine the types of contamination documented within the study area.

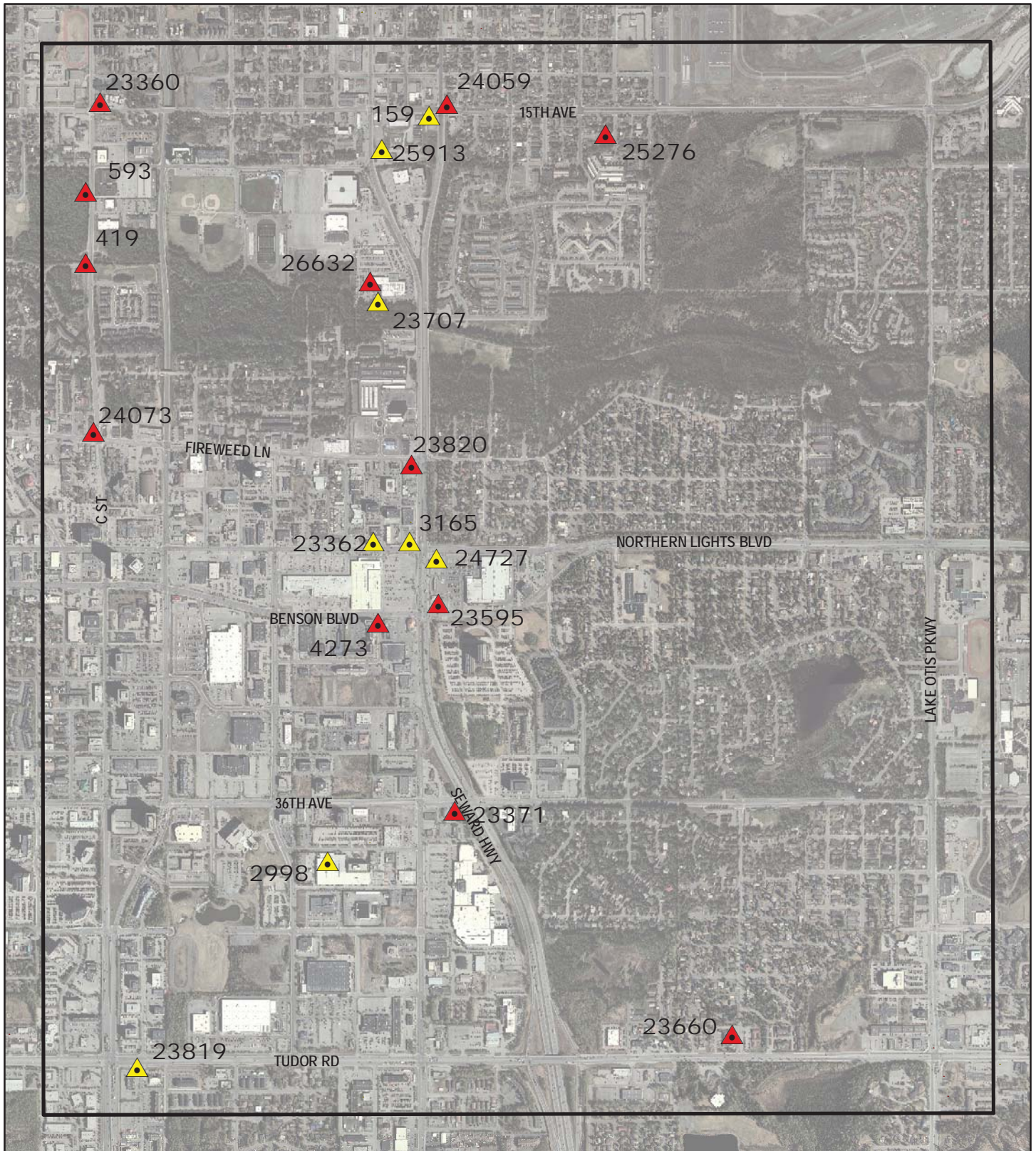
Contaminated sites often threaten public health or the environment and can cause economic hardship to people and communities (ADEC 2011). The regulatory framework for the management of hazardous materials, hazardous wastes, and contamination is complex, with both federal and state components.

According to the State of Alaska Contaminated Sites database, there are 57 contaminated sites within the study area that have been affected by contamination and required cleanup. Of the 57 sites, 36 sites have a status of “Cleanup Complete;” 12 sites are ‘active’ and eight have a Cleanup Complete status with Institutional Controls (IC) assigned. Table 4 and Figure 24 present the latter two categories (20 total sites).

Table 4: ADEC Active Sites and Sites with Institutional Controls in Study Area

Hazard ID	Site Name	Status	Site Type	IC
159	Alaska Electroplating & Bumper Rpr.	Cleanup Complete	Maintenance Yard /Shop	Yes
2998	ACS Warehouse	Cleanup Complete	Maintenance Yard/Shop	Yes
3165	Former Midas Facility	Cleanup Complete	Commercial /Retail /Office	Yes
23362	Former Holiday Station Store #608, formerly Williams Express Store #5008	Cleanup Complete	Gas Station	Yes
23707	Cal Worthington Ford USTs 1-3	Cleanup Complete	Commercial /Retail /Office	Yes
23819	Williams Express Store #5012	Cleanup Complete	Gas Station	Yes
24727	Tesoro Northstore #79, Formerly Garrett's #1	Cleanup Complete	Gas Station	Yes
25913	Gambell Street Cell Tower	Cleanup Complete	Telecommunications	Yes
419	AFSC Former Cross-town Pipeline, 1900 C Street release	Active	Transmission Pipeline	No
593	AFSC Former Cross-town Pipeline, 1600 C Street release	Active	Transmission Pipeline	No
4273	MOA Gambell Street Right of Way near Benson Boulevard.	Active	Commercial /Retail/Office	No
23360	Unocal - #4652 (former) Chevron 306448	Active	Gas Station	No
23371	Tesoro - Olson Gas Service #2 (former)	Active	Gas Station	No
23595	Chevron - #1518 (Former) - Wendy's	Active	Gas Station	No
23660	MOA - Fire Station #4	Active	Commercial /Retail /Office	No
23820	Chevron - #5799	Active	Gas Station	No
24059	Texaco #90 901 East 15th	Active	Gas Station	No
24073	Chevron - #6097	Active	Gas Station	No
25276	MOA Third Addition Block 39 Lot 15	Active	Residence	No
26632	Cal Worthington Ford	Active	Maintenance Yard /Shop	No





- Study Area
- Cleanup Complete - Institutional Controls
- Open



Figure 24: Contaminated Sites

An IC is instituted when contamination remains above the established cleanup levels without an unacceptable risk to human health or the environment. Sites with ICs usually require coordination with ADEC if construction is on or immediately adjacent to the site boundary. ICs may also be implemented when contaminants remain after cleanup is completed to the extent practical. High-risk site IC types include equitable servitudes, conservation easements, and compliance orders. Lower-risk sites may have public informational IC types, including deed notices, ADEC online database notations, and letters to the landowner. Most ICs will have use restrictions and possible monitoring requirements, and these may include soil or groundwater monitoring, groundwater use restrictions, air quality monitoring, maintenance of engineering controls like fencing or asphalt caps, and soil and groundwater removal restrictions. With ICs, ADEC is able to manage land use decisions and require a number of different conditions, such as notification requirements for certain actions and further remediation in the future.

4.3.4.2 Additional Analysis for the PEL Study

Active sites and sites with ICs may require coordination with ADEC during project development.

4.3.4.3 Data Collection Needs

Reports related to sites impacted by the preferred improvement concept will be obtained from ADEC.



5.0 NATURAL ENVIRONMENT AND PHYSICAL CONTEXT

5.1 Aquatic Resources

5.1.1 Water Bodies and Water Quality

5.1.1.1 Available Data

Three main waterbodies are in the study area: Chester Creek (main stem, north and south fork); Lake Otis; and Fish Creek. Fish Creek is mostly diverted into the storm drain system, with two small areas of daylighted creek (at Cuddy Park and near 40th Avenue and Lake Otis Parkway). None of these waters have been determined navigable by the State of Alaska. The study area is within both the Chester Creek and Fish Creek watersheds.

Drainage and sub-drainage divides throughout the corridor are determined by both topography and existing storm drain systems. These storm drain systems are maintained and operated by the DOT&PF, MOA, or private entities. Drainage within the study area flows into the existing storm drain system and eventually into either Chester or Fish Creek. Subdrainage basins formed primarily by the storm drain system were identified to determine the receiving water body. Within the study area, Chester Creek receives most of the stormwater flow. Aquatic resources are illustrated in Figure 25.

Section 303, subsection “d” of the Clean Water Act requires the State of Alaska to develop a list, subject to EPA approval, of water bodies that do not meet water quality standards. When water quality fails to meet state water quality standards, ADEC determines the causes and sources of pollutants in a sub-basin assessment and sets maximum pollutant levels, called total maximum daily loads (TMDL). The TMDLs set by ADEC become the basis for implementation plans to restore water quality to a level that supports state designated beneficial water uses. The implementation plans identify and describe pollutant controls and management measures to be undertaken (such as best management practices), the mechanisms by which the selected measures would be put into action, and the individuals and entities responsible for implementation projects.

Chester and Fish Creek are both listed as “impaired” through the Alaska Clean Water Actions (ACWA) ranking process, because of impairment from fecal bacteria, and each has approved management plans that limit the TMDL of pollutants (ADEC 2004; 2005).

The MOA and DOT&PF own and operate storm sewer systems through a system of subsurface storm sewers, roadside ditches, and surface streets. A project-specific erosion and sediment control plan will be developed prior to construction initiation for any projects resulting from this study. A Storm Water Pollution Prevention Plan (SWPPP) will be developed and implemented by the construction contractor for each project. The SWPPP will comply with applicable APDES permits.

5.1.1.2 Additional Analysis for the PEL Study

Potential effects to approved TMDLs will be assessed.

5.1.1.3 *Data Collection Needs*

Assessing the TMDLs, monitoring status and studies will be needed to determine potential effects of the preferred corridor concept.

5.1.2 **Floodplains**

5.1.2.1 *Available Data*

Executive Order 11988, Floodplain Management, requires federal agencies to avoid to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains, and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. In accomplishing this objective, "each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities" for the following actions:

- acquiring, managing, and disposing of federal lands and facilities;
- providing federally-undertaken, financed, or assisted construction and improvements; and
- conducting federal activities and programs affecting land use, including but not limited to, water and related land resources planning, regulation, and licensing activities.

Federal-aid Policy Guide, 23 CFR 650, Bridges, Structures, and Hydraulics, provides "policies and procedures for the location and hydraulic design of highway encroachments on flood plains, including direct Federal highway projects administered by the [Federal Highway Administration (FHWA)]." This document defines "base flood" as the "flood or tide having a 1-percent chance of being exceeded in any given year" and "base flood plain" as the "area subject to flooding by the base flood."

Flood insurance rate maps from the Federal Emergency Management Agency (FEMA) are used to identify drainages with 100-year floodplains within the study area (FEMA, 2009). Floodplains have been mapped in the study area and are associated with Chester Creek and are localized to the immediate area around Chester Creek. Except for isolated low lying areas, most of the areas identified as a risk of flooding correspond with a relatively narrow band associated with the Chester Creek drainage.

5.1.2.2 *Additional Analysis for the PEL Study*

No additional analysis is anticipated, unless corridor concepts impact the mapped floodplain.

5.1.2.3 *Data Collection Needs*

No additional data collection is anticipated.



5.1.3 Wetlands

5.1.3.1 Available Data

The United States Army Corps of Engineers (USACE) defines wetlands as those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

The MOA mapped approximately 132 acres of wetlands within the study area, as shown on Figure 25.

5.1.3.2 Additional Analysis for the PEL Study

Depending on improvement options recommended by this study, a field-based wetland delineation may be needed – particularly the wetland adjacent to the Seward Highway. Future projects in the study area would need to incorporate project design features to avoid and minimize adverse impacts to wetlands to the maximum extent practicable. Unavoidable impacts to wetlands must be compensated through mitigation in accordance with the USACE regulatory requirements and/or requirements of Executive Order 11990. Work within jurisdictional wetlands would require a Clean Water Act 404 permit from the USACE.

5.1.3.3 Data Collection Needs

As noted in section 5.1.3.2 above, a field-based wetland delineation may be needed, dependent on the extent of the preferred corridor concept.

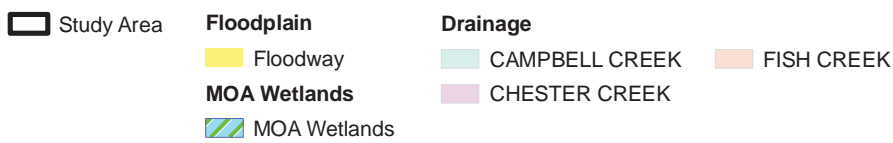
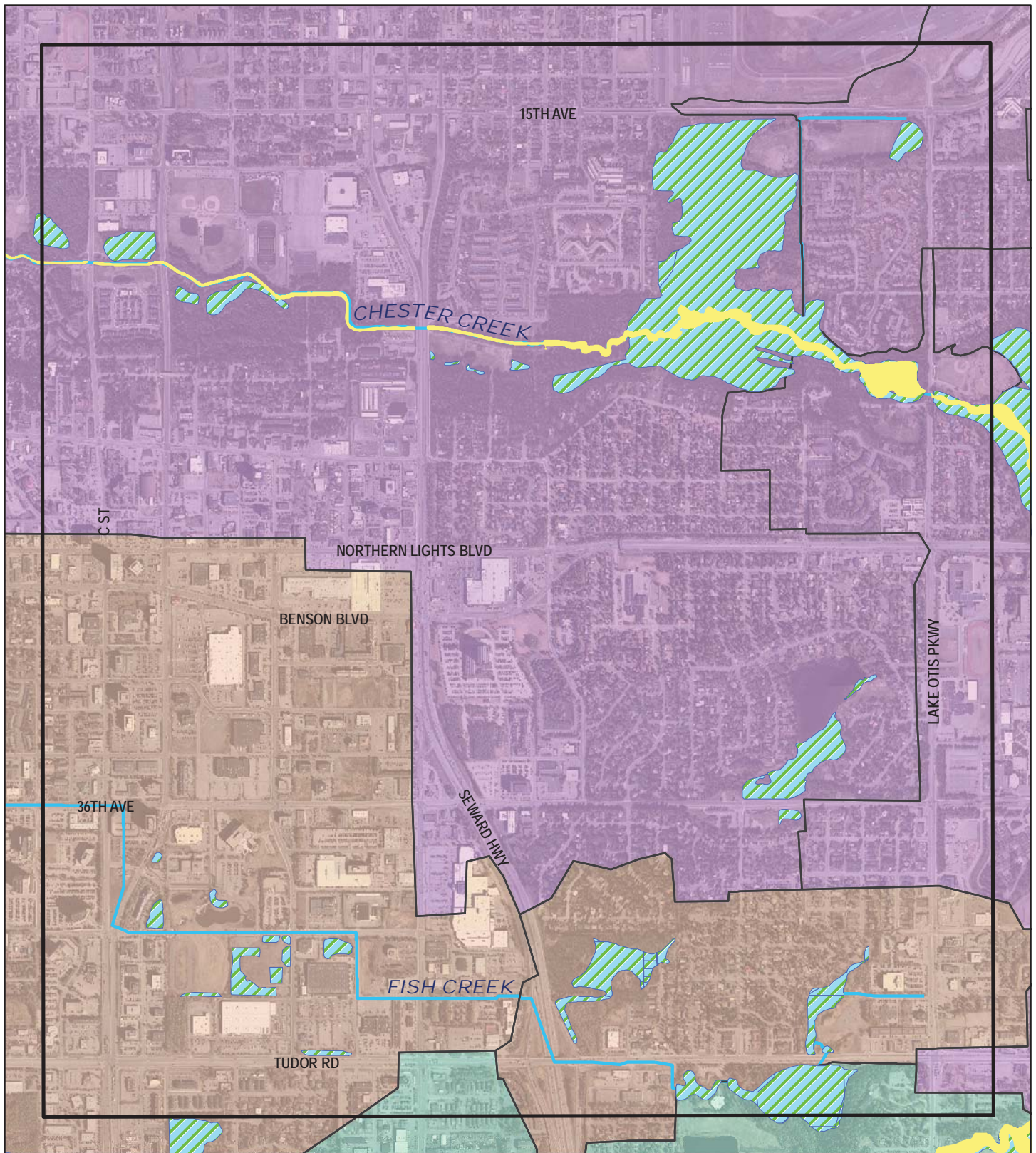


Figure 25: Aquatic Resources

5.2 Soils and Geology

5.2.1 Soils and Geology Conditions

5.2.1.1 *Available Data*

Information on soils and geologic conditions is important to consider in relation to potential design and constructability issues for future roadway improvements within the study area. Figures 26 and 27 illustrate generalized soils and geology within the study area.

Soils in the study area were mapped by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS).

Geology within the study area is primarily influenced by glacial deposits and alluvium within the Anchorage Plain from at least three glaciers that once occupied the Anchorage area. Glacial deposits consist of till, silt, sand, and gravel mixtures and outwash. Postglacial activities in the Anchorage area are confined mostly to erosion and landslide deposits, which are illustrated in Figure 27. Artificial fill, which can result in settlement issues, was used for building and roadway foundations including the Seward Highway between 15th and 20th Avenue, the Tudor Road/Seward Highway intersection, and between Tudor Road and 36th Avenue. Bedrock is primarily found along the Chester Creek and parallel to 15th Avenue.

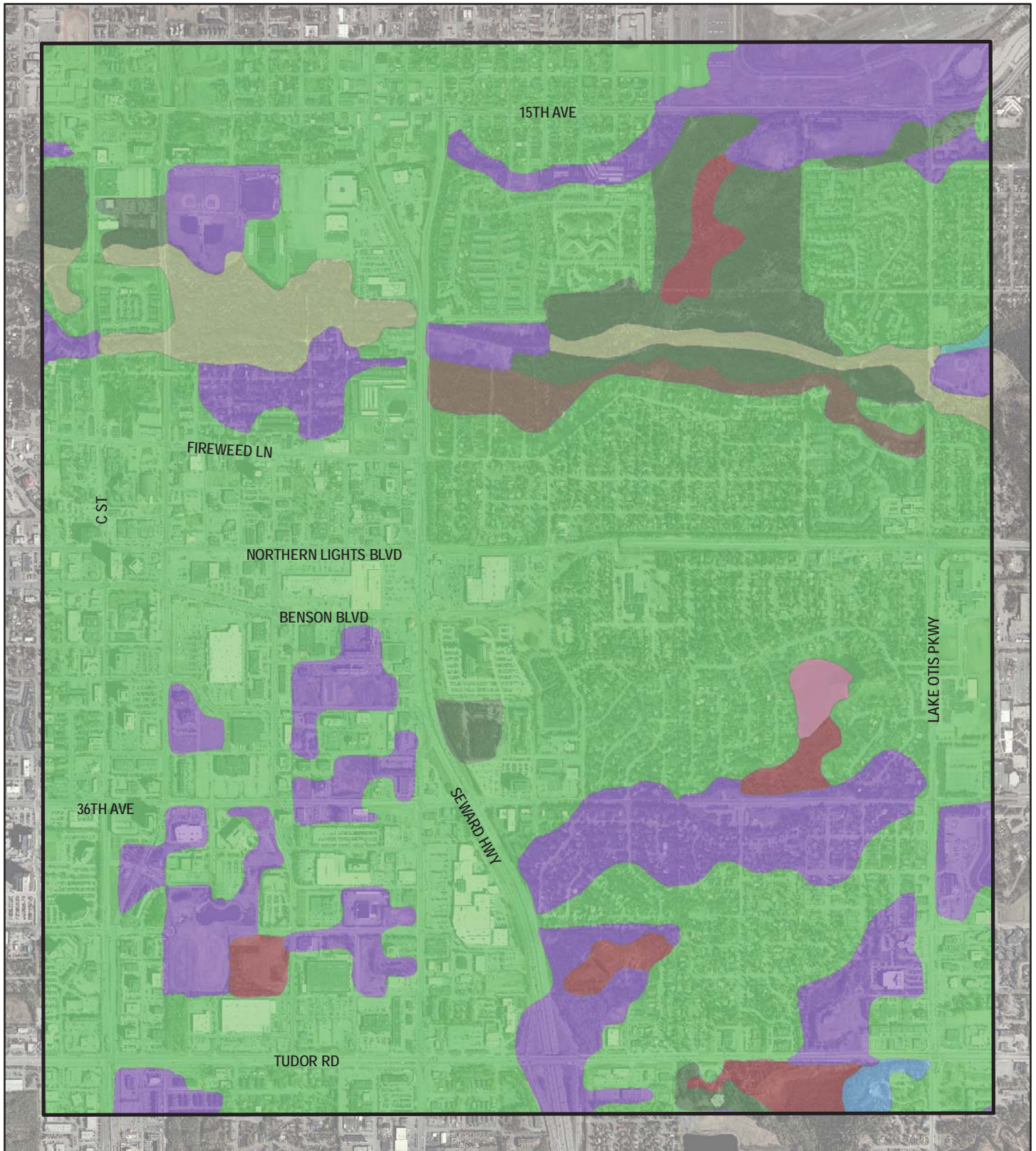
5.2.1.2 *Additional Analysis for the PEL Study*

Detailed analysis of soils and geology will be required in areas recommended for future improvements.

5.2.1.3 *Data Collection Needs*

An engineering review will be undertaken of available soils/geology data as part of concept development.

















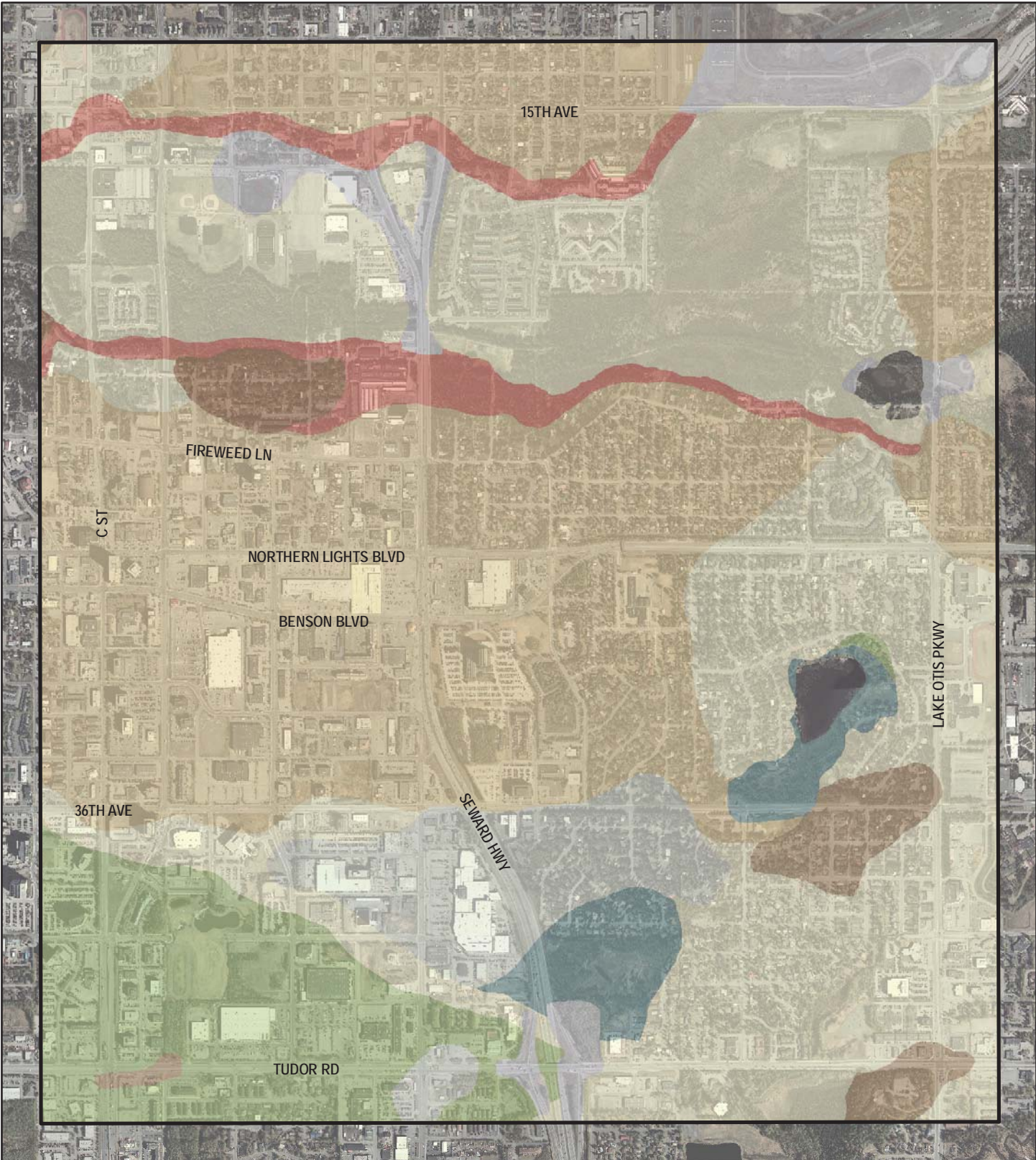
- | | |
|---|---|
|  Study Area |  Jacobsen-Disappear-Doroshin complex, 7 to 12 percent slopes |
|  Cryorthents and Urban land, 0 to 5 percent slopes |  Kashwitna-Kichatna complex, undulating and steep |
|  Cryorthents and Urban land, 5 to 20 percent slopes |  Moose River-Niklason complex, frequently flooded, 0 to 3 percent slopes |
|  Deception-Estelle-Kichatna complex, 12 to 20 percent slopes |  Moose River-Niklason complex, occasionally flooded, 0 to 3 percent slopes |
|  Doroshin peat, 0 to 7 percent slopes |  Smithfha loamy very fine sand, undulating and steep |
|  Icknuun peat, 0 to 3 percent slopes |  Water, fresh |



Figure 26: Soils



- | | | |
|--|--|--|
| Study Area | Alluvium in abandoned channels and in stream terraces | Landslide deposits |
| Alluvium of the Anchorage Plain | Marine, glacial and/or lake deposits, mostly in lowlands | Sand in low-lying belt around Connors Lake |
| Bedrock, chiefly metamorphic | Sand in broad low hills and cliffhead dunes | |
| Fill in causeways and other large projects | Lake and pond sediments | |



Figure 27: Geology

5.3 Biological Resources

NEPA requires that all major actions sponsored, funded, permitted, or approved by federal agencies undergo planning to ensure that environmental considerations such as effects related to fish and wildlife are given due weight in decision making.

5.3.1 Threatened and Endangered Species

5.3.1.1 *Available Data*

Section 7 of the Endangered Species Act (ESA) requires federal actions not to jeopardize the continued existence of any threatened or endangered species. The lead agencies for implementing the ESA are the U.S. Fish and Wildlife Service (USFWS) and the U.S. National Oceanic and Atmospheric Administration (NOAA) Fisheries Service. On November 1, 2012, the USFWS Anchorage Fish and Wildlife Office sent a letter to agencies regarding procedures for Section 7 consultation in Anchorage stating that there are no federally listed or candidate species or critical habitat under USFWS jurisdiction in Anchorage. There is no habitat for federally listed or candidate marine mammal species under NOAA jurisdiction in the vicinity of the study.

5.3.1.2 *Additional Analysis for the PEL Study*

No additional analysis is required.

5.3.1.3 *Data Collection Needs*

No additional data is needed.

5.3.2 Fish and Wildlife

5.3.2.1 *Available Data*

The Alaska Department of Fish and Game (ADF&G) Anadromous Waters Catalog lists the Chester Creek as providing habitat for coho salmon, sockeye salmon, and Dolly Varden. Fish creek is listed as anadromous, but only to the west of the study area. Within the study area are resident fish such as rainbow trout.

Although the majority of the study area is developed, moose and black bear are common to the Chester Creek greenbelt and wetland areas within the study area.

Aside from use in landscaping, vegetation and trees in the study area are generally restricted to the Chester Creek greenbelt, riparian areas around Fish Creek, and within and adjacent to wetlands.

5.3.2.2 *Additional Analysis for the PEL Study*

If an improvement concept impacts Chester Creek, a Fish Habitat Permit would be obtained from ADF&G. Assessing potential affects to wildlife will include accessing DOT&PF's wildlife-vehicle collision data.



5.3.2.3 *Data Collection Needs*

The most current DOT&PF wildlife-vehicle collision data will be obtained.

5.3.3 **Migratory Birds**

5.3.3.1 *Available Data*

The Migratory Bird Treaty Act (MBTA) makes it unlawful to take, kill, or possess migratory birds, their parts, nests, and eggs. Destruction of active bird nests, eggs, or nestlings that can result from spring and summer vegetation clearing, grubbing, and other site preparation and construction activities would violate the MBTA. The USFWS provides land clearing timing guidance for construction activities to assist agencies in complying with the MBTA. Terrestrial habitat suitable for migratory land birds/raptors exists on or adjacent to the proposed project.

Bald and golden eagles and their nests are protected from take, including disturbance under the federal Bald and Golden Eagle Protection Act. Suitable eagle perching and nesting habitat exists on or adjacent to the proposed project, particularly within the Chester Creek greenbelt and in undeveloped wetland areas. There are no known active or inactive eagle nests on or adjacent to the study area.

5.3.3.2 *Additional Analysis for the PEL Study*

Areas with shrub or tree cover will be assessed to determine areas potentially affected by MBTA.

5.3.3.3 *Data Collection Needs*

If needed, a windshield survey of affected areas will be conducted to determine the presence of any eagle nests.

5.3.4 **Invasive Species**

5.3.4.1 *Available Data*

Invasive species can degrade native vegetative communities; damage riparian areas; compete with native plants; create fire hazards; degrade agricultural and recreational lands; pose threats to the viability of livestock, humans, and wildlife; and are expensive to manage. Disturbed and trafficked areas, like highway ROWs, are at particular risk of invasive plant encroachment.

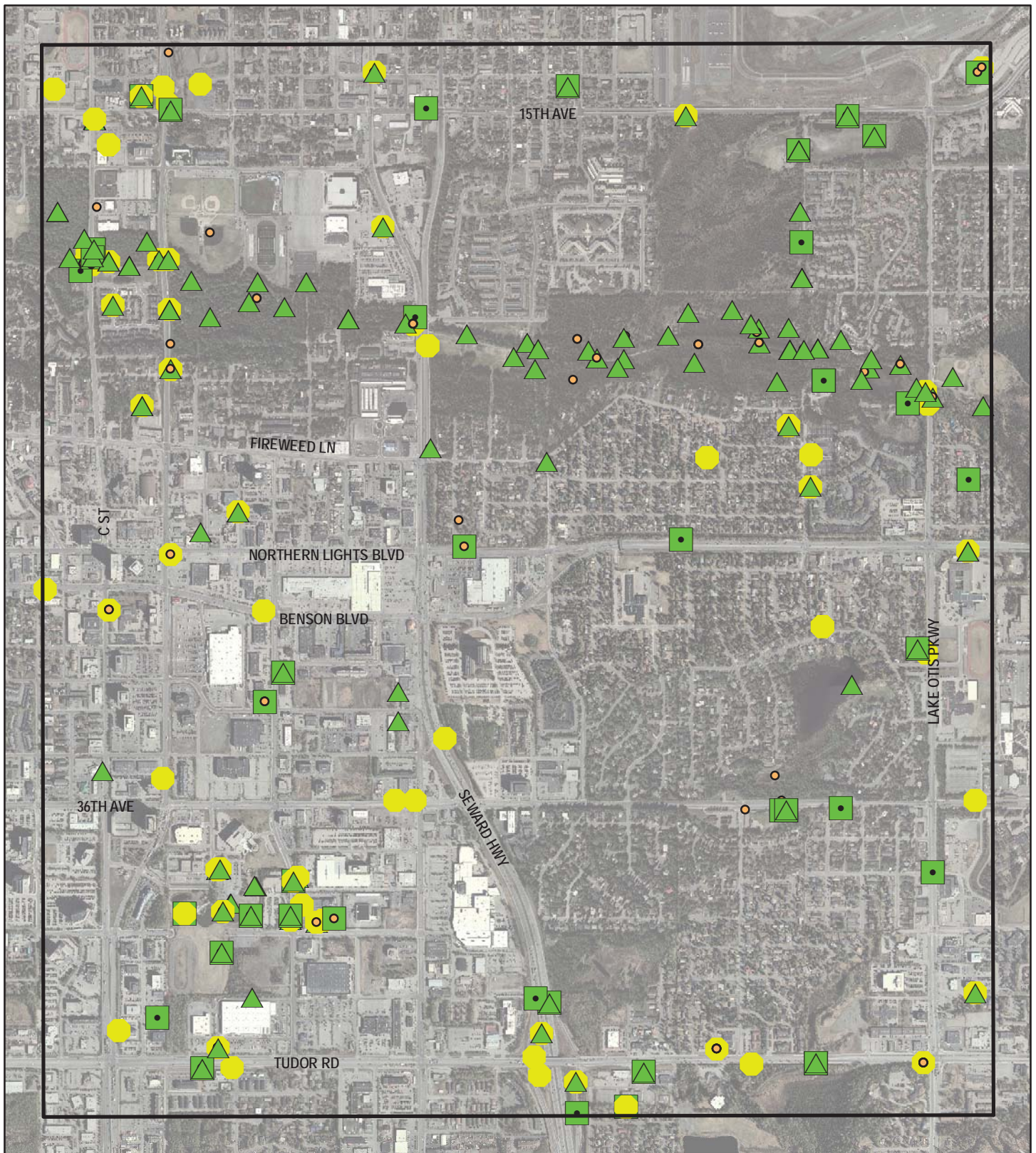
The Alaska Exotic Plants Information Clearinghouse (AKEPIC) is a database and mapping application that provides geospatial information for non-native and invasive plant species in Alaska. More than 500 instances of invasive species have been mapped in the study area representing 50 species (Figure 28). This includes plants considered to be extremely invasive (e.g., white sweetclover, reed canarygrass) and highly invasive (e.g., european bird cherry, chokecherry, bird vetch, bigleaf lupine, canada thistle, field sowhistle).

5.3.4.2 *Additional Analysis for the PEL Study*

Field surveys for noxious weeds in areas impacted by the improvement concepts should take place prior to any ground disturbance. Proposed projects should incorporate best management practices to minimize adverse impacts and comply with integrated vegetation management plan.

5.3.4.3 *Data Collection Needs*

Existing DOT&PF records of noxious or invasive weed monitoring will be obtained.



- Study Area
- Extremely Invasive
- Moderately Invasive
- Highly Invasive
- Modestly to very weakly invasive



Figure 28: Invasive Species

5.4 Ambient Environment

This category includes resources that do not exist physically in a discrete, tangible form, but rather exist everywhere and encompass a given area. This includes noise, air quality, and visual or aesthetic characteristics.

5.4.1 Noise

5.4.1.1 Available Data

FHWA's regulations "Procedures for Abatement of Highway Traffic Noise and Construction Noise" (23 CFR 772) provides procedures for noise studies and noise abatement measures to help protect the public health and welfare, supplies noise abatement criteria (NAC), and establishes requirements for information to be given to local officials for use in the planning and design of highways. All highway projects developed in conformance with these regulations are deemed to be in conformance with the FHWA noise standards.

State highway agencies are required to adopt written highway traffic noise policies approved by FHWA. DOT&PF's Noise Policy (DOT&PF, 2011) is the primary document used to implement FHWA's regulations.

Exceedance of NAC is tied to the activity receiving the noise and such 'receptors' are classified into seven types:

- A. Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential, if the area is to continue to serve its intended purpose.
- B. Residential.
- C. Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, daycare centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
- D. Auditoriums, daycare centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
- E. Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A through D or F.
- F. Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
- G. Undeveloped lands that are not permitted.



All receptor types are present in the study area, except Category A.

Noise analysis is necessary for Type I projects, which involve a substantial shift in the horizontal or vertical alignments, increase the number of through lanes, provide passing lanes, or increase traffic speed and volume. Improvements recommended by this study may involve these types of changes to existing roadway corridors and would therefore be classified as Type I projects.

Type I projects require a detailed noise analysis, consistent with FHWA requirements and DOT&PF policy, which includes measuring ambient noise levels at selected receivers and modeling design year noise levels using projected traffic volumes. If noise levels approach or substantially exceed noise abatement criteria for the project, noise abatement measures may be necessary. A number of possible abatement measures available for consideration include but are not limited to the following:

- alternating the horizontal or vertical alignment
- constructing noise barriers such as sound walls or earthen berms
- decreasing traffic speed limits

Noise abatement measures must be considered reasonable and feasible prior to implementation.

Construction activities in the study area may cause localized, short-duration noise impacts. These impacts can be minimized by using standard specifications for the control of noise sources during construction.

5.4.1.2 Additional Analysis for the PEL Study

Noise studies will likely be needed for Type I projects forwarded from this study.

5.4.1.3 Data Collection Needs

Sensitive receptors will be mapped and noise measurements obtained following identification of the corridor concepts.

5.4.2 Air Quality

5.4.2.1 Available Data

The EPA has established National Ambient Air Quality Standards (NAAQS) for six criteria pollutants, including carbon monoxide, nitrogen dioxide, ozone, particulate matter (PM10 and PM2.5), sulfur dioxide, and lead. The EPA designates communities that do not meet NAAQS as “non-attainment areas.” States are required to develop a plan to control source emissions and ensure future attainment of NAAQS.

Air quality analysis requirements for the study area are dictated by the Regional Transportation Improvement Programs, Anchorage MTP and the status of the MOA by EPA. Anchorage was first declared a non-attainment area for carbon monoxide (CO) in 1978 and in 2004. The State of Alaska requested EPA to re-designate Anchorage from a nonattainment area for CO to an area



that has attained the standard. The EPA approved Anchorage's maintenance plan and Anchorage officially became a CO Maintenance Area (MOA 2003). The EPA recently approved the Anchorage Carbon Monoxide Limited Maintenance Plan (LMP) which streamlines the air quality conformity demonstration process.

5.4.2.2 Additional Analysis for the PEL Study

An air quality conformity analysis will be completed to determine which type of analysis will be needed when the corridor concepts are identified. The current Long Range Transportation Plan will be evaluated to determine if any alternatives are included, which may indicate what type of air quality analysis is required.

5.4.2.3 Data Collection Needs

Data from CO monitoring sites will be collected once a preferred improvement alternative(s) is selected.

5.4.3 Visual Resources

5.4.3.1 Available Data

FHWA's Guidelines for Visual Impact Assessment (January 2015) respond to NEPA and other Federal requirements outlined in subsequent transportation funding authorization bills, several Presidential Executive Orders related to the visual character of Federal lands and projects, and FHWA programs and initiatives such as CSS, and Complete Streets.

5.4.3.2 Additional Analysis for the PEL Study

The visual character of the study area will be generally described once the affected viewsheds are identified.

5.4.3.3 Data Collection Needs

No additional data required.

6.0 REFERENCES

The study team will compile a full list of references supporting existing conditions analyses for the PEL study.



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