

Soldotna Downtown Riverfront Redevelopment Plan Appendices

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APPENDIX A: PROJECT INITIATION

A.1 Environmental Review

Document Environmental Review, Soldotna Riverfront Redevelopment, Soldotna, Alaska. Shannon and Wilson, Geotechnical and Environmental Consultants

Description: Environmental review of the River Terrace Site, including summary of the site characterization and remediation activities conducted at the site, and developing recommendations for actions which may be necessary to facilitate site redevelopment.

A.2 Market Analysis

Document: Soldotna AK Market Analysis; ECONorthwest, Economics and Research Consultant

Description: *Identifies beneficial uses for the community, focusing on Soldotna in 2022. It explores market conditions, assesses the potential of residential and commercial waterfront uses based on existing demand, and outlines how redevelopment can benefit both Soldotna and Kenai Borough residents.*

A.3 Transportation Conditions Assessment

Document: City of Soldotna Riverfront Plan: Existing Traffic and Safety Memo; Kinney Engineering

Description: *Assessment of the current transportation network and traffic operations serving the Project area, identifies areas of concern, potential mitigations and opportunities for addressing challenges related to access and movement for traffic modes, including walking, biking and driving.*

A.4 Parks and Trails Considerations

Document: Parks and Trails Considerations (Diagram), Greenworks Landscape Architecture

Description: *Project area diagram indicating distinct character areas between Soldotna Creek Park and the bridgehead with considerations for a complete trail, boardwalk and pedestrian network and opportunities for additional park facilities and riverfront overlooks.*

March 23, 2023

Mr. Will Grimm
First Forty Feet
412 NW Couch Street, Suite 205
Portland, OR 97209

RE: ENVIRONMENTAL REVIEW, SOLDOTNA RIVERFRONT REDEVELOPMENT,
SOLDOTNA, ALASKA

Dear Mr. Grimm:

We are pleased to submit our environmental review in support of the Soldotna Riverfront Redevelopment project in Soldotna, Alaska.

SITE DESCRIPTION

The City of Soldotna (the City) is looking to redevelop approximately 85-acres of downtown Soldotna, adjacent to the Kenai River (see Soldotna Riverfront Project Area figure in Attachment 1). A catalyst site (the Site) is located near the southwest portion of the proposed redevelopment area. According to the Kenai Peninsula Borough, the Site consists of three parcels located at 44755, 44761, and 44773 Sterling Highway. The parcels encompass approximately 9.68 acres. The Site is currently occupied by the River Terrace RV Park (RTRVP). A dry cleaners operated at the Site from the 1960s until 1988. A structure located at 44761 Sterling Highway, which was most recently leased by a fish processor, was formerly occupied by the dry cleaners.

According to the Kenai Peninsula Borough, 44761 and 44773 Sterling Highway are owned by Mr. Gary Hinkle and 44755 Sterling Highway is owned by Mr. Gary Hinkle and Ms. Judith Hinkle. The Site is bound by the Kenai River to the south and east, the Sterling Highway to the west, and commercial and residential parcels to the north/northeast. Additional commercial parcels are located north, beyond the Sterling Highway. A vicinity map is included as Figure 1 and a site plan is included as Figure 2.

An "active" Alaska Department of Environmental Conservation (DEC) listed contaminated site (DEC File No. 2333.38.014), identified as the "River Terrace RV Park", is located at 44773 Sterling Highway. Contamination originating from this site has also impacted the parcels located at 44755 and 44761 Sterling Highway. According to the DEC database, RTRVP has primarily been impacted with tetrachloroethene (PCE) and associated degradation products.

PCE is commonly associated with dry cleaning operations. Ongoing site assessment and remediation activities have been conducted at the RTRVP site since 1996.

According to the DEC online contaminated sites database, in 1992, the DEC investigated a complaint regarding leaking barrels at the RTRVP and discovered twenty-two 55-gallon drums containing used oil and other substances. Follow-up sampling activities conducted in the mid- to late-1990s, documented PCE and petroleum contamination at the RTRVP site. The RTRVP site was subsequently added to the DEC database in June 1996.

According to the DEC online contaminated sites database, there are three water-bearing zones at the RTRVP site. There is a shallow water table aquifer overlying a silty till confining layer, which overlies a confined deeper aquifer. Depth to water in the shallow water table aquifer ranges from less than 2 feet below ground surface (bgs) near the Kenai River to approximately 18 feet bgs near the former dry cleaners building. Till, which is encountered at depths between about 10 and 25 feet bgs across RTRVP, rises above the shallow water table across the central portion of the site, acting as a groundwater divide. Thin layers of sand throughout the till hold water and are referred to as “semi-confined water-bearing zones.” There is a confined (artesian) aquifer underlying the till (at approximately 85 to 95 feet bgs) used as a drinking water source for residents in the Soldotna area, including for the two community water system wells (formerly referred to as Class A wells) on RTRVP property that service the RTRVP occupants. According to the ADEC, community water systems are public water systems which are expected to serve year-round, at least 25 individuals, or are expected to serve, year-round at least 15 residential connections. According to the DEC, contamination has not been detected in the confined aquifer to date.

PROJECT DESCRIPTION

It is our understanding that the City is evaluating redevelopment of the 85-acre riverfront project area, which includes the Site. The overall project includes preparation of a master plan with conceptual designs and supporting information. At the request of the City, the project includes an environmental review of the Site, which includes a summary of the site characterization and remediation activities conducted at the RTRVP contaminated site, and developing recommendations for actions which may be necessary to facilitate site redevelopment. The project was conducted in accordance with a subcontract agreement dated October 2, 2022.

ADEC FILE REVIEW

According to the DEC online contaminated sites database, numerous documents, work plans, and reports have been prepared for the site between 1996 and 2021. Due to the numerous documents prepared for the RTRVP, our review focused on the most recently completed site report, the Record of Decision (ROD), the DEC's most recent 5-year review of the ROD, and information provided on the DEC online contaminated sites database. The following discussion should not be considered an exhaustive summary of site activities, rather a general summary of site characterization and remedial activities. Reviewed documents include the following:

- Ahtna Engineering Services, LLC (Ahtna), August 2020, *Draft Spring 2020 Porewater, Surface Water and Near-River Groundwater Monitoring Report, River Terrace RV Park, Soldotna, Alaska*
- Alaska DEC, August 2000, *Record of Decision, River Terrace RV Park*
- Alaska DEC, December 2021, *River Terrace RV Park (RTRVP), Fourth 5 Year Review of the Record of Decision*

1996 through 2000 Cleanup and Remedial Activities

Between 1996 and 1999, approximately 3,300 cubic yards of impacted soil was excavated and treated in two soil vapor extraction cells located on the RTRVP site. At this time, the U.S. Environmental Protection Agency (EPA) stated that the treated soil was not a hazardous waste and could be conditionally disposed onsite. Following the excavation activities, concentrations of PCE exceeding the current DEC Method Two cleanup level of 0.19 milligrams per kilogram (mg/kg) remained in the excavations. The highest remaining PCE concentration (20 mg/kg) was documented in a sample collected from about 30 feet bgs, approximately 60 feet north of the Kenai River.

At this time, it was noted that PCE originating from the RTRVP was entering a storm drain along Sterling Highway and discharging to the Kenai River. In 2000, an interim treatment system, consisting of an aeration system was installed in the storm sewer to prevent the release of contaminants to the Kenai River.

1997 through 2020 Groundwater, Sediment, and Surface Water Sampling

The DEC began monitoring the RTRVP's groundwater, sediment, and river surface water in 1997, and began monitoring pore water in 2004. During this time, numerous monitoring wells were installed on and offsite. The majority of the wells were installed on the northern

portion of the RTRVP between the former dry cleaners building and the Kenai River. Select wells were screened within an unconfined aquifer, a semi-confined aquifer, and within a zone of perched water. The monitoring well network and sampling plan is reviewed every five years and is modified as necessary to meet the goals of the 2000 ROD. The number of monitoring wells to be sampled has decreased over time.

Groundwater impacted with PCE and its degradation products, including trichloroethene (TCE), cis-1,2-dichloroethene (cDCE), trans-1,2-dichloroethene (tDCE), 1,1-dichloroethene (1,1-DCE), and vinyl chloride (VC) have been identified at the RTRVP. Additionally, benzene has been documented in groundwater samples collected on and offsite.

According to the DEC, two contaminant groundwater plumes, identified as the “Upper Plume” and “Lower Plume”, exist at the RTRVP. The dividing line between the two plumes is located in the vicinity of the former dry cleaners building, about 250 feet north of the Kenai River. The Upper Plume flows with the groundwater toward the northeast. The Lower Plume flows with the groundwater to the southwest and extends to the Kenai River.

Sediment and pore water sampling has shown a general decrease in contaminant concentrations between 2004 and 2014. Although, pore water sampling conducted during 2020 showed an increase in contaminant concentrations, with PCE becoming the predominant chlorinated ethane in pore water. PCE in pore water exceeded ADEC groundwater cleanup and 18 Alaska Administrative Code (AAC) 70 Water Quality Standard (WQS) during 2020. Sediment sampling has not been conducted since 2014.

2000 Record of Decision (ROD) and Consent Decree

The DEC issued a ROD for the RTRVP in August 2000 and in September 2000 entered a Consent Decree with the RTRVP property owners. Prior to issuing the ROD, a Proposed Cleanup Plan (May 2000) and a Remedial Investigation/Feasibility Study Report (May 2000), which documented the nature and extent of soil, groundwater, surface water, and sediment contamination were prepared.

The ROD stated that the principal contaminant of concern (COC) at the RTRVP is PCE. Other COCs include TCE, cDCE, tDCE, 1,1-DCE, and VC, benzene, diesel range organics (DRO), gasoline range organics (GRO), and other petroleum hydrocarbons. At this time, COCs had been detected in soil and groundwater located at the RTRVP, and off-property groundwater and Kenai River sediments and surface water.

The ROD presented alternative cleanup levels (ACLs) for soil and groundwater on- and off-site. At this time, PCE in on- and off-site soil, PCE and VC in on-site groundwater, and PCE, TCE, and cDCE in off-site groundwater, exceeded the cleanup levels presented in the ROD.

The ROD also presented remedies to address the remaining contamination. The remedies included, operated air sparging in the storm sewer outfall, institutional controls to prevent use of the shallow groundwater for drinking water, institutional controls to limit human exposure to buried soil contamination, intrinsic remediation of sediments, and intrinsic remediation augmented by in-situ biological treatment of both the Upper and Lower groundwater contaminant plumes using HRC™.

The ROD presented compliance points, including sentry wells, which are used to detect whether contaminants are migrating to the Kenai River. The ROD also included a sampling schedule to monitor impacts to groundwater and surface water. The ROD also presented action levels for active treatment, a mechanism to change the remedial method, if necessary, and action levels for site closeout.

2000 to 2012 Remediation Activities

In October 2000 a total of 56 injection points were installed in the Lower and Upper Plumes to create “biotreatment barrier walls” across both the Lower and Upper Plumes. At this time, Hydrogen Release Compound (HRC™) was injected into the injection points. Between 2000 and 2004, the DEC installed additional injection points to expand the HRC™ treatment area. Between 2005 and 2012, the DEC used HRC™ to target smaller “hot spots” in the remaining source area in the deeper Lower Plume.

2010 Vapor Intrusion Assessment

In 2010, the DEC conducted a vapor intrusion assessment that included the installation and sampling of 32 soil gas monitoring points; the collection of indoor air, outdoor air, and sub-slab samples at the former dry cleaners building; and the collection of indoor air, outdoor air, and crawlspace samples at three mobile homes on the adjoining parcel.

Only the basement of the former dry cleaners building had indoor air sample results that exceeded screening levels for PCE and its degradation products. While there were screening level exceedances for PCE and TCE in the basement of the former dry cleaners building, it was concluded that it was unlikely that there was a current unacceptable risk to human occupants at that time based on the limited use of the basement area of the building.

However, it was noted there was a potential risk to future structures placed above or near the remaining on-site contamination.

2020 Porewater, Surface Water and Near-River Groundwater Sampling

In May 2020, Ahtna Engineering Services, LLC (Ahtna) collected samples from four near river groundwater monitoring wells, 13 porewater locations, and three surface water locations (see Figure 1 in Attachment 1). In addition, select monitoring wells and porewater locations were monitored for natural attenuation parameters.

PCE (maximum of 46.1 micrograms per liter [$\mu\text{g/L}$]) was detected in the samples collected from each monitoring well at concentrations less than the on-RTRVP property ACL of 840 $\mu\text{g/L}$. Although, PCE exceeded the modeled ACL (15 $\mu\text{g/L}$) and DEC Table C cleanup level (41 $\mu\text{g/L}$) in a sample collected from one of the wells. In addition, VC was detected in the samples collected from three wells at concentrations (maximum of 3.8 $\mu\text{g/L}$) exceeding the DEC Table C cleanup level of 0.19 $\mu\text{g/L}$. One sample also exceeded the on-RTRVP property ACL of 2 $\mu\text{g/L}$.

PCE was detected in each porewater sample at concentrations (ranging from 7.6 $\mu\text{g/L}$ to 33.5 $\mu\text{g/L}$) exceeding the 18 Alaska Administrative Code (AAC) 70 Water Quality Standard (WQS) of 5 $\mu\text{g/L}$. In addition, one porewater sample contained 2.37 $\mu\text{g/L}$ VC which exceeds the WQS of 2 $\mu\text{g/L}$. The surface water samples did not contain contaminant concentrations exceeding the applicable WQS.

Based on the 2020 sampling analytical results, statistical trend analysis, and chlorinated ethene distributions plotted over time, Ahtna recommended that additional HRC™ be injected to reduce the concentrations of contaminants migrating off site and continued groundwater monitoring of near river wells.

2021 Fourth 5 Year Review of the ROD

The 2000 ROD was subject to a 5-year review process. The fourth 5-year review was conducted in 2021. Since September 2000, the DEC has implemented the cleanup approach dictated by the ROD, using HRC™ to promote biodegradation of PCE and its degradation products, to treat contaminated groundwater prior to it migrating off the RTRVP property. According to the DEC, this approach has successfully enhanced the biodegradation of chlorinated ethenes at much of the RTRVP site. In some locations, PCE has degraded to below established cleanup levels. In other locations, PCE remains above cleanup levels primarily in a deeper area of the semi-confined water-bearing zone of the Lower Plume

where remaining Dense Nonaqueous Phase Liquids (DNAPL) likely exists. Several degradation products, primarily VC, remain above cleanup levels in both the Upper and Lower Plumes. Sampling conducted in 2019 and 2020 indicated that PCE may be rebounding in portions of the Upper and Lower Plumes.

Since establishing the ROD, the DEC has evaluated the monitoring data and made changes to the ROD as needed to best treat/monitor the RTRVP site. According to the 5-year review, the HRC™ method has proved successful and is both appropriate and sufficiently protective. The DEC plans to continue the treatment/monitoring strategy as described in the August 2000 ROD. The DEC also noted that some complimentary remedial action may be necessary to maintain the effectiveness of the HRC™ injections.

The 2000 ROD implemented Institutional Controls (ICs) for the RTRVP site to ensure protection of human health, safety, and welfare. ICs are physical measures, engineering measures, restrictive covenants, or zoning restrictions which are placed by the DEC on contaminated sites. The ICs included: 1) no installation of new drinking water wells in the shallow unconfined aquifer, and 2) soil excavations, or other activities that could interfere with site cleanup, operation, and maintenance, or monitoring also requires DEC approval. These ICs were put in place to ensure that receptors to the drinking water, vapor intrusion, and soil contact or ingestion pathways remain protected from contamination that remains at the RTRVP site.

According to the DEC, “between 2015 and 2020, the total chlorinated ethene (molar) concentrations have continued to remain stable, relative to the total chlorinated ethane concentrations observed in 2000. However, increased contaminant concentrations and distributions in the Upper and both Lower Plumes suggest contaminant rebound (likely from remaining DNAPL) and transport. This is particularly evident for PCE, as the percent molar mass of PCE is greater in many locations during 2020 than in previous years, indicating that biodegradation is decreasing in some areas of the Upper and both Lower plumes, and the need for additional treatment”.

INTERVIEWS

Mr. James Fish, DEC Project Manager of the RTRVP site, was contacted on November 29, 2022, regarding the current environmental status of the contaminated site. Mr. Fish provided links to documents pertaining to the RTRVP site on the DEC database. Following review of the document, Mr. Fish was on annual leave, therefore, we were unable to interview Mr. Fish.

As a result, Ms. Janice Wiegers, Mr. Fish’s manager, was contacted regarding the RTRVP. In an email dated December 29, 2022, Ms. Wiegers provided additional information about the RTRVP. She stated that the “continued treatment” mentioned in the most recent 5-year review of the ROD is the continued HRC™ injections. The DEC is planning additional injections due to some increases observed recently in groundwater monitoring results. Although, it is unknown when these activities will occur. Ms. Wiegers stated that “If the property were to be redeveloped, we would expect there to be soil management plans to ensure that any contaminated soil that was excavated would be properly handled and treated as RCRA waste. Depending on what kind of development was to occur, groundwater management plans may also be necessary. DEC would also have requirements to prevent exposure in the future, such as no drinking water wells could be placed on the property without DEC approval, vapor intrusion would need to be evaluated, and future soil or groundwater disturbance would need to be planned out with DEC involvement and approval.”

REGULATORY STATUS

We reviewed the DEC online contaminated database and contacted Ms. Wiegers to evaluate the regulatory status of the RTRVP site. The RTRVP site is currently listed by the DEC as an “active” contaminated site (File No. 2333.38.014/ Hazard ID 1535).

According to Ms. Wiegers of the DEC, before the DEC will evaluate site closure, the following criteria must be met:

- The groundwater contamination is stable and decreasing and no longer impacting the river.
- That the soil contamination is below the Human Health (HH) levels,
- The vapor intrusion is controlled, and
- ICs are established through a covenant on any property where contamination may cause a human health risk.

CONCLUSIONS/RECOMMENDATIONS

It is our understanding that the City is evaluating options to redevelop an 85-acre area of downtown Soldotna, adjacent to the Kenai River. The overall area includes the Site (the catalyst site) which is approximately 9.68 acres, contains three parcels, and is an “active” DEC-listed contaminated site. Due to the operation of a historic dry cleaners, the Site has been impacted with chlorinated solvents, primarily PCE.

Based on the historical document review and interviews, the following potential issues were identified, and the following actions are recommended to facilitate redevelopment:

- Solvent (PCE and degradation products) and petroleum-impacted soil, groundwater, pore water, and/or sediment are located on or adjacent to the RTRVP property. PCE and many of the degradation products are considered “listed waste” by the EPA. Therefore, if listed waste is generated during redevelopment, it will require handling and disposal in accordance with DEC and EPA regulations. To date, petroleum-related contamination has not been the primary focus of the characterization and cleanup efforts. There is a potential that additional petroleum-related contamination is present that will require characterization or mitigation prior to, or during, redevelopment.
- According to the 2000 ROD, ongoing monitoring and remediation activities are required for the RTRVP site. These activities will require allowing DEC contractors the ability to periodically access the Site. In addition, existing groundwater monitoring wells will likely require preservation. DEC may also require intrusive activities related to characterization and/or remediation (i.e. excavation or drilling).
- It is recommended that the City evaluate whether entering into a Prospective Purchasers Agreement (PPA) with the DEC is appropriate, prior to acquiring the RTRVP site. A PPA can outline future responsibilities, liabilities, and access arrangements, among other details.
- If the City would like to pursue site closure with the DEC, it should be noted that additional cleanup and/or site characterization will likely be required.
- DEC has determined that vapor intrusion may be a concern for structures that may be constructed on the RTRVP site in the future. Therefore, if structures are planned for the Site, we recommend evaluating vapor intrusion, and developing mitigation methods, as appropriate.

CLOSURE/LIMITATIONS

The findings we have presented within this report are based on the limited research and documents that were available to us. They should not be construed as definite conclusions regarding the site’s regulatory status. As a result, the research performed can provide you with only our professional judgment as to the regulatory status of this site, and in no way guarantees that an agency or its staff will reach the same conclusions as Shannon & Wilson,

Inc. The review data presented in this report should be considered representative of the time of our site assessment. Changes in site conditions can occur over time, due to natural forces or human activity. In addition, changes in government codes, regulations, or laws may occur. Because of such changes beyond our control, our observations and interpretations may need to be revised.

Shannon & Wilson has prepared the information in Attachment 2, "Important Information About Your Geotechnical/Environmental Report," to assist you and others in understanding the use and limitations of our report.

Sincerely,

SHANNON & WILSON



Jessa Tibbetts
Environmental Scientist

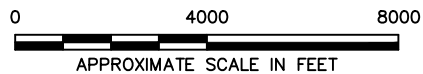


Dan P. McMahon, PMP
Vice President

Enc. Figures 1 and 2, and Attachments 1 and Attachment 2



APPROXIMATE SITE LOCATION



44755, 44761, and 44773 Sterling Highway
Soldotna, Alaska

VICINITY MAP

March 2023

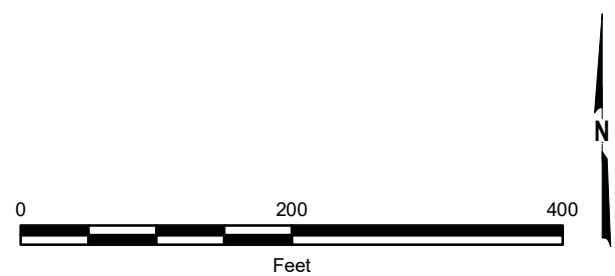
109861-001



FIG. 1



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



44755, 44761, and 44773 Sterling Highway
Soldotna, Alaska

CATALYST SITE

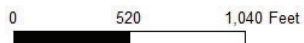
March 2023 109861-001

Attachment 1

FIGURES FROM SUPPORTING DOCUMENTS



Soldotna Riverfront Project Area



The depicted information is for graphical representation only. The City of Soldotna assumes no responsibility for errors on this map.



PATH: 20 Dwgns\20_Ahtrna\20_RT_GW_RPT_FILE_19-RT-GW-RPT-F1.DWG PLOTTED: 7/28/20.



LEGEND

- MW-25 MONITORING WELL/WELL POINT LOCATION (SCREENED IN UNCONFINED AQUIFER)
- MW-44 MONITORING WELL/WELL POINT LOCATION (SCREENED IN SEMI-CONFINED WATER BEARING ZONE WITHIN TILL)
- MW-24 MONITORING WELL PROBABLY SCREENED IN PERCHED WATER ZONE
- MW-30 MONITORING WELLS DECOMMISSIONED BETWEEN OCTOBER 2004 AND FEBRUARY 2005
- SD-033 PROPOSED PORE WATER SAMPLING LOCATION
- SW-041 PROPOSED SURFACE WATER SAMPLING LOCATION
- MW-20 GREEN BACKGROUND ON TEXT INDICATES MONITORING WELL TO BE SAMPLED
- CONFINED AQUIFER WELL (LAUNDRY/ARTESIAN DRINKING WATER WELL)
- L102 DEEP HRC INJECTION POINT (INSTALLED 10/12)
- L77 DEEP HRC INJECTION POINT (INSTALLED 10/06)
- MH-2 MANHOLE
- RIGHT-OF-WAYS (SURVEYED JUNE 2001)
- APPROXIMATE PARCEL BOUNDARIES

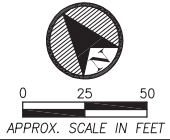
NOTE: MUST BE PRINTED IN COLOR.
SOURCE: GOOGLE EARTH PROFESSIONAL. IMAGE DATED 5/2011.

FIGURE

1

SITE PLAN AND SAMPLING LOCATIONS

RIVER TERRACE RV PARK
2020 GROUNDWATER, POREWATER, AND
SURFACE WATER SAMPLING WORK PLAN
Soldotna, Alaska



DATE: JULY 2020
CHKD: J.R.A.
DRAWN: C.E.H.
PROJECT
No.: 20301.005.01

Attachment 2

IMPORTANT INFORMATION ABOUT YOUR
GEOTECHNICAL/ENVIRONMENTAL REPORT

Important Information About Your Geotechnical/Environmental Report

CONSULTING SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND FOR SPECIFIC CLIENTS.

Consultants prepare reports to meet the specific needs of specific individuals. A report prepared for a civil engineer may not be adequate for a construction contractor or even another civil engineer. Unless indicated otherwise, your consultant prepared your report expressly for you and expressly for the purposes you indicated. No one other than you should apply this report for its intended purpose without first conferring with the consultant. No party should apply this report for any purpose other than that originally contemplated without first conferring with the consultant.

THE CONSULTANT'S REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.

A geotechnical/environmental report is based on a subsurface exploration plan designed to consider a unique set of project-specific factors. Depending on the project, these may include the general nature of the structure and property involved; its size and configuration; its historical use and practice; the location of the structure on the site and its orientation; other improvements such as access roads, parking lots, and underground utilities; and the additional risk created by scope-of-service limitations imposed by the client. To help avoid costly problems, ask the consultant to evaluate how any factors that change subsequent to the date of the report may affect the recommendations. Unless your consultant indicates otherwise, your report should not be used (1) when the nature of the proposed project is changed (for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one, or chemicals are discovered on or near the site); (2) when the size, elevation, or configuration of the proposed project is altered; (3) when the location or orientation of the proposed project is modified; (4) when there is a change of ownership; or (5) for application to an adjacent site. Consultants cannot accept responsibility for problems that may occur if they are not consulted after factors that were considered in the development of the report have changed.

SUBSURFACE CONDITIONS CAN CHANGE.

Subsurface conditions may be affected as a result of natural processes or human activity. Because a geotechnical/environmental report is based on conditions that existed at the time of subsurface exploration, construction decisions should not be based on a report whose adequacy may have been affected by time. Ask the consultant to advise if additional tests are desirable before construction starts; for example, groundwater conditions commonly vary seasonally.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes, or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical/environmental report. The consultant should be kept apprised of any such events and should be consulted to determine if additional tests are necessary.

MOST RECOMMENDATIONS ARE PROFESSIONAL JUDGMENTS.

Site exploration and testing identifies actual surface and subsurface conditions only at those points where samples are taken. The data were extrapolated by your consultant, who then applied judgment to render an opinion about overall subsurface conditions. The actual interface between materials may be far more gradual or abrupt than your report indicates. Actual conditions in areas not sampled may differ from those predicted in your report. While nothing can be done to prevent such situations, you and your consultant can work together to help reduce their impacts. Retaining your consultant to observe subsurface construction operations can be particularly beneficial in this respect.

A REPORT'S CONCLUSIONS ARE PRELIMINARY.

The conclusions contained in your consultant's report are preliminary, because they must be based on the assumption that conditions revealed through selective exploratory sampling are indicative of actual conditions throughout a site. Actual subsurface conditions can be discerned only during earthwork; therefore, you should retain your consultant to observe actual conditions and to provide conclusions. Only the consultant who prepared the report is fully familiar with the background information needed to determine whether or not the report's recommendations based on those conclusions are valid and whether or not the contractor is abiding by applicable recommendations. The consultant who developed your report cannot assume responsibility or liability for the adequacy of the report's recommendations if another party is retained to observe construction.

THE CONSULTANT'S REPORT IS SUBJECT TO MISINTERPRETATION.

Costly problems can occur when other design professionals develop their plans based on misinterpretation of a geotechnical/environmental report. To help avoid these problems, the consultant should be retained to work with other project design professionals to explain relevant geotechnical, geological, hydrogeological, and environmental findings, and to review the adequacy of their plans and specifications relative to these issues.

BORING LOGS AND/OR MONITORING WELL DATA SHOULD NOT BE SEPARATED FROM THE REPORT.

Final boring logs developed by the consultant are based upon interpretation of field logs (assembled by site personnel), field test results, and laboratory and/or office evaluation of field samples and data. Only final boring logs and data are customarily included in geotechnical/environmental reports. These final logs should not, under any circumstances, be redrawn for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process.

To reduce the likelihood of boring log or monitoring well misinterpretation, contractors should be given ready access to the complete geotechnical engineering/environmental report prepared or authorized for their use. If access is provided only to the report prepared for you, you should advise contractors of the report's limitations, assuming that a contractor was not one of the specific persons for whom the report was prepared, and that developing construction cost estimates was not one of the specific purposes for which it was prepared. While a contractor may gain important knowledge from a report prepared for another party, the contractor should discuss the report with your consultant and perform the additional or alternative work believed necessary to obtain the data specifically appropriate for construction cost estimating purposes. Some clients hold the mistaken impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes that aggravate them to a disproportionate scale.

READ RESPONSIBILITY CLAUSES CLOSELY.

Because geotechnical/environmental engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, consultants have developed a number of clauses for use in their contracts, reports, and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where the consultant's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

The preceding paragraphs are based on information provided by the GBA, Silver Spring, Maryland

APPENDIX A: PROJECT INITIATION

A.1 Environmental Review

Document: Environmental Review, Soldotna Riverfront Redevelopment, Soldotna, Alaska. Shannon and Wilson, Geotechnical and Environmental Consultants

Description: Environmental review of the River Terrace Site, including summary of the site characterization and remediation activities conducted at the site, and developing recommendations for actions which may be necessary to facilitate site redevelopment.

A.2 Market Analysis

Document: Soldotna AK Market Analysis; ECONorthwest, Economics and Research Consultant

Description: Identifies beneficial uses for the community, focusing on Soldotna in 2022. It explores market conditions, assesses the potential of residential and commercial waterfront uses based on existing demand, and outlines how redevelopment can benefit both Soldotna and Kenai Borough residents.

A.3 Transportation Conditions Assessment

Document: City of Soldotna Riverfront Plan: Existing Traffic and Safety Memo; Kinney Engineering

Description: *Assessment of the current transportation network and traffic operations serving the Project area, identifies areas of concern, potential mitigations and opportunities for addressing challenges related to access and movement for traffic modes, including walking, biking and driving.*

A.4 Parks and Trails Considerations

Document: Parks and Trails Considerations (Diagram), Greenworks Landscape Architecture

Description: *Project area diagram indicating distinct character areas between Soldotna Creek Park and the bridgehead with considerations for a complete trail, boardwalk and pedestrian network and opportunities for additional park facilities and riverfront overlooks.*

DATE: March 22, 2023
TO: City of Soldotna, John Czarnecki
FROM: ECONorthwest – Nicole Underwood, Oscar Saucedo-Andrade, and Cadence Petros
SUBJECT: Soldotna AK Market Analysis

The City of Soldotna is interested in redeveloping an 85-acre portion of its downtown into a mixed-use, walkable waterfront that draws locals and visitors. The Project Area comprises a mix of auto-oriented businesses and underutilized and undeveloped properties located between the busy Sterling Highway and the world-renowned Kenai River. Presently, residents and visitors may drive through Soldotna and never see the river. Because businesses in the redevelopment area face the highway, none leverage their proximity to the river to grow their business. Additionally, private land ownership, limited parking, and steep slopes limit river access.

This market analysis focuses on helping the City understand **the types of uses that might be most beneficial to the community**. It considers:

- Market conditions in Soldotna in 2022
- The market potential of residential and commercial uses along the waterfront, given existing demand from current and future residents and visitors
- How redevelopment can benefit both Soldotna and Kenai Borough residents while helping to establish Soldotna as a visitor destination, leveraging its current assets to build its brand

This memorandum includes the following sections:

- Key Findings
- Choosing Geographies of Interest
- Project Area Overview
- Demographic and Economic Trends
- Real Estate Market Trends
- Findings: What Land Uses Can the Current Market Support in Soldotna?
- Appendix A. Socioeconomic Conditions

Launching the Riverfront Redevelopment Plan

The market analysis is part of the first phase of the Riverfront Redevelopment Plan. The Plan will guide future development in the Project Area and advance the City's long-term economic development goals of: fostering new investment and partnerships, creating jobs, and improving the quality of the built environment for residents and visitors.

What's next? This analysis will inform conceptual planning during the next phase of the Redevelopment Plan in early 2023. The team will draw upon the broader market potential identified in this analysis to narrow down potential uses. This market analysis and subsequent concept planning will also provide a basis for real estate feasibility analysis in Spring 2023.

Key Findings

An increase in older residents, higher income households, and visitor counts will drive local demand.

- **The population on the Kenai Peninsula Borough is expected to continue to grow over the next 20 years, although at a slower rate than it did between 2010 and 2021.** The Kenai Peninsula Borough is expected to add 1,218 residents between 2020 and 2040.
 - **What does this mean for the Project Area?** Population growth increases demand for commercial and residential uses making development in the Project Area more attractive.
 - **Soldotna and Kenai Peninsula Borough households tend to be older than the state overall, with fewer people per household.** The proportion of residents aged 60 and older increased the most between 2010 and 2020, followed by residents aged 18 to 34.
 - **What does this mean for the Project Area?** Age of residents will impact the type of goods and services that will be best suited in the Project Area. Household size and age influences the type and size of housing that could be developed.
 - **Soldotna’s median household income increased 28% between 2010 and 2020 (\$59,700) but remained lower than both the Kenai Peninsula Borough and the State of Alaska overall.**
 - **What does this mean for the Project Area?** Income provides a frame of reference for the types of residential and commercial development that could be successful. Soldotna’s median household income increased faster than the Borough and the State which may indicate that the City is becoming a more attractive location for higher income households who have more disposable income. This can change the types of goods and services demanded in the region. However, since the median income is still lower than the Borough and state, developers may still have a challenge in getting the rents/prices they need to justify development in the near term.
 - **Employment grew faster in the Kenai Peninsula Borough than the State of Alaska.** While the state is still working to recover employment lost during the COVID-19 Pandemic, as of 2021 the Borough’s employment has exceeded 2019 levels.
-
- We generated key findings by exploring the economic and demographic trends at the state, Borough, and City level to understand the overall direction of the economy.
- We then conducted a demand analysis for commercial and residential uses looking at a 30-minute drive time radius from the Project Area.
- For lodging uses we analyzed supply and demand at both the Kenai Peninsula Borough level and the City level.
- For more details on these geographies see Choosing Geographies of Interest.
-
- ### Increase in work from home trends
- The pandemic facilitated a shift in many industries opening up opportunities for employees to work from home at levels never seen before. Work from home trends are likely to continue—full time for some workers or with options for a hybrid schedule for others. This trend will impact where workers choose to live, and the types and size of office space needed to accommodate these workers.
-

- **What does this mean for the Project Area?** Above average employment growth (relative to the state) indicates a strong economy. The types of industries that are growing will influence the types of space needed to accommodate that growth.
- **Pre-pandemic travel to Alaska was strong** growing from 1.77 million out-of-state visitors in 2009-10 to 2.54 million in 2018-19, an increase of 43%. **While total visitors to Soldotna dipped in 2020, it recovered in 2021 and 2022.** Soldotna had an estimated 330,000 visitors between January and November 2022.¹
 - **What does this mean for the Project Area?** Growth in visitor counts can generate additional demand for lodging and retail which could be accommodated in the Project Area.
- **Soldotna attracts visitors from both within Alaska and out-of-state.** In 2021, about 51% of all visits to Soldotna were from Alaska residents that live at least 30 minutes away. **Most visitors travel to Soldotna to enjoy a variety of outdoor recreational activities.** About 62% of visitors travel to Soldotna/Kenai for vacation/pleasure, 26% to visit family and friends, and 12% for business/business pleasure. Top activities for visitors to Soldotna/Kenai include fishing followed by wildlife viewing and hiking.
 - **What does this mean for the Project Area?** The reasons that visitors travel to Soldotna impacts the types of lodging that will be viable (e.g., visitors may need space to clean fish or store fishing gear, etc.) and the types of commercial uses that will be successful (e.g., visitors may want prepackaged lunch options or casual restaurants where they can comfortably wear outdoor gear).

¹ International travelers are not captured in the data.

Regional visibility, adjacency to the Kenai River, and access to nearby recreational amenities make the riverfront an attractive area for development.

- **Strong regional visibility.** Located along Sterling Highway, the Project Area has exceptional regional visibility making it an attractive location for commercial, residential, and hospitality uses.
- **Adjacency to the Kenai River.** The Project Area's riverfront location could attract residential, retail, and hospitality uses that leverage river views and access.
- **Regional hub for services and shopping.** As a commercial center for the Peninsula, Soldotna is home to government offices, medical care, educational services, and employment centers. Being in the heart of Soldotna, the area could draw complimentary uses like retail and residential as well as hospitality uses targeting business travel.
- **Access to recreational opportunities.** Soldotna Creek Park is a hub for community events, attracting residents and visitors alike. In addition to fishing in the Kenai River, residents and visitors also have access to many other outdoor activities including hunting, sightseeing, etc. The Regional Sports Complex and the future Field House could further the Project Area's attractiveness to residential, hospitality, and commercial uses.



Soldotna Creek Park's riverfront boardwalk offers views and access to the Kenai River.

A lack of amenities and land ownership complexities could hinder development potential.

- **Limited range of lifestyle amenities.** The Project Area lacks a mix of entertainment, restaurant, services, and retail uses nearby that typically make mixed-use residential development and high-end hotel development attractive.

Private ownership and uncertainty. Most of the land along the riverfront is privately held. Uncertainty about city plans and potential landowner conflicts could pose a challenge for future development of all types.

Market trends suggest demand for retail, residential, and lodging.

Soldotna’s low vacancy rates and rising rents for retail and multifamily as well as rising home prices suggest unmet demand for these uses. Steadily increasing occupancy rates and average daily room rates indicate a strong market for lodging. Office space has experienced rent fluctuations since 2012 including a rent decrease in 2022. That combined with increases in work-from-home trends could limit demand in the near term.

Exhibit 1. Market Trends in the Soldotna Trade Areas

Source: CoStar and Redfin, ECONorthwest Analysis

Note: The trade area for residential, retail, and office consists of a 30-minute drive time from the Project Area; lodging trends are based on the broader Kenai Peninsula

Development Type	Trends	Implications
Rental Housing	<ul style="list-style-type: none"> Steadily increasing multifamily rents Very low multifamily vacancy No new large multifamily (5+ unit) development since 2012, but the trade area has had smaller multifamily development such as quadplexes near the Kenai Peninsula College. The Timberland Condos within the Project Area are mostly used as month-to-month rentals or short-term rentals. 	<p>Increasing home prices indicate demand for ownership housing.</p> <p>Low vacancy rate indicates a constrained supply of multifamily units and upward rent pressures.</p> <p>Rising interest rates could temper demand for homeownership.</p>
Ownership Housing	<ul style="list-style-type: none"> Steadily increasing home prices with significant increases since 2019 Nearly 80% of population own their home Rising interest rates 	
Retail	<ul style="list-style-type: none"> Rents peaked in 2019 and 2021. Very low vacancies that have remained low for about 8 consecutive years. Five retail buildings built in the past decade totaling 41,500 sq ft. (Conversations with City staff indicate that there has been more retail space added to the market than is captured in the data, especially outside of City limits.) 	<p>Built-to-suit development could be viable.</p> <p>Small-sized retail could be absorbed in the trade area.</p>
Office Space²	<ul style="list-style-type: none"> Fluctuating rents between 2012 and 2022; declining rents in 2022 Low vacancy rates between 2015 and 2019; Fluctuating vacancy rates between 2020 and 2022 No new speculative office development has occurred in the past decade. However, the hospital has added space for medical office. A few existing retail spaces are being used for small professional service offices. 	<p>Potential limited demand for small office users such as medical and dental, insurance, etc. These users typically require office space in the range of 500-2,500 sq ft.</p> <p>Developers are most likely to build new office uses in a mixed-use building or within strip retail with retail and service users.</p>
Lodging	<ul style="list-style-type: none"> Average daily room rate (ADR) for hotels in the Kenai Peninsula reached a decade-high of \$175. Since 2012, hotel occupancy has increased year-over-year (except for in 2020) reaching a decade peak of about 70% in 2022. One new hotel with 72 rooms was built in the Kenai Peninsula since 2012 (Aspen Suites in Homer); Lands End Resort in Homer also added 33 new rooms in 2019. 	<p>Growing ADR, high occupancy, and limited new development indicate there could be support for a new hotel.</p> <p>Outdoor amenities, the Regional Sports Complex, and the new Field House are likely to generate most of the demand for a new hotel in the area.</p>

² Due to limited demand and the clustering of medical services near the hospital, we did not conduct additional analysis on market potential of office in the Project Area. However, limited office space may be viable within a mixed-use development as small office and retail uses can often occupy similar spaces.

Retail, residential, and lodging could be viable in the Project Area.

Retail, residential, and lodging uses all exhibited moderate to strong market potential and could be viable uses in the Project Area (Exhibit 2). It is important to note that the uses examined in this document do not exist in isolation and establishing one use in the Project Area may catalyze additional development. This information sheds light on what uses may be competitive as the City plans future development in the Project Area and how the City can target policies, planning documents, and investments to unlock additional development potential.

Exhibit 2. Summary of Market Potential to the Project Area

Source: ECONorthwest analysis

Land Use	Suitability	Market Trends	Market Potential
Retail	Strong Strong visibility, proximity to other retailers, and large daytime population	Moderate Local market fundamentals are stable, with near to mid-term demand for retail.	Moderate Household spending is likely to support five to eight retailers including restaurants and boutique stores. Mid-term potential for new retail space if rents are supportive.
Office	Weak Strong highway access, small concentration of office related jobs, trends in work-from-home	Weak to Moderate Market trends need to correct for low vacancies with increasing rents; low demand outlook.	Weak Expectation of low demand growth. Rent levels currently would not justify new construction.
Rental Residential	Moderate Access to employment center, increasing population, limited lifestyle amenities, and potential for riverfront view premiums	Moderate to Strong Local market conditions are improving with moderate demand.	Weak to Moderate Expectation of moderate demand growth. Rent levels currently would not justify new construction. Limited area amenities lessen the attractiveness of the area.
For Sale Residential	Moderate Access to employment center, increasing population, limited lifestyle amenities, and potential for riverfront view premiums	Strong Home prices have increased steadily, homeownership rates are high, and expected future growth of high-income households.	Moderate to Strong The Kenai Peninsula has more affordable homes compared to Anchorage. Forecasts of household growth are strong in mid- to upper income cohorts.
Lodging	Moderate Strong visibility from highway and proximity to recreation and tourism assets; potential riverfront access and views	Strong Market recovery has been strong surpassing pre-pandemic levels.	Moderate Limited assortment of recreation and tourism attractors; mid-term opportunity if tourist attractions are leveraged or increased

Retail and Restaurants

Demand is stable for commercial retail. Existing resident and visitor spending could support an additional **20,000 square feet of neighborhood-scaled retail space** in the Project Area.³⁴ New space would most likely serve as a part of mixed-use development or strip retail. Soldotna could attract:

- 4 to 5 restaurants (between 2,000 and 5,000 square feet each)
- 2 to 3 boutique clothing and clothing accessory shops (between 1,000 and 2,500 square feet each)

The City does not have any full-pour liquor licenses available. It could lobby to get additional beer and wine licenses if a restaurant makes at least 50% of its money from food. Limited liquor licenses could create barriers to restaurant development.

Housing

New population growth will drive demand for both ownership and rental housing. The Project Area could be desirable for residential development offering easy access to employment in Soldotna along with access to the river (public or private) and potential riverfront views. However, the Project Area currently has limited entertainment, restaurant, services, and retail uses that typically make mixed-use residential development and high-end hotel development attractive. If developed with amenities or as a part of a mixed-use concept, additional lifestyle amenities could boost attractiveness for development.

- **Condo residential units.** Near-term growth in households earning over \$75,000 annually is expected to generate demand for approximately **180 units**. Residents with higher incomes are more likely to own their homes. They *may* be interested in locating in moderate to high-end condo residential units typically built in a mixed-use residential development. Older residents looking to down-size to homes with less maintenance and that are closer to amenities and services may also be interested in condos.
- **Multifamily rental apartments.** Near-term growth in households earning below \$75,000 annually is expected generate demand for approximately **85 units**. Soldotna's lower incomes relative to the state and lower average market rents in Soldotna limit potential for new market-rate rental development. The City could explore funding and partnerships to develop some workforce housing units as part of a larger apartment project.

Accommodation and food service industries typically pay lower than average wages. Workers in these industries are more likely to rent. If the City wants to attract commercial development, the City may want to consider how to support the housing needs of workers in these industries.

New market-rate development of rental apartments could be feasible to accommodate some of the 180 new households that earn over \$75,000 annually who want to rent instead of own.

³ Approximately 12,000 square feet is generated by existing resident spending and 8,000 square feet by non-Alaska visitor spending.

⁴ Alaska visitors outside of the trade area were not included in this analysis but could also generate demand.

Highway-Oriented Lodging

Prior to the pandemic, the regional hospitality market exhibited stable market conditions in a growing tourism market that saw \$187 million in direct, out-of-state visitor spending in 2016. Kenai Peninsula tourism has rebounded since the pandemic with visitor counts, hotel occupancy rates, and hotel average daily rates (ADR) surpassing pre-pandemic levels. **Over the intermediate-term, hospitality could be a viable use in the Project Area** especially if the City promotes its current tourism attractions and/or increases attractions.

Soldotna lacks a newer hotel, and no hotels are in the development pipeline. Since visitors seek out the many recreational opportunities in and around Soldotna, **a highway-oriented hotel would be best suited to the Project Area.**⁵ This type of hotel typically tends to be a limited-service, extended-stay hotel that offers rooms with kitchenettes or full-sized kitchens. This hotel type also offers limited facilities and amenities, generally without the full-service restaurant that luxury or upscale hotels feature. If Soldotna drew a new limited-service hotel, it would be the newest limited-service hotel on the Peninsula and could command some of the highest room rates in Soldotna.

The City does not have any available full pour liquor licenses available for restaurants. However, hotels qualify for their own full-pour license if they have 15+ rooms which could make hotel with a restaurant more attractive.

⁵ A highway-oriented hotel is one that is visible from the highway and is enroute or close to the visitor's final destination. Current visitors to Soldotna are coming to access the many recreational opportunities in and around Soldotna. They are not coming to access Soldotna's downtown. If through this concept planning process, Soldotna created more vibrant downtown with experiential shopping/dining, other types of hotels may be attracted to the area.

Choosing Geographies of Interest

ECONorthwest looked at the macroeconomic and demographic trends in the City of Soldotna compared to the Kenai Peninsula Borough and Alaska to understand the overall direction of the economy.

To understand the demand for residential and commercial land uses, we established a trade area of a 30-minute drive time from the Project Area. This trade area represents the area of influence for which the area could reasonably draw from for market support for residential and commercial land uses. Any area larger than a 30-minute drive time will have other regional influences of the market that creates challenges for understanding household spending patterns.

We use this 30-minute drive time from the Project Area because Soldotna is a regional hub for employment, goods, and services and provides a reasonable distance that people may be willing to drive to get to school, work, services, etc. This trade area provides a strong starting point for understanding high-level demand for broad use types, but depending on the specific business that locates in the Project Area, demand may generate from a smaller area (such as from the City of Soldotna) or a larger area (Kenai Peninsula Borough). For instance, a convenience store will generate demand from a smaller local area than a grocery store or department store—which typically require the presence of a larger number of households to support this business.

Understanding demand for lodging requires us to look at the broader Kenai Peninsula. Visitors travel to the Kenai Peninsula from across Alaska, the United States and the world. They may choose from a variety of locations across the Peninsula with similar access to the recreational opportunities. Any hotel within the Project Area would broadly compete with other hotels throughout the Peninsula. Once a visitor chooses to stay in Soldotna, the competition then becomes more local.

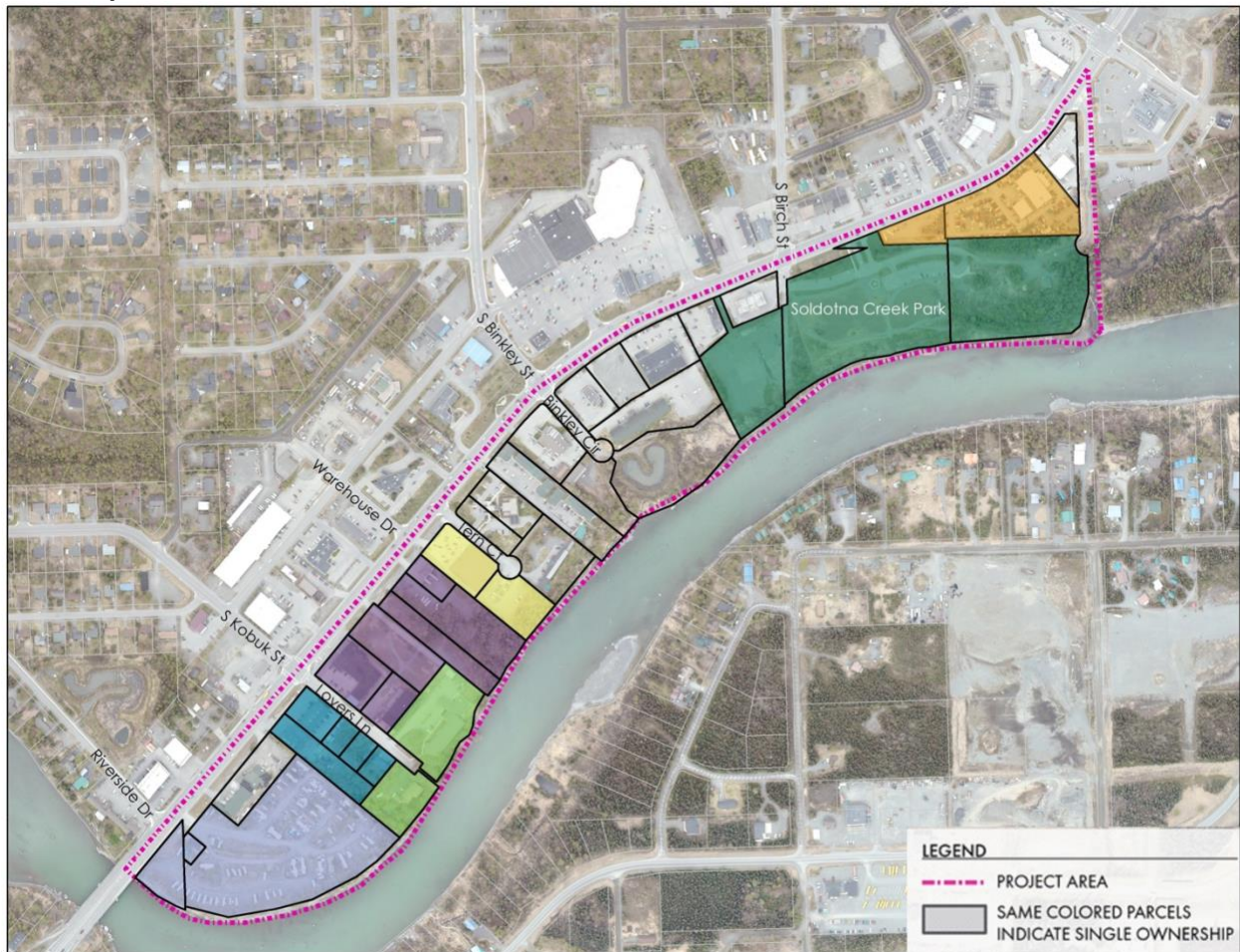
Project Area Overview

Soldotna is located within the Kenai Peninsula Borough 140 miles from Anchorage, 70 miles from Homer, and 95 miles from Seward. Soldotna serves as the commercial center for much of the Peninsula and is home to the Borough and School District offices, Central Peninsula Hospital, Kenai Peninsula College, a State Trooper’s Detachment, and the headquarters for the Kenai National Wildlife Refuge.

The Project Area consists of approximately 84 acres of land along Soldotna’s riverfront (Exhibit 3). Across Sterling Highway lies much of Soldotna’s residential area. The Project Area is bounded by the Kenai River to the south and Sterling Highway to the north. Many of the properties have highway frontage. Sterling Highway crosses the Kenai River at the western boundary of the Project Area and Soldotna Creek Park marks the eastern boundary.

Exhibit 3. Project Area and Land Ownership

Source: City of Soldotna

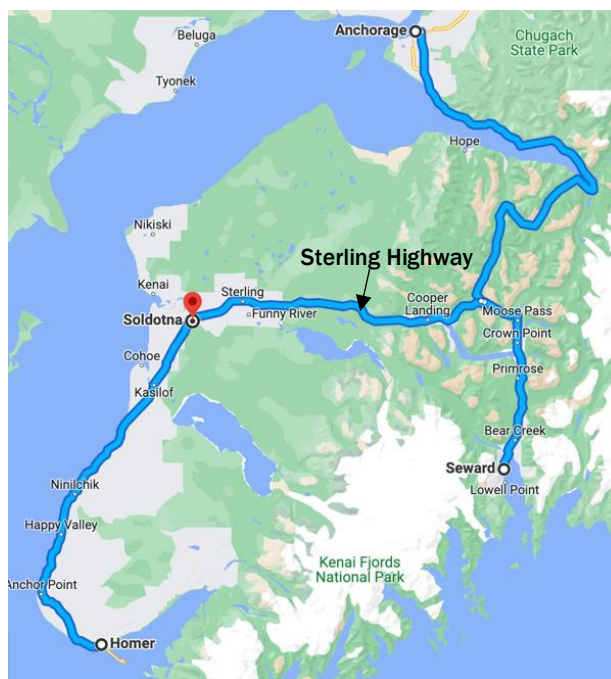


Regional Access

With tour busses and other visitors making their way daily along the Sterling Highway, the Project Area has the potential to attract visitors.

Sterling Hwy (a section of Route 1 which extends through Anchorage) is the primary highway through the Kenai Peninsula. It begins in Tern Lake Junction of the Seward Highway and stretches 142 miles to Homer – a popular tour bus route. The section of Sterling Highway between the Kenai River to Kenai Spur Highway has the highest average annual daily traffic (AADT) count of the whole Kenai Peninsula (16,900 to 19,200 AADT).⁶ The Project Area is also near the Kenai Spur Highway junction which provides access to the towns of Kenai and Nikiski and ends at the entrance to the Captain Cook State Recreation Area.

Exhibit 4. Kenai Peninsula and Sterling Highway



The Kenai Municipal Airport, which is about a 15-minute drive from Soldotna, further connects the area to the region, offering daily flights to and from Anchorage. The Soldotna Municipal Airport, a 5-minute drive from the Project Area, offers fishing, hunting and flightseeing services as well as private hangar space.

Climate

Climate and seasonality impact the decisions that developers might make about complementary uses, amenities, and building features. Temperatures in Soldotna are mild in the summer with highs in the mid-60s. Winter temperatures can sometimes drop below 0° F, but daytime highs are usually in the 20s. Soldotna gets about 22 inches of rain, on average, per year, and about 64 inches of snow per year. The longest day (in June) receives about 19 hours of sunlight. Winter solstice brings about 5.5 hours of daylight.⁷ Given the cold weather and limited daylight during much of the year, future development on the riverfront must be well lit with space for people to warm themselves.

Topography and View Potential

The Project Area is mostly flat, however steep slopes exist near the river which could pose challenges for development, requiring additional planning and engineering to ensure

⁶ Alaska Department of Transportation and Facilities, AADT for 2021

⁷ Weather Spark <https://weatherspark.com/y/218/Average-Weather-in-Soldotna-Alaska-United-States-Year-Round#Figures-Temperature> ; Travel Alaska <https://www.travelalaska.com/Planning/Alaska-Climate/Southcentral>

environmental preservation as well as stability and safety of any structures built near the slopes. The steep slopes near the river could provide scenic views and space for recreational activities such as fishing and walking paths.

Current Land Uses

The Project Area consists of privately and publicly owned parcels. While most of the land along the water is privately held, a significant portion is held by five owners, which could make it easier to plan and pursue collaborative riverfront projects (Exhibit 3). Several vacant parcels could be developed, and underutilized properties offer opportunities for redevelopment.

All land in the Project Area is zoned Commercial, except for Soldotna Creek Park which is in the Parks and Recreational District.⁸

Soldotna Creek Park, located within the Project Area, is an important gathering space in the community, hosting the Wednesday Market throughout the summer as well as various other events throughout the year.

⁸ The Options and Opportunities paper suggested that a new overlay district is needed in the Project Area to guide and enhance development opportunities.

Demographic and Economic Trends

This section describes the key demographic and economic conditions and trends for Soldotna and the comparison geographies (the Kenai Peninsula Borough and the state of Alaska). We look at these geographies to understand the overall macro direction of factors in the economy. Detailed data, including sources, is included in Appendix A.

A range of economic, social, and demographic factors influence the demand for commercial and residential development. Some of the key demand factors for these types of development include population growth, employment opportunities, and changes in household income levels. Demand for commercial and residential development is driven by the need for new housing and commercial space to accommodate a growing population and support economic growth. Growth in tourism drives demand for hospitality-related development.

These trends will influence the demand for different uses in Soldotna and future development in the Project Area.

Soldotna's residents are older with smaller households than the state overall.

- **Soldotna experienced moderate population growth between 2010 and 2021.** As of 2021, Soldotna's population was 4,444 residents. Between 2010 and 2021, Soldotna's population grew by 6.7% or 281 residents. This was a higher rate of increase than the state (3.2%) but lower than the Borough (7.9%). **The Kenai Peninsula Borough is expected to continue to grow but at a slower rate. Between 2020 and 2040 the Borough is expected to add 1,218 residents.**
- **Soldotna and Kenai Peninsula Borough residents tend to be older than the state overall.** The portion of the population aged 60 and older in Soldotna saw the greatest increase from 2010 to 2020. However, the population aged 18 to 39 years also increased over the period while other age groups experienced declines.
- **Soldotna and the Kenai Peninsula Borough have more one and two person households than the state overall.** About 67% of Soldotna households have one or two members.
- **Soldotna's population is more racially and ethnically homogenous than the surrounding jurisdictions.** 83% of Soldotna's population identifies as White.

Soldotna's median household income has been increasing but remains lower than the Borough and state.

Soldotna's median household income increased 28% between 2010 and 2020 though remained lower than both the Kenai Peninsula Borough and the State of Alaska overall. Soldotna's median household income increased faster than the Borough and the State which may indicate that the City is becoming a more attractive location for higher income households who have more disposable income. However, Soldotna's lower median household income (\$59,700 in 2020) can create barriers to some types of development. Over 60% of Soldotna households have an annual income of less than \$75,000 which can make it challenging to afford rising housing costs.

- **Educational attainment for Soldotna is lower than for the Borough and the state.** 17% of Soldotna residents have obtained a bachelor's degree or higher, and 43% have some college education.

Between 2010 and 2021 employment grew faster in the Kenai Peninsula Borough than the state overall.

- **Employment in the Kenai Peninsula Borough grew 4.8% between 2010 and 2021 whereas the State of Alaska declined 4.0%.** While the state is still working to recover employment lost during the COVID-19 pandemic, the Borough's employment has exceeded 2019 levels. Between 2010 and 2021 the Kenai Peninsula Borough added 920 jobs. The greatest increase in terms of total jobs was in professional and business services (282 jobs), accommodation and food service (270 jobs), health care and social assistance (221 jobs), and retail trade (200 jobs). The industries with the greatest job losses were in mining (-367 jobs) and wholesale trade (-60 jobs).
- **Unemployment rates for the Kenai Peninsula Borough decreased relatively steadily from 2010 to 2022 (despite brief increase with the COVID-19 pandemic).** Unemployment rates in the Borough tended to be slightly higher than rates for Alaska overall.

Visitors come from both within Alaska and out-of-state to enjoy the natural amenities Soldotna offers.

- **Pre-pandemic travel to Alaska was strong** growing from 1.77 million out-of-state visitors in 2009-10 to 2.54 million in 2018-19, an increase of 43%.
- **Visitor counts in Soldotna exceeded pre-pandemic levels in 2021 and 2022.** Soldotna had an estimated 330,000 visitors between January and November 2022.⁹
- **Soldotna attracts visitors from both within Alaska and out-of-state.** In 2021, about 51% of all visits to Soldotna were from Alaska residents that live at least 30 minutes away.

From 2016 Alaska Visitor Statistics Program

- The Kenai Peninsula attracted 562,800 visitors in summer 2016; 127,000 (23%) of those visitors spent time in Kenai/Soldotna.
- Total direct spending from visitors was estimated \$187 million in the Kenai Peninsula directly generating 2,500 jobs. Average per visitor spending in the Kenai Peninsula was \$333 per visit.
- About 62% of visitors travel to Soldotna/Kenai for vacation/pleasure, 26% to visit family and friends, and 12% for business/business pleasure. A greater proportion of travelers visit Soldotna/Kenai for business (12%) than the Kenai Peninsula overall (6%).
- Most visitors travel to Soldotna to enjoy a variety of outdoor recreational activities. Top activities for visitors to Soldotna/Kenai include fishing followed by wildlife viewing and hiking.

⁹ Residents from zip codes 99611, 99669, 99568, 99672, and 99610 were considered locals and not included in visitor analysis. International travelers are not captured in the data.

Real Estate Market Trends

This section provides an overview of real estate market trends in the Soldotna trade area using commercial real estate data from CoStar. Given the relatively small sample size of the data in the Soldotna trade area, these trends may not capture all the nuances of the market. Where possible we have included additional local context.

The exhibits in this section show historical trends in the Soldotna trade area (Exhibit 5).¹⁰ In general, the commercial real estate analysis shows trends in Triple-net (NNN) rents, vacancy rates, and deliveries and absorption. A brief summary of these terms is included below.

- **Triple-Net (NNN):** Represents annual rents on a per square foot basis not including any pass-through expenses such as taxes, insurance, and any utilities or maintenance costs.
- **Vacancy:** The percentage of available space in a building or market that is unoccupied and available for lease or sale.
- **Deliveries:** The number of new buildings or units completed and ready for occupancy in a given time period, typically measured in square feet or number of units.
- **Net Absorption:** The amount of new occupied space in a given market over a specific period, typically measured in square feet. Net absorption is calculated by subtracting the amount of space that becomes vacant (either by tenants moving out or by new construction) from the amount of space that is newly occupied.

¹⁰ Ownership housing is tracked using Redfin data at the Borough and state level due to data availability.

Soldotna Trade Area

As shown in Exhibit 5, the Soldotna trade area is a 30-minute drive time radius from the Project Area. This defined trade area for Soldotna is the geography for which most of Soldotna’s demand is expected to generate for commercial and residential uses. It serves a population of approximately 30,000 people.

For the purposes of this market analysis, we analyzed commercial and residential real estate trends within the Soldotna trade area to understand demand potential and feasibility of different uses.

Exhibit 5: Soldotna Trade Area

Source: CoStar



Retail

Much of the retail in the Soldotna trade area is highway-oriented, strip commercial ranging from large-scale anchor stores such as Fred Meyer and Safeway to small, individually owned shops and restaurants.

These trends are based on CoStar data which included a sample size of 142 buildings and 2.1 million square feet of retail space in the Soldotna trade area.

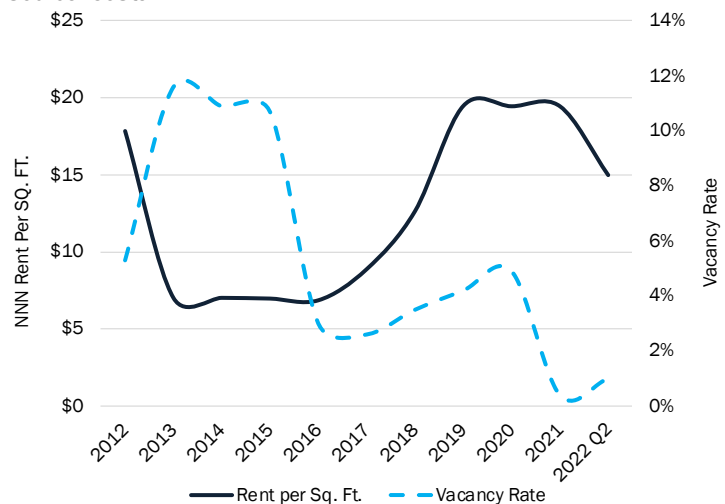
Retail rents increased sharply from 2016 to 2019 before dropping slightly to \$15 per square foot as of 2022. Vacancy rates fell 4.5% from 2020 to 2021, with a slight uptick in 2022. From 2012 to 2022, roughly 110,000 square feet of retail space was absorbed in the market.¹¹ The increase in absorption and drop-in vacancy rate around 2016 coincides with a high leasing activity for retail space and the opening of Walgreens, Sherwin Williams, and the Kenai River Brewery in Soldotna. During this same period, only 41,500 square feet of new development was added (delivered) to the market. The low amount of new development relative to absorption likely contributed to high rents and low vacancy rates indicating a stable market for retail. Low vacancy rates and continued demand for retail space will likely drive-up rents in the near term supporting additional demand for retail space.

Retail rent rates increased \$12.64 per square foot from 2016 to 2019 before falling slightly in 2022.

In 2013 vacancy rates peaked at 11.6%, before falling sharply between 2015 and 2016 to 3.0%. Vacancy rates fell a second time between 2020 and 2021, dropping to just 0.4%.

Exhibit 6: Retail Rent per Square Foot and Vacancy Rate, Soldotna Trade Area, 2012-2022 Q2

Source: CoStar



¹¹ Absorption happens when vacant space is leased up and/or businesses take over existing leases.

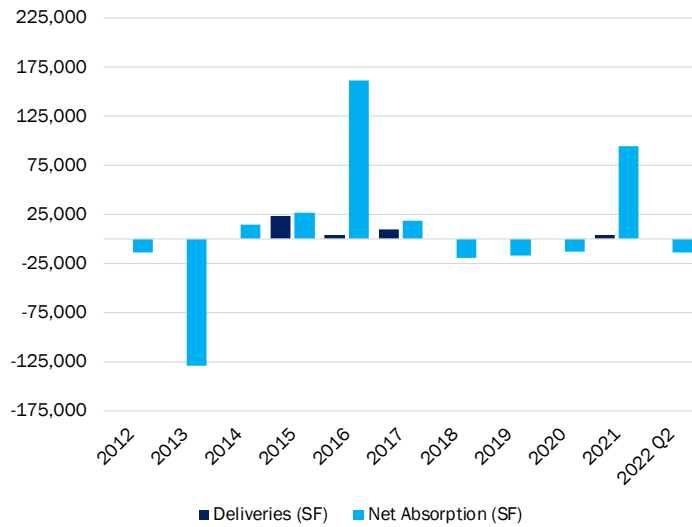
Net absorption has far exceeded deliveries for retail space in Soldotna, signifying strong market demand and likely contributing to high rent rates.

According to Costar, Soldotna had a net absorption of nearly 110,000 square feet for retail spaces between 2012 and 2022. In contrast, only 41,500 square feet of new retail space was delivered in the same period, likely contributing to the increase in rent rates (Exhibit 6) as demand outweighed supply.

Conversations with City staff indicate that there has been more retail space added to the market than is captured in the data, especially outside of City limits. Two new developments not captured in the data include Whistle Hill in 2017 and River City Books/Lucy's in 2019, both of which are fully leased. Continued development and subsequent absorption signify strong market demand.

Exhibit 7: Retail Deliveries and Net Absorption in Square Feet, Soldotna, 2012-2022 Q2

Source: CoStar



Office

Office space is generally classified into three categories which include Class A, Class B, and Class C. Class A office space is generally considered the highest quality and most desirable, with modern construction, high-end finishes, and prime locations in major business districts or high-visibility areas. Class B office space is typically older, with fewer amenities and lower rental rates than Class A, but still considered functional and suitable for many businesses. Class C office space is the lowest quality and often the oldest, located in less desirable areas, with limited amenities and lower rental rates. Often, it may require significant renovation or updating to meet the needs of modern businesses.

These trends are based on CoStar data which included a sample size of 41 buildings and 336,397 SF of office space in the Soldotna trade area.

Office space in the trade area consists of class B and C office in small one- or two-story office buildings. The Central Peninsula Hospital which anchors the growing Health Care District in Soldotna added additional office and clinic space in 2016 and will likely capture growing demand for medical office. The office space added by the Hospital is not captured in the Costar data. This is likely because it is owned by the hospital (and therefore not be recognized as office development in the data). However, it is still important to understanding office demand in the trade area.

Some retail space is being used as office space such as Blazy Mall which now hosts mostly office users. Many retail spaces can accommodate small professional services and it is not uncommon to find professional services and retail uses together. However, these buildings are more likely to be captured in the retail data.

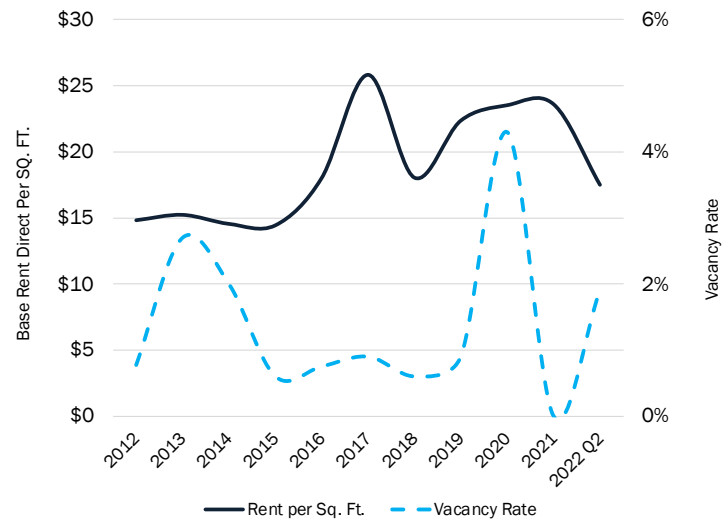
Office rents have fluctuated since 2012 recently decreasing to \$17.49 per square foot in 2022. Vacancy rates, while low, have also fluctuated in recent years, with a large spike in 2020 (likely due to the COVID-19 pandemic), followed by a large drop in 2021. Most recently, vacancy rates increased to 1.9% in 2022. There were no non-medical office space deliveries in Soldotna between 2012 and 2022 according to Costar. In the near term, market trends need to correct for low vacancies with increasing rents. Once those are corrected, there could be limited demand from small office users.

Office rent rates decreased \$6.11 per square foot, or 26%, from 2021 to 2022. Vacancy rates increased 1.9% from 2021 to 2022, following a spike in 2020.

The biggest increase in vacancy occurred in 2020, with 4.3% of office space vacant, likely a reflection of the COVID-19 pandemic. From 2012 to 2022, an average of 1.5% of office space was vacant in Soldotna. Rent per square foot fluctuated over the period, peaking in 2017 at \$23.52 per square foot.

Exhibit 8: Office Rent per Square Foot and Vacancy Rate, Soldotna, 2012-2022 Q2

Source: CoStar



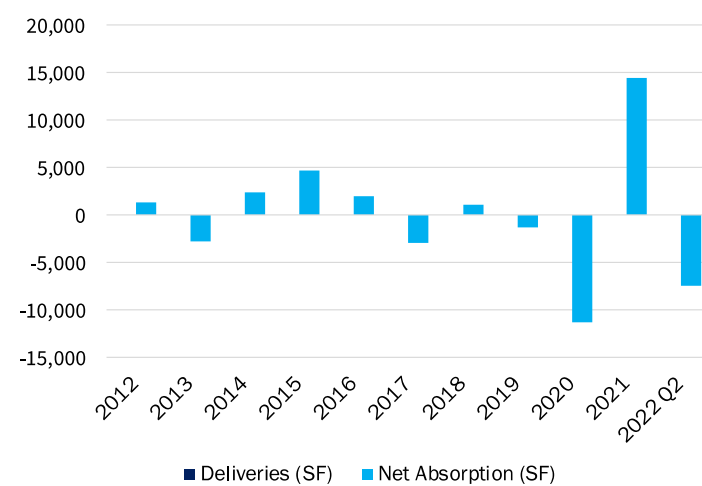
According to Costar, there were no deliveries of new speculative office space in Soldotna between 2012 and 2022.

Only 172 more square feet became occupied than vacant between 2012 and 2022. The biggest fluctuations in net absorption occurred between 2020 and 2022, likely a reflection of the COVID-19 pandemic and shifting work environments.

Over the past 10 years the Central Peninsula Hospital has added 89,000 square feet of new office space as a part of the 2016 Phase V Specialty Clinics construction. While not captured in the Costar data since this is being developed by the hospital, it still constitutes an important increase in office space for the growing healthcare industry. Other small medical offices have also developed over the past 10 years, mostly near the Hospital.

Exhibit 9: Office Deliveries and Net Absorption in Square Feet, Soldotna, 2012-2022 Q2

Source: CoStar



Residential

Much of the multifamily residential housing stock is in older, one- or two-story buildings. Many of the units are rent restricted.

Residential market data show a strong and growing demand for multifamily rental products. Rents have increased steadily from 2012 to 2022; as of 2022, multifamily housing rents were about \$900. During the same period, vacancy rates fell to 2.6%. According to CoStar only six new units were added to the market between 2012 and 2022.

These trends are based on CoStar data which included a sample size of 42 multifamily buildings with a total of 765 units in the Soldotna trade area. Single family rental housing is not included in CoStar data.

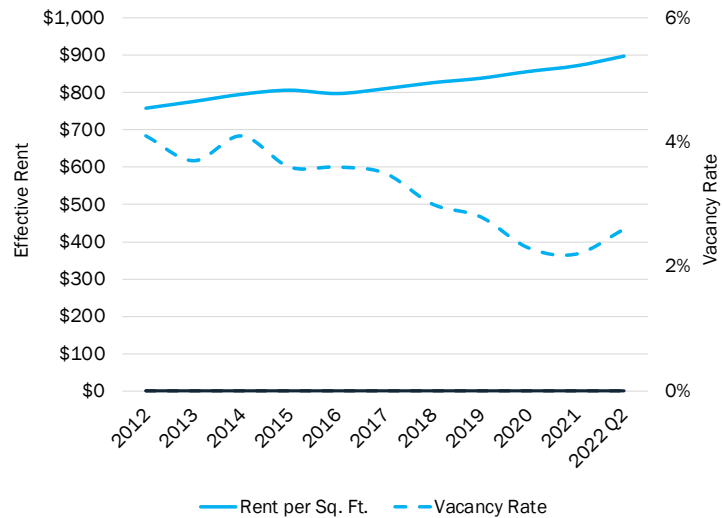
Multifamily Rental (Costar)

Rents for multifamily housing have risen steadily from 2012 to 2022. Vacancy rates have dropped steadily.

Rent rates increased from \$759 per in 2012 to \$898 in 2022, an increase of 18%. At the same time, vacancy rates dropped from 4.1% to 2.6% in 2022.

Exhibit 10: Multifamily Rent per Unit and Vacancy Rate, Soldotna, 2012-2022 Q2

Source: CoStar

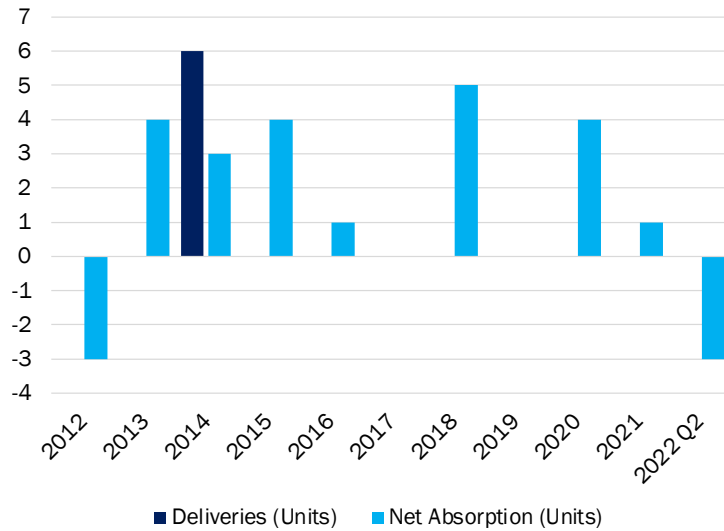


Net absorption for multifamily rental units was positive and outweighed deliveries, signifying that construction has not kept pace with demand.

According to Costar, from 2012 to 2022, only six multifamily rental units were delivered in Soldotna (in 2014). During the same period, 16 multifamily rental units were absorbed.

Exhibit 11: Multifamily Deliveries and Net Absorption in Square Feet, Soldotna, 2012-2022 Q2

Source: CoStar



Ownership Housing

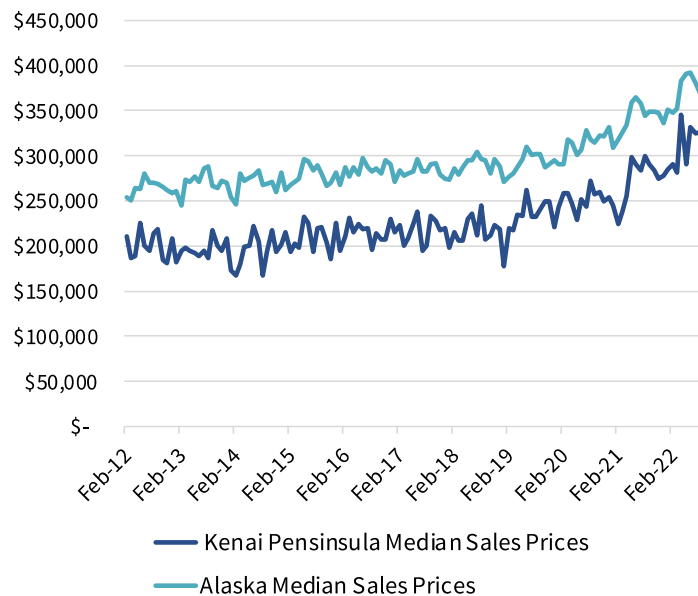
Median sales price for single family homes in the Kenai Peninsula Borough are more affordable than Alaska. In both regions, prices have increased steadily since 2012.

As of September 2022, the median sales price for single family homes in the Kenai Peninsula Borough was \$319,000. The median sales price for single family homes in Alaska overall was \$364,000.

Between 2012 to 2022 YTD, the median sale price increased 46% or \$100,000 in the Kenai Peninsula. During the same period, median sale prices increased 35% or \$94,000 in Alaska.

Exhibit 12: Typical Single Family Home Value, Kenai Peninsula Borough, and Alaska, 2012-2022

Source: Redfin



Findings: What Land Uses Can the Current Market Support in Soldotna?

This section begins by describing Soldotna’s competitive position in the Kenai Peninsula and what makes it appealing for a variety of uses and businesses. The remainder of this section describes some of the potential land uses that may be suitable in the Project Area including retail and restaurants, mixed use, and lodging.

What gives Soldotna and the Project Area an edge over other Peninsula communities?

- **Central location.** Soldotna serves as a destination hub for services, food, healthcare, and recreational amenities as well as a throughway for tour busses as they move through the Peninsula. Soldotna serves as a junction to get to other cities like Kenai, Homer, and much of the southwest Kenai Peninsula.
- **Visibility and direct access to Sterling Highway.** The Highway is a major transportation route that connects Homer, Soldotna, and Anchorage, which had an observed average annual daily traffic (AADT) of 16,900 to 19,200 in 2021. The section of Sterling Highway between the Kenai River to Kenai Spur Highway is one of the busiest sections of Sterling Highway with the highest AADT count of the whole Kenai Peninsula.
- **Strong year-round workforce pool.** Many residents work in government, healthcare and social assistance, retail, and accommodation and food services industries.
- **Proximity to Kenai airport.** Convenient highway access and proximity to the Kenai Municipal Airport would be an advantage for a variety of commercial users needing to ship or receive goods, as well as drawing consumer traffic off Sterling Highway.
- **Wildlife refuge.** The entrance to the Kenai National Wildlife Refuge is just minutes from downtown Soldotna. Known as “Alaska in Miniature” the refuge includes ice fields, glaciers, tundra, forests, and coastal wetlands. Visitors can enjoy fishing, hiking, hunting, wildlife watching, and boating.
- **Lower taxes.** Lower sales taxes and property taxes relative to Homer and Seward as well as no bed tax would be an advantage for a variety of commercial, residential, and hospitality uses.

Exhibit 13 shows how Soldotna compares to Homer and Seward in terms of workforce, population and spending power, transportation, tourism, and taxes.

Exhibit 13. Comparison of Economic Competitive Advantage, Soldotna, Homer, and Seward, 2022

Source: ECONorthwest Research

Geography	Workforce	Population & Spending Power	Transportation	Tourism/Recreation	Taxes
Soldotna	Strong workforce pool from Soldotna and nearby cities and towns	Large daytime and year-round population from employees, residents, tourism, and passersby	Proximity to other nearby cities and towns Good access to Sterling Highway and Kenai Airport	<ul style="list-style-type: none"> • Kenai National Wildlife Refuge • Fishing • Museums • Sports • Outdoor recreation 	<p>Lower sales tax (6%),</p> <p>Lower property tax (7.61 mil)</p> <p>No bed tax</p>
Homer	Limited due to location and medium population	<p>Medium-sized daytime population from employees, residents, and tourism</p> <p>Higher tourism population but can fluctuate depending on season</p>	Proximity to smaller towns with access to Sterling Highway and ferry transportation	<ul style="list-style-type: none"> • Ferry terminal • Fishing • Museums • Outdoor recreation • Homer Spit • Distinct neighborhoods with amenities 	<p>High sales tax (7.85%),</p> <p>High property tax (11.24 mil)</p> <p>No bed tax</p>
Seward	Limited due to location and small population	<p>Small daytime population from residents</p> <p>Higher tourism population but varies with season</p>	Somewhat isolated with access to Seward Highway, rail, and cruise ship terminal	<ul style="list-style-type: none"> • Cruise ship dock • Aquarium • Outdoor recreation • Walkable downtown with amenities • Boardwalk • Fishing 	<p>Moderate sales tax (7%)</p> <p>Moderate property tax (9.09 mil)</p> <p>Bed tax (4%)</p>

Soldotna Residential Tapestry: Understanding Consumer Preferences

To complement the quantitative analysis, ECONorthwest compiled information from ESRI Business Analyst’s Tapestry Segmentation profile for trade area. This profile divides residential areas into distinct segments based on their socioeconomic and demographic composition and provides insight on important consumer variables, such as age, education level, the likeliness of home ownership, a consumer’s willingness to buy or purchase certain products, and their overall economic purchasing power. Exhibit 14 shows the categories that most of the trade area’s residents fall into. While useful in understanding general preferences, it is important to remember that these are general trends and individuals within these broader categories may display a variety of characteristics and preferences.

Exhibit 14. Top Seven Market Tapestry Segments, Soldotna Trade Area, 2022

Source: Esri Business Analyst

Segment	% of HH	HH Type	Median HH Income	Consumer Preferences & Purchases
The Great Outdoors	30%	Married couple families/ Couples with no children at home	\$56,400	Educated empty nesters living an active but modest lifestyle; focus is land and are active gardeners and partial to home-cooked meals. Though near retirement most of these residents still work.
Middleburg	15%	Young couples, many with children	\$59,800	Traditional, family-oriented consumers. More country than rock and roll, they are thrifty but willing to carry some debt and are already investing in their futures. Rely on mobile devices to stay in touch and pride themselves on their expertise. Prefer to buy American and travel in the US.
In Style	14%	Married couples, no children/ single households	\$73,000	Embrace an urbane lifestyle that includes support of the arts, travel, and extensive reading. They are digitally connected. They have the time to focus on their homes and their interests. The population is slightly older and already planning for retirement
Old and Newcomers	12%	Single households/ married couples (no children)	\$44,900	Singles’ lifestyles, on a budget. The focus is more on convenience than consumerism, economy over acquisition. Composed of neighborhoods in transition, populated by renters who are just beginning their careers or retiring. Some are still in college or taking adult education classes. Support charity causes and are environmentally conscious. Age is not always obvious from their choices.
Parks and Rec	9%	Married couples - more without children	\$60,000	Suburban homeowners although townhomes and duplexes are not uncommon. Many families are two-income married couples approaching retirement age; they are comfortable in their jobs and their homes, budget wisely, but do not plan on retiring or moving anytime soon.
Workday Drive	6%	Married couples with children	\$90,500	Affluent, family-oriented with a country flavor. Partial to new housing away from the bustle of the city but close enough to commute to professional job centers. They favor time-saving devices and family-oriented pursuits.
Bright Young prof	5%	Couples / single parents / single person	\$54,000	Young, educated, working professionals that are physically active and up on the latest technology. More than a third of householders are under the age of 35. Slightly more diverse couples dominate this market, with more renters than homeowners. Labor force participation is high, generally white-collar work, with a mix of food service and part-time jobs (among the college students).

These categories highlight that residents are price conscious and live within their means. They are not extravagant spenders. Residents are active and enjoy the outdoors. Many are homeowners and take pride in their homes. These categories reinforce findings from the economic and demographic trends section that residents have moderate incomes. Many residents are older and live in single or couple households with fewer households having children.

This information can be helpful in determining the specific types of uses that will be successful along the Riverfront Redevelopment Area. For instance, price conscious residents may prefer casual restaurants to fine dining restaurants and want food that they consider sensibly priced. Retail that highlights or caters to the outdoor nature of residents may be more successful than stores that focus on fast fashion trends. Residents may focus on quality over quantity and be willing to pay for items that are made locally (which often carry higher costs) and/or are environmentally friendly.

Housing is more nuanced, but this kind of information can show characteristics that residents would value in a home. With key themes including active lifestyle and country living, residents may need space for outdoor gear. For some, a yard for gardening and recreation may be important. While ownership may be preferred for many residents, the median household income of residents may limit their options if housing prices continue to rise. If developing multifamily or other types of attached housing, developers may want to consider how they can incorporate space for outdoor gear (bikes, kayaks, etc.) and community space for recreation.

Commercial Retail

In the following section we detail the factors needed to support retail and the type and scale of retail most appropriate in the Soldotna trade area. This assessment is based on a retail leakage analysis which provides an understanding of resident household spending patterns, visitor counts and spending, retail requirements, and location consideration for different restaurant types.

At the most fundamental level, market support for commercial retail development is a function of three sources of demand which include:

- **Resident Household Spending.** The consumption from the discretionary spending of resident households within a reasonable distance of the establishment. As described in the Residential Tapestry (Exhibit 14), the trade area consists of a thrifty, budget-minded populace.
- **Visitor Spending.** Spending from temporary, non-resident visitors. This spending is most common in tourist destinations, along Interstate freeway systems, or in proximity to hotels, entertainment attractions, or other uses that draw visitors from a great distance (for details on visitor spending see Exhibit 41).
- **Daytime Population.** The typical population during working hours within a reasonable distance of the establishment. This population could include employees, students, or residents that do not commute out of the market. According to Esri's Market Profile, the trade area has a daytime population of approximately 29,485 people.

Retail and Restaurant Demand in Soldotna

Demand is stable for commercial retail in Soldotna, with some potential for additional retail space in the trade area. To evaluate what retail store types could be supported in the area, ECONorthwest conducted a retail leakage analysis. A retail leakage analysis also offers a deeper understanding as to how local businesses are capturing residential spending, or if spending is instead being driven by visitors and employees which would be reflected in high surplus figures.

Initial conversations with stakeholders revealed some interest in the following commercial uses:

- Mixed use development (housing over retail)
- Restaurants
- Food cart permanent location
- Distillery (the City has one license available)
- Commercial kitchen
- Coffee shop
- Maker space (large market building with little shops that can be expanded in the summer)
- Art gallery

Exhibit 15 shows that retail *leakage* for the Soldotna trade area is found in the categories of **general merchandise, food services and drinking places, and clothing and clothing accessory stores**. For these business types, local consumers are pursuing goods and services from outside the 30-minute trade area which may signal that business opportunities exist at the local level.

In the Soldotna trade area, retail *surplus* is found in the categories of **food and beverage stores, building material and garden equipment and supplies dealer, electronics and appliance stores, health and personal care, sporting goods, hobby, musical instrument, and bookstore, furniture, and miscellaneous store retailers**. The high sales occurring in the food and beverage stores and building materials and garden equipment and supply dealers indicate that the Soldotna area attracts customers from other areas specifically for these retail store types.

Retail Leakage Analysis

Retail leakage occurs when residents do not have competitive opportunities to purchase goods locally and must travel outside the market (or purchase online) to find desired products. The retail gap represents the difference between demand and supply within the specified trade area. A negative gap suggests that retail sales exceed local demand through capturing sales by customers living outside of the trade area and a positive retail gap suggests that local demand is greater than existing stores can meet, creating retail opportunities.

Exhibit 15: Retail Leakage and Surplus, Soldotna 30-Minute Drive Time Trade Area, 2022

Source: Claritas Retail Market Power Report, ECONorthwest analysis

Retail Category	Consumer Expenditures	Retail Sales	Retail Gap	Implications for Retail Opportunities in Soldotna
Food & Bev stores	\$81,178,766	\$129,720,353	-\$48,541,587	Retail sales exceed local demand through capturing sales by customers living outside of the trade area.
Building Materials/Garden	\$37,339,424	\$80,855,730	-\$43,516,305	
Sports/Hobby/Special Interest	\$7,426,150	\$15,881,928	-\$8,455,778	
Health & Personal Care	\$32,116,178	\$39,388,244	-\$7,272,067	
Electronics & Appliances	\$7,651,118	\$14,355,280	-\$6,704,162	
Miscellaneous	\$11,298,316	\$15,926,975	-\$4,628,659	
Furniture & Home Furnishings	\$10,189,037	\$10,500,089	-\$311,052	
General Merchandise	\$71,192,601	\$52,078,237	\$19,114,365	Local demand is greater than existing stores can meet, creating retail opportunities.
Food Services & Drinking Places*	\$71,918,556	\$53,520,512	\$18,398,044	
Clothing & Accessories	\$21,460,468	\$5,461,495	\$15,998,974	
Total Expenditures	\$351,770,614	\$417,688,843	-\$65,918,227	
Retail Trade	\$279,852,058	\$364,168,331	-\$84,316,271	
Food and Drink	\$71,918,556	\$53,520,512	\$18,398,044	

* Within food services and drinking places category, local demand was greater than existing supply for full-service restaurants, limited-service restaurants, and snack and non-alcoholic beverage bars.

Estimating Visitor Demand

Using the same visitor spending categories and amounts used in the Kenai Peninsula Visitor Profile and Economic Impact Analysis (Exhibit 41) and the estimate of 161,000 non-Alaska visitors in 2022 (Exhibit 39), ECONorthwest estimated the demand that could be generated from non-Alaska visitors to the area.¹² Given that not all visitor spending is retail, we identified two spending categories which aligned well with the retail categories in the retail leakage analysis which include food services and drinking places and clothing and clothing accessories stores. Adjusting for inflation, we estimate that visitors could demand an additional \$14.2 million in food services and drinking places and about \$5.3 million in clothing and clothing accessories.

Exhibit 16: Summary of Retail Leakage, Soldotna 30-Miute Drive Time Trade Area and Non-Alaska Visitor Spending, 2022

Source: Claritas Retail Market Power Report, ECONorthwest Analysis

Retail Store Type	Trade Area Demand	Non-Alaska Visitor Demand	Total Demand	Supply	Leakage
Food services and drinking places	\$71,918,556	\$14,168,968	\$86,087,524	\$53,520,512	\$32,567,012
Clothing and clothing accessories stores	\$21,460,468	\$5,313,363	\$26,773,831	\$5,461,495	\$21,312,336

¹² Alaska visitors are not included in this analysis.

Requirements for Successful Retail

Each retail type will require a different number of households within the trade area. For example, a corner store or ground floor in a vertical, mixed-use building requires fewer households to support it than a large, anchored neighborhood center. What a retailer needs to be successful can vary broadly by retail type, tenant, income levels, or other factors. However, the table below presents some general guidelines for neighborhood scale retail. In addition to resident household support, most neighborhood-scaled retail also relies on access to daytime population for market support.

Exhibit 17: Market Support for Neighborhood Scaled Retail Typologies

Source: ECONorthwest Research

Typology	Typical Size (sq. ft.)	Example Tenant Types	Required Households to Support
Corner Store/ Mixed-use	1,500 – 2,500	Convenience store, coffee shop, boutique store, personal services, limited kitchen restaurant (prepared foods)	1,000 – 1,500 households, central location, access to daytime population
Convenience Retail/ Strip Retail/ Stand-alone Retail	5,000 – 20,000	Boutique uses, professional or financial services, small pharmacy or food market, coffee shop or bakery, fast food chain restaurant	2,500 – 5,000 households, location on a primary arterial.
Neighborhood Center	30,000 – 75,000	Medium-size grocery anchor, mix of retail tenants including financial & professional services, restaurants, café/bakeries, hobby & recreation, mail centers, etc.	6,000 – 8,000 Households, strong location with high visibility. Site on correct side of evening commute flows.

Requirements for Successful Restaurants

Restaurants are one type of use that may occupy a retail space. The location of a restaurant is a major element of its potential success. The type of restaurant will dictate the size and typical locational requirements needed to support this specific restaurant. Below, we’ve summarized the locational requirements of a few restaurant typologies that could be supported in the Soldotna trade area. We also summarized requirements for specialized restaurant types such as food halls, food incubators, and food carts. These requirements are intended to be general guidelines as these are specialized restaurant types that will vary in scale dependent on the number of vendors that will occupy the space.

Exhibit 18: Typical Restaurant Requirements by Type

Source: ECONorthwest Research and Case Study Research

Restaurant Typology	Typical Size (sq. ft.)	Example Tenant Types	Location Requirements
Mixed use	750 - 2,500	Local restaurants	<ul style="list-style-type: none"> • Ground floor of mixed-use building • Located near a busy street or highway for high visibility • Ample shared parking for commercial and residential uses • Can complement other businesses
Strip retail	1,000 - 2,500	Chain and local restaurants	<ul style="list-style-type: none"> • Usually within a shopping center or strip retail building • Ample shared parking
Stand-alone	1,500 - 5,000	Chain and local restaurants	<ul style="list-style-type: none"> • Usually within a large shopping center or stand-alone lot • May require drive-through window and larger lot for vehicle circulation • Dedicated restaurant parking • Visibility from roadway
Food Hall/ Food incubator	6,500-10,000	“Food truck to storefront”, small food vendors, food incubators	<ul style="list-style-type: none"> • 300–500 square feet (per vendor) • Large open building to support several vendors, shared kitchen, prep area, cooler/freezer, storage space, dining hall
Food Cart	5,000 to 12,000	Food trucks / food carts	<ul style="list-style-type: none"> • 150-200 square feet is the typical size of stationary mobile cart • The site would need to accommodate the food cart plus circulation and outdoor dining tables. This generally translates to 700-750 square feet of space per cart • Require nearby dedicated or shared parking • Require hook up for electricity, fresh water • Near a busy street or major highway that would create high visibility

What type of retail could the Soldotna trade area support?

Retail leakage alone does not indicate whether the market can or cannot support additional retail investment. However, taken together with daytime population in the trade area (about 30,000)¹³, Soldotna as a regional hub and visitor destination, and commute data which shows high volumes of traffic through the trade area, we find that there is market opportunity for neighborhood-scaled retail commercial development, most likely as a part of a mixed-use development or strip retail.

The City does not have any full-pour liquor licenses available but could lobby to get additional beer and wine licenses if a restaurant makes at least 50% of its money from food. Limited liquor licenses could create barriers to restaurant development.

Soldotna could attract restaurants and clothing and accessories stores totaling **close to 20,000 square feet**. Although there is leakage happening in the general merchandise store category, the leakage amount does not support the average size of a junior department store. **The Project Area could support four to five restaurants with an average size of 2,000 to 5,000 square feet and two to three boutique clothing or accessories stores between 1,000 and 2,500 square feet.**¹⁴

Exhibit 19: Summary of Retail Leakage and Supported Retail Store Types, Soldotna 30-Minute Drive Time Trade Area and Non-Alaska Visitor Spending, 2022

Source: Claritas Retail Market Power Report, ECONorthwest Analysis

Retail Store Type	Existing Unmet Demand – Leakage \$	Potential Space (SF)	Retail Example	Average Size (SF)	Number of Retail Stores
Food services and drinking places	\$32,567,012	16,284 ¹⁵	Restaurant	2,000 to 5,000	4 to 5
Clothing and clothing accessories stores	\$21,312,336	3,552 ¹⁶	Boutique Clothing Store/ Accessories	1,000 to 2,500	2 to 3
General merchandise stores	\$19,114,365	3,186 ¹⁷	Junior Department Store	30,000	—

¹³ Esri's Market Profile of the trade area estimates that there were 30,056 people in the trade area in 2022 with a daytime population of 29,485.

¹⁴ Alaska visitors outside of the trade area were not included in this analysis but could also generate demand.

¹⁵ Assumed sales per square foot of \$400 and market capture rate of 20 percent

¹⁶ Assumed sales per square foot of \$600 and market capture rate of 10 percent

¹⁷ Assumed sales per square foot of \$600 and market capture rate of 10 percent

Residential Mixed Use

The demand for housing development is influenced by a range of economic, social, and demographic factors that affect the ability and desire of individuals and households to purchase or rent housing. These demand factors can include population growth, employment opportunities, changes in household income levels, area amenities and schools, household preferences, and shifts in the availability of credit and interest rates. In the section below, we estimate future market potential, evaluating key market trends and demand factors for housing development in the Soldotna trade area.

Housing Demand in Soldotna

The Soldotna trade area population has grown moderately over the past decade, increasing 0.6% annually since 2010. Between 2010 and 2022, the area has grown by more than 1,900 residents and more than 1,000 households (Exhibit 20). Population growth is expected to continue but at a slower annual growth rate of 0.35%.

According to American Community Survey (ACS) data, median household income in the Kenai Peninsula Borough increased 20% between 2010 and 2020 to just over \$69,000 (Exhibit 32). Within Soldotna, median household income increased by 28% to \$59,700. The combination of household income growth and increased demand over the past few years has continued to put pressure on the regional housing market. Over the last ten years the median home price in the Kenai Peninsula has increased 46% or \$100,000 (Exhibit 12). Household forecasts from ESRI suggest the trend in growth in households with higher incomes is expected to continue over the intermediate term.

To estimate future market potential, we evaluated household demographics and growth outlook within the Soldotna trade area (shown in Exhibit 5). In the next five years, the Soldotna trade area is expected to add 525 new residents for a total of 265 new households (Exhibit 20).

Why is the rental market so tight?

According to the September 2022 Economic Trends Report from Alaska Department of Labor and Workforce a range of factors are influencing vacancy rates including:

- Home prices increasing during the pandemic pushing households to rent longer

- Emergency rental assistance preventing evictions

- Growth in new household formation in 2021

- Growth in age groups most likely to rent

- Construction on a long-term decline

- Some rentals transitioning to Airbnb. According to 2017-2021 ACS data, nearly 19% of all housing in the Kenai Peninsula Borough is vacant for seasonal, recreational, or occasional use.

Exhibit 20: Population, Household, and Family Growth, Soldotna Trade Area, 2022

Source: Esri forecasts for 2022 and 2027.

Note: U.S. Census Bureau 2010 decennial Census data converted by Esri into 2020 geography.

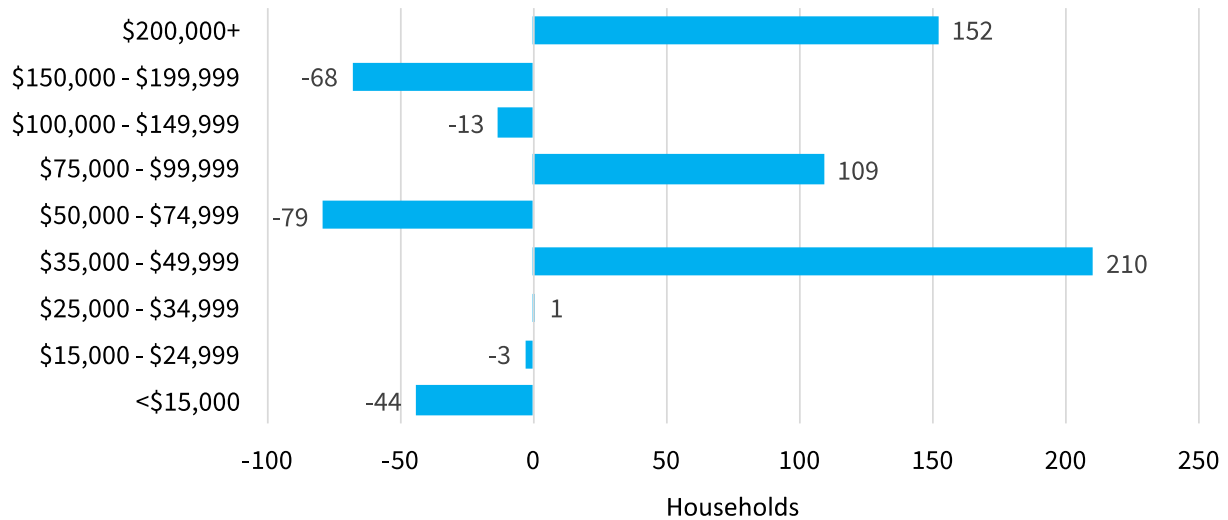
*Average Annual Growth Rate

	2010	2022	'10- '22	2027	'22- '27	'22-'27 AAGR*
Population	28,127	30,056	+1,929	30,581	+525	0.35%
Households	10,868	11,932	+1,064	12,197	+265	0.44%
Families	7,264	7,647	+383	7,765	+118	0.31%
Family Share	66.8%	64.1%	-2.7%	63.7%	-0.4%	N/A
Renter Share	20.9%	21.5%	+0.6%	21.5%	-	N/A

This household growth is expected to occur amongst households earning between \$35,000 to \$49,999, \$75,000 to \$99,999, and \$200,000 and above. Net growth in high income cohorts (above \$75,000) is expected to be 180 households with a net growth in lower income cohorts (below \$75,000) of 85 households.

Exhibit 21: Household Growth by Income Cohort, Soldotna Trade Area, 2022

Source: Esri Business Analyst, ECONorthwest



Trends in tenure split by income for the Kenai Peninsula indicate that high-income households tend to own their homes rather than rent.¹⁸ While about 22% of households in the Soldotna trade area rent their homes, 14% of households with incomes over \$75,000 rent their homes compared to 32% of households that earn less than \$75,000.

Assuming that the median house price in the Kenai Peninsula is \$319,000 in 2022 (Exhibit 12), a household would need to earn \$83,800 annually to purchase a median priced home.¹⁹ Many of the new households that earn between \$75,000-\$99,999, and \$200,000 and above could afford the median home purchase price but not all. New households that are expected to earn between \$35,000 and \$49,000 are unlikely to be able to afford the median housing price and are more likely to rent. These households can afford between \$875 and \$1225 a month in housing costs.²⁰

Assuming this expected growth in households, we estimate a demand of 180 for sale units and 85 rental units.

¹⁸ 2016-2020 5 Year ACS for the Kenai Peninsula

¹⁹ ECONorthwest housing affordability calculation. Assumes 30-year mortgage, 20% down, and interest rate of 6.5%

²⁰ Based on the recommendation that households spend no more than 30% of the gross income on housing costs.

Recent Mixed-Use Development

The Kenai Peninsula has not experienced mixed-use development since 2012.²¹ However, the Anchorage residential market has experienced several mixed-use developments in the past decade ranging from 3 to 4 stories high. The mixed-use residential development located in the 3600 block of Spenard Rd in Anchorage, Alaska is a recent development that closely resembles the scale of mixed-use that the City of Soldotna is looking to attract. The average per square foot rent for a unit at this development is \$2.14 per square foot or \$1,262 per month—substantially more than the \$900 per month average rents found in the trade area. This suggests that rents in the Soldotna trade area need to be at or above \$2.14 per square foot to support a mixed-use residential development.



Mixed Use Residential

3600 Spenard Rd, Anchorage, Alaska

Built: 2017

Units: 33

Total Square Feet: 33,000

Commercial space: 2,800 SF

Can the Project Area Support Mixed Use Development?

New population growth will drive demand for both ownership and rental housing. The Project Area could be desirable for residential development offering easy access to employment in Soldotna along with access to the river (public or private) and potential riverfront views. However, the Project Area currently has limited entertainment, restaurant, services, and retail uses that typically make mixed-use residential development and high-end hotel development attractive. If developed with amenities or as a part of a mixed-use concept, additional lifestyle amenities could boost attractiveness for development.

- **Condo residential units.** Near-term growth in households earning over \$75,000 annually is expected generate demand for approximately **180 units**. Residents with higher incomes are more likely to own their homes. They *may* be interested in locating in moderate to high-end condo residential units typically built in a mixed-use residential development. Older residents looking to down-size to homes with less maintenance and/or that are closer to amenities and services may also be interested in condos.

²¹ Based on analysis of Costar data.

- **Multifamily rental apartments.** Near-term growth in households earning below \$75,000 annually is expected generate demand for approximately **85 units**. Soldotna’s lower incomes relative to the state and lower average market rents in Soldotna limit potential for new market-rate rental development. The City could explore funding and partnerships to develop some workforce housing units as part of a larger apartment project.

New market-rate development could be feasible to accommodate some of the 180 new households that earn over \$75,000 annually who choose to rent instead of own.

Accommodation and food service industries typically pay lower than average wages. Workers in these industries are more likely to rent. If the City wants to attract commercial development, the City may want to consider how to support the housing needs of workers in these industries.

Lodging

In the following sections we detail the factors needed to support a hotel and the type of hotel that would be most appropriate in Soldotna. This assessment is based on visitor trends, an assessment of hotel occupancy and supply, and the requirements for different hotel types.

Demand for hotels is driven primarily by tourism and leisure travelers, visitors to the area for meetings, conventions, or special gatherings, and commercial travelers. A summary of the three major market demand segments for hotels are described below.

- **Commercial Travelers** are traveling for business and often need to book accommodations for short periods of time, sometimes at the last minute, to attend meetings, conferences, and other work-related events. The commercial traveler typically represents a major source of demand for downtown and suburban upscale hotels that are near centers of business activity and have easy access to airports. Commercial demand tends to be heavy from Monday through Thursday, congruent with the business hours of local firms, and falls sharply through the weekend. The typical length of stay for commercial guests ranges from one to three days.
- **Tourism and Leisure Travelers** are vacationing or traveling for leisure purposes. Hotels in this market segment often offer a wide range of amenities such as swimming pools, fitness centers, and on-site restaurants. These hotels may be located near popular tourist attractions and offer shuttle services or other transportation options to make it easy for guests to explore the area. The demand from leisure travelers can vary depending on the time of year and the location of the hotel, with some destinations experiencing peak tourist seasons that drive up demand. The leisure market segment tends to book rooms on Friday and Saturday nights. Leisure travelers also book weekday stays during holiday periods when commercial demand is traditionally down. Leisure demand in markets is primarily generated by attractions although events such as college graduation ceremonies or visits among families and friends also generate demand.
- **Institutional Demand Travelers** are traveling to the area to attend conventions, conferences, seminars, trade shows, training, sporting events, or other activities that generally include ten or more people. The type of hotel that this type of traveler would often stay in is a convention style hotel that has a large inventory of rooms and large divisible meeting and banquet facilities, *if it is available*. These hotels are usually located in urban downtowns close to large employment centers and office space. The institutional demand segment often books rooms during the weekday with some city-wide conventions, trade shows, and other events needing weekday and weekend stay.

Lodging Trends in the Kenai Peninsula

Market trends indicate that the hotel market is performing well and has recovered quickly from COVID-19 pandemic. Not only did the Kenai Peninsula hospitality market recover quickly, but it also saw strong growth.

Since 2013 hotel occupancy rates have hovered around 66% which is the natural occupancy rate.²² The Aspen Suites Hotel in Homer, Alaska completed in 2019 is the newest hotel in the Kenai Peninsula adding 72 rooms to the Kenai Peninsula hotel inventory. Lands End Resort in Homer also added 33 new rooms (17,000 sf) in 2019. This increase in supply has since been absorbed into the market.

The COVID-19 pandemic impacted the hospitality market as much as any real estate market sector. In 2020, occupancy rates declined sharply, as did average daily rates due to a declined demand for hotel rooms. However, the hospitality market in the Kenai Peninsula recovered quickly in 2022 with occupancy rates and average daily rates (ADR) surpassing pre-pandemic levels. ADR has increased to a decade-high of \$175 in 2022 Q2, and an occupancy rate of 70%.

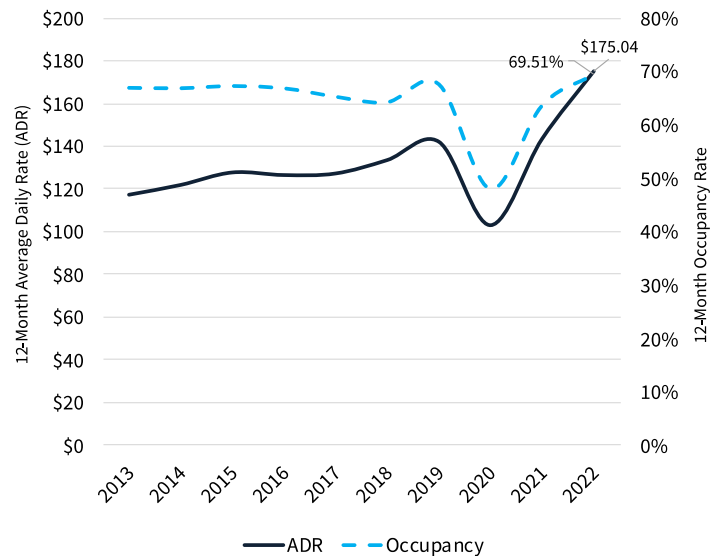
Natural occupancy rates vary by market. The variations are due primarily to climate and the types of visitors who come to the market. For example, places catering mostly to business travelers often have high natural occupancy rates. Places catering to seasonal leisure guests have lower natural occupancy rates.

Hotel occupancy and daily rates decreased in 2020 due to the COVID-19 pandemic. Since then, the hospitality submarket has recently recovered in 2022 Q3 by surpassing 2019 occupancy and daily rates.

In 2019 the ADR in the Kenai Peninsula was \$142, and the occupancy rate was 68%. In 2022 Q3, ADR has increased rapidly to \$175 with an occupancy rate of almost 70%.

Exhibit 22: Hotel Average Daily Rate (12-Month) and Occupancy Rate (12-Month), Kenai Peninsula, 2012-2022

Source: CoStar



²² Using 35 years of annual data, ECONorthwest calculated that the Kenai Peninsula market has a natural occupancy rate of 66.2%. When the market is averaging 66.2% over a year, there is no undue upward or downward pressure on room rates.

Lodging Supply and Demand in Soldotna

The Project Area boasts highway visibility and potential for riverfront views and access that are great physical location qualities to support a hotel in the area. Located near the junction of Sterling Highway and the Kenai Spur Highway, the area is a central location for services and retail hub for travelers between Homer and Anchorage. Located next to the Kenai River Soldotna offers world class fishing activities that is the major tourist attraction to the area. The nearby Kenai National Wild Refuge and other natural environments also boast Soldotna as major attractor for outdoor recreation activities that include wildlife viewing, flightseeing, bear viewing, canoe and hiking trips, bird watching amongst others. Regional amenities such as the Central Peninsula Hospital, Soldotna Regional Sports Complex, future Field House, Kenai Peninsula College, and the Soldotna Creek Park (which holds various events throughout the year) generate regional visitations to Soldotna that helps support a hotel in the area. Other sources of demand may include organization and business travel.

According to the 2016 Alaska Visitor Program, 62% of visitors to Soldotna/Kenai in summer 2016 came for vacation/pleasure, 26% to visit family and friends, and 12% for business/business pleasure. Visitors to the Kenai Peninsula stayed an average of five nights with 57% staying in a hotel/motel or lodge.

The hotel market in Soldotna consists mostly of economy and midscale hotels. Exhibit 23 shows six hotel properties containing 216 rooms that would most likely serve as direct competitors to a new hotel in Soldotna. These hotels currently represent limited-service and midscale hotel properties in Soldotna with 20 or more rooms. Most of these properties are independently operated except for the Best Western King Salmon Inn which is operated by a franchise. These properties are more than 20 years old, with no new hotels proposed or under construction.

Soldotna has a number of short-term rental properties, cabins, and smaller inns/lodges (such as bed and breakfasts) that also provide lodging for visitors. These lodging options are not captured in CoStar data. While they are an important source of lodging for visitors, continued growth in hotel occupancy and room rates indicates that there remains strong demand for more traditional hotel properties.

Exhibit 23: Hotel Properties with 20 or More Rooms in Soldotna

Source: CoStar

*Outside of Soldotna City limits

Name	City	Rooms	Year Built	Meeting Space (SF)
Aspen Hotel Soldotna	Soldotna	63	2002	600
Best Western King Salmon Inn	Soldotna	47	1984	
Alaska Angler's Inn	Soldotna	33	1962	1,000
Soldotna Inn	Soldotna	28	1978	360
Kenai River Lodge	Soldotna	25	1968	
Duck Inn*	Soldotna	20	1985	600

Characteristics of Select Hotel Types

Hotel level of service and class varies broadly by visitor and location characteristics. The table below presents some general guidelines for the type of hotel that is most likely to locate in an area given the target market and location characteristics.

Exhibit 24: Hotel Classes

Source: ECONorthwest Research

Level of Service	Description	Class	Location	Target Market
Boutique	Boutique hotels are generally small and have a strong sense of character and often have unique design features. The unique architecture, décor, size, and style qualities make these hotels stylish, hip, relaxed, and luxury.	Upscale, luxury	Downtown near major attractions/ entertainment uses or in small towns near major entertainment uses	Leisure, business traveler
Full-service	Full-service hotels have a variety of on-site amenities and provide the highest level of amenities, service, room furnishings, public spaces, and technology.	Upscale, upper upscale, luxury	Downtown, suburbs or areas w/concentrations of employment and retail activity.	Leisure, business, convention / meeting travelers
Resort	Resort hotels cater to the vacationer or leisure traveler. The resort usually provides entertainment, recreation, and relaxation amenities for the guest.	Upscale, upper upscale, luxury	Near seashores, mountains, and major attractions.	Leisure / vacation traveler
Extended-Stay (limited service)	This type of hotel has room accommodations and amenities designed like an apartment for long occupancy periods. Rooms are often large with kitchenettes, limited food and beverage options and fitness centers.	Economy, midscale, upper midscale, and upscale	Adjacent or near highways.	Business, leisure traveler
Budget (limited service)	This type of hotel is smaller, provides fewer services, and is less expensive than full-service hotels.	Economy, midscale, and upper midscale	Adjacent or near a highway or airport	Travelers on a budget who are price sensitive

Can the Project Area support a hotel?

Prior to the pandemic, the regional hospitality market exhibited stable market conditions in a growing tourism market that saw \$187 million in direct, out-of-state visitor spending in 2016. Kenai Peninsula tourism has rebounded since the pandemic with visitor counts, hotel occupancy rates, and hotel average daily rates (ADR) surpassing pre-pandemic levels. Soldotna lacks a newer hotel product and does not have any hotels in the development pipeline. **Over the intermediate-term, hospitality could be a viable use in the Project Area** especially if the City promotes its current tourism attractions and/or increases attractions.

Since visitors to Soldotna are coming to access the many recreational opportunities in and around Soldotna, **a highway-oriented hotel would be best suited for the Project Area.**²³ This type of hotel typically tends to be a **limited service, extended-stay hotel** that offers rooms with kitchenettes or full-sized kitchens. This hotel type also offers limited facilities and amenities, often without a full-service restaurant as compared to luxury or upscale hotels. A new limited-service hotel in the area would be the newest limited-service hotel in the Peninsula and the facilities will represent the upper end of the product scale within the Soldotna competitive area.

The City does not have any available full pour liqueur licenses available for restaurants. However, hotels qualify for their own full pour license if they have 15+ rooms which could make hotel with a restaurant more attractive.

²³ A highway-oriented hotel is one that is visible from the highway and is enroute or close to the visitor's final destination. Current visitors to Soldotna are coming to access the many recreational opportunities in and around Soldotna. They are not coming to access Soldotna's downtown. If through this concept planning process, Soldotna created more vibrant downtown with experiential shopping/dining, other types of hotels may be attracted to the area.

Appendix A. Socioeconomic Conditions

Demographic Conditions

Soldotna’s population was 4,444 in 2021, a 6.7% increase from 2010. Over this period, the city grew faster than the State (3.2%) but slower than the Borough (7.9%).

Exhibit 25: Population Growth, Soldotna, Kenai Peninsula Borough, Alaska, 2010-2020

Source: Decennial Census 2010 and Census Annual Estimates for Resident Population 2021

Region	Year		Change, 2010-2020		
	2010	2021	Difference	Percent Change	AAGR
Soldotna	4,163	4,444	281	6.7%	0.6%
Kenai Peninsula	55,400	59,767	4,367	7.9%	0.7%
Alaska	710,231	732,673	22,442	3.2%	0.3%

At the Borough level, population growth is expected to slow after 2020. Overall, the Kenai Peninsula Borough is expected to add 1,218 residents by 2040, at an annual average growth rate of 0.1%.

Exhibit 26: Population Projections, Kenai Peninsula, 2020-2040

Source: Alaska Department of Labor and Workforce Development

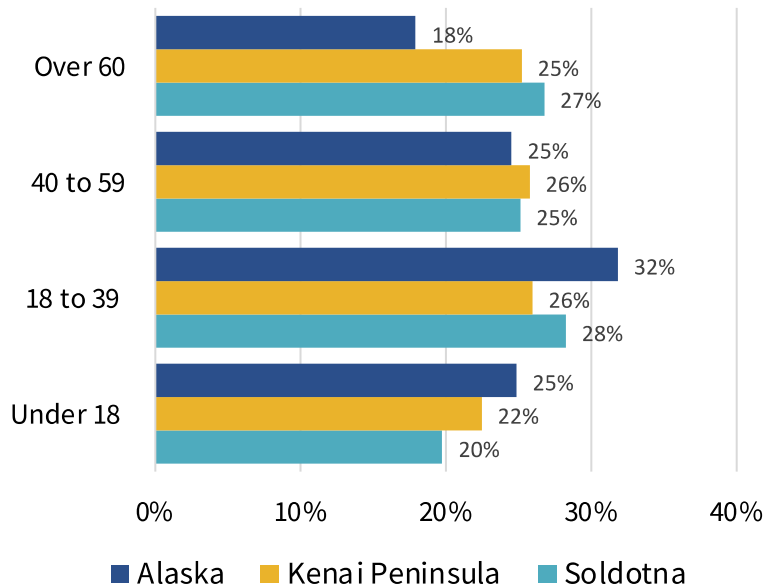
Population	2020	2030	2040	Change, 2020-2040		AAGR
				Number	Percent	
Kenai Peninsula	58,809	59,927	60,027	1,218	2.1%	0.1%

Soldotna residents have a higher median age (43 years) than the Borough (41 years) and Alaska (36 years).

27% of Soldotna residents are aged 60 and above, a higher share than both the Borough and the state. Only 20% of Soldotna residents are under 18, a lower share than the Borough and the state.

Exhibit 27: Population by Age, Soldotna, Kenai Peninsula Borough, Alaska, 2020

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

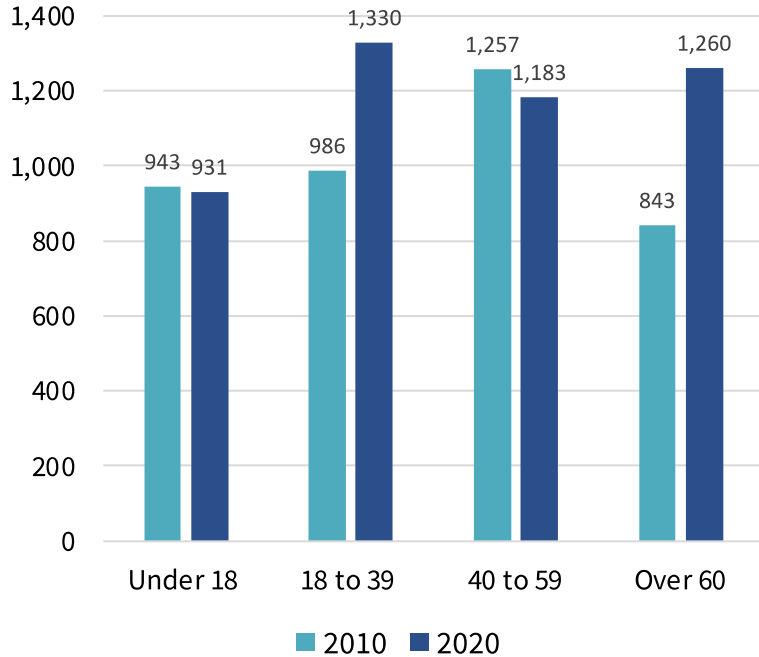


The number of residents aged 60 and over increased by nearly 50% (about 400 people) between 2010 and 2020.

The number of residents aged 18 to 39 years also increased over the period by about 35% (nearly 350 people). Two age groups, residents under 18 and residents aged 40 to 59 years, decreased over the period.

Exhibit 28: Population Growth by Age Group, Soldotna, 2010-2020

Source: American Community Survey 5-year estimates, 2006-2010, 2016-2020

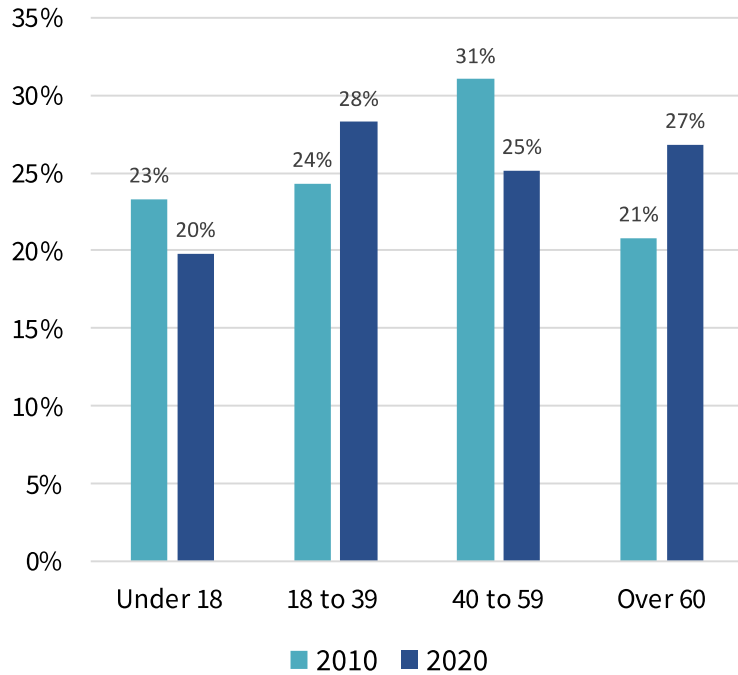


From 2010 to 2020, the share of residents 60 and older increased by 6% and the share of residents 18 to 39 increased by 4%.

Meanwhile portions of population under 20 and between 40 and 59 decreased over the period.

Exhibit 29: Change in Age Group Share, Soldotna, 2010-2020

Source: American Community Survey 5-year estimates, 2006-2010, 2016-2020

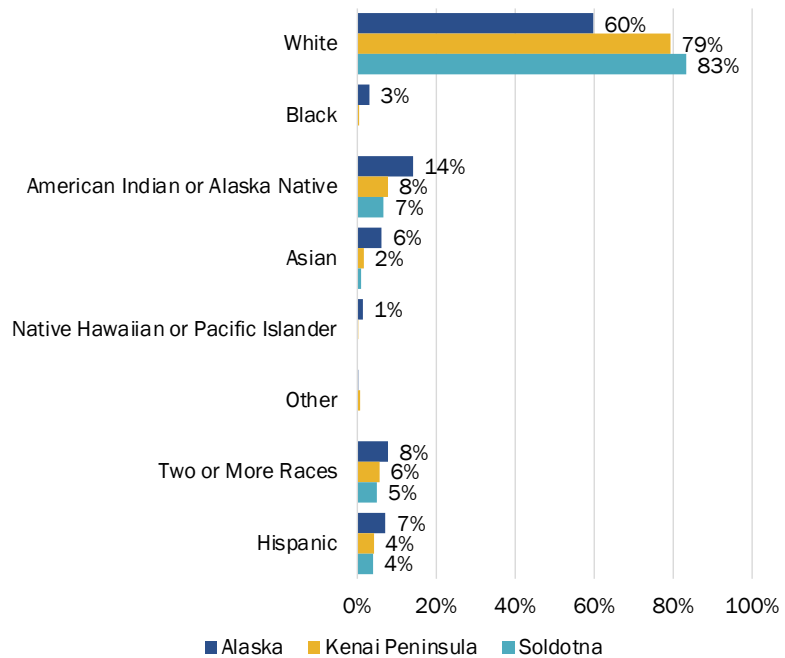


Soldotna has a higher share of White residents (83%) than the Kenai Peninsula Borough (79%) and Alaska as a whole (60%).

The second largest group is American Indian or Alaska Natives (7%). Soldotna has a smaller share of all non-White racial and ethnic groups than the surrounding areas.

Exhibit 30: Population By Race, Soldotna, Kenai Peninsula Borough, Alaska, 2020

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

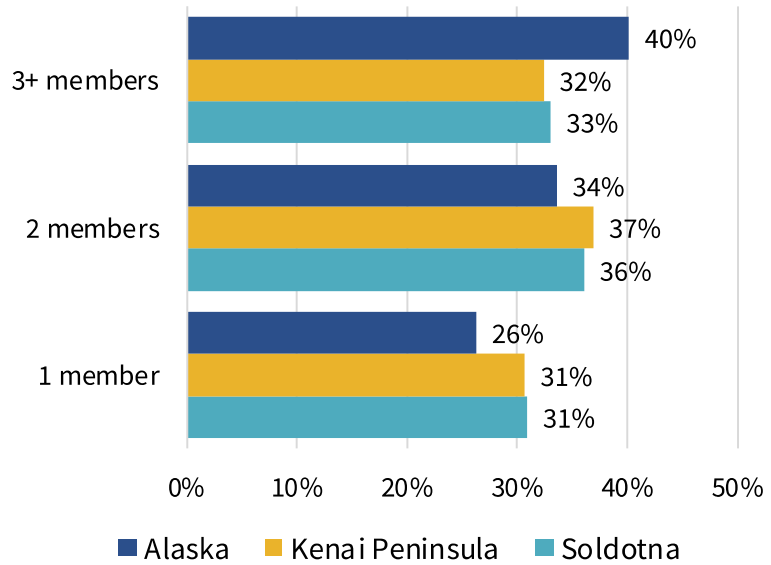


About 67% of Soldotna households have one or two members. This is similar to Kenai Peninsula but a greater share than Alaska overall (60%)

About 33% of households in Soldotna have three or more members.

Exhibit 31: Household Size, Soldotna, Kenai Peninsula, Alaska, 2020

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



Economic Conditions

Soldotna has a lower median household income than both the Borough and the state.

However, median household incomes in Soldotna increased 28%, greater than increases in both the Borough and the state.

Exhibit 32: Median Household Income, Soldotna, Kenai Peninsula Borough, Alaska, 2010-2020 (2020 Inflation Adjusted)

Source: American Community Survey 5-year estimates, 2016-2020

	Median Household Income		Percent Change
	2010	2020	
Soldotna	\$46,500	\$59,700	28%
Kenai Peninsula	\$57,500	\$69,200	20%
Alaska	\$66,500	\$77,800	17%

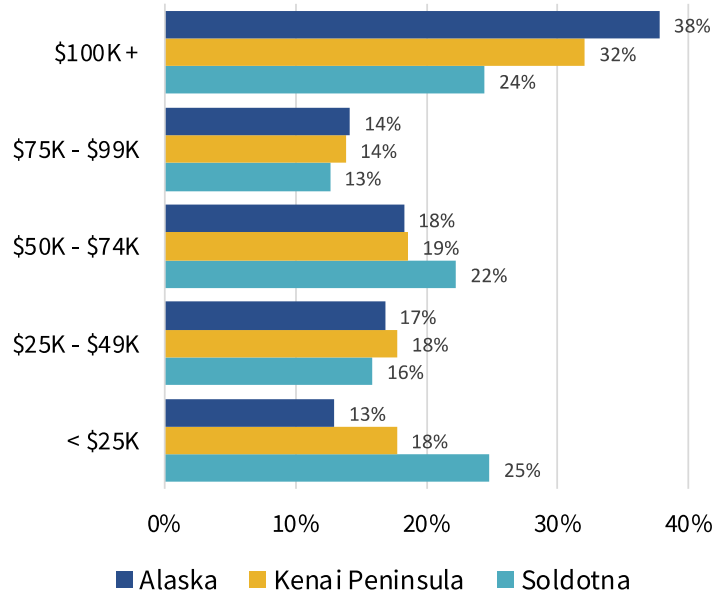
A quarter of Soldotna households have an annual income of less than \$25,000, a higher share than both the Borough and the state overall.

Soldotna also has a lower share of households earning more than \$100,000 per year (24%) than the Borough (32%) and the state overall (38%).

Note: Household income does not account for accumulated wealth. Some lower income households may consist of retirees with accumulated wealth.

Exhibit 33: Household Income Distribution, Soldotna, Kenai Peninsula Borough, Alaska

Source: American Community Survey 5-year estimates, 2016-2020

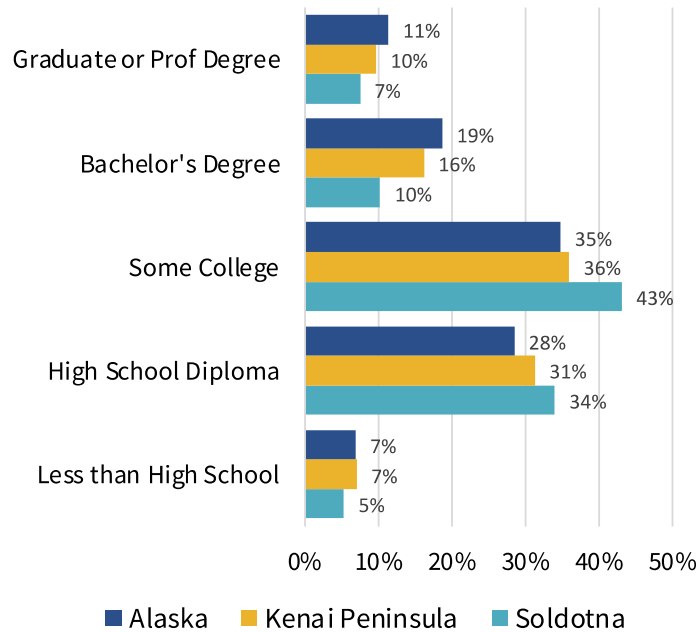


Educational attainment for Soldotna residents is lower than Borough and statewide trends.

Seventeen percent of Soldotna residents have a bachelor's degree or higher, compared to 26% of Borough residents and 30% of Alaska residents.

Exhibit 34: Educational Attainment, Soldotna, Kenai Peninsula Borough, Alaska, 2020

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



Employment

Employment in the Kenai Peninsula Borough grew 4.8% between 2010 and 2021 whereas the State of Alaska declined 4.0%

While the State is still working to recover employment lost during the COVID-19 Pandemic, the Kenai Peninsula Borough's employment has exceeded 2019 numbers.

Exhibit 35: Average Annual Employment, Kenai Peninsula Borough, Alaska, 2010-2021

Source: Alaska Department of Labor and Workforce Development, Revised Annual Employment and Wages, 2010-2021

	Employment		Percent Change
	2010	2021	
Kenai Peninsula Borough	19,126	20,046	4.8%
Alaska	323,410	310,371	-4.0%

Between 2010 and 2021 the Kenai Peninsula added 920 jobs. The greatest increases in terms of total jobs were in professional and business services (282 jobs), accommodation and food service (270 jobs), health care and social assistance (221 jobs), and retail trade (200 jobs). The industries with the greatest job losses were in mining (-367 jobs) and wholesale trade (-60 jobs).

Exhibit 36: Employment by Industry, Kenai Peninsula Borough, 2010-2021

Source: Alaska Department of Labor and Workforce Development, Revised Annual Employment and Wages, 2010-2021

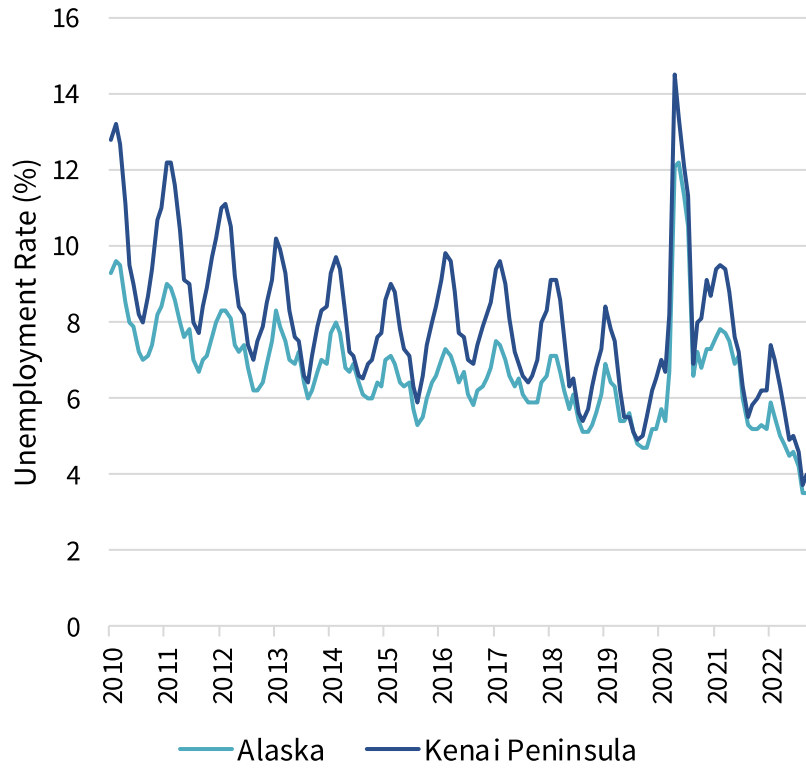
NCAIS Sector	Employment		% Share of Total Employment		Change, 2010-2021	
	2010	2021	2010	2021	Difference	% Change
Government	4,740	4,759	25%	24%	19	0%
Agriculture, Forestry, Fishing, Hunting	48	156	0%	1%	108	225%
Mining	1,087	720	6%	4%	-367	-34%
Construction	926	963	5%	5%	37	4%
Manufacturing	933	1,061	5%	5%	128	14%
Wholesale Trade	282	222	1%	1%	-60	-21%
Retail Trade	2,595	2,795	14%	14%	200	8%
Transportation and Warehousing	815	873	4%	4%	58	7%
Utilities	239	211	1%	1%	-28	-12%
Information	230	226	1%	1%	-4	-2%
Finance and Insurance	292	265	2%	1%	-27	-9%
Real Estate, Rental and Leasing	254	275	1%	1%	21	8%
Professional and Businesses Services	576	858	3%	4%	282	49%
Educational Services	77	135	0%	1%	58	75%
Health Care and Social Assistance	2,934	3,155	15%	16%	221	8%
Arts, Entertainment and Recreation	238	255	1%	1%	17	7%
Accommodation and Food Services	2,029	2,299	11%	11%	270	13%
Other	824	810	4%	4%	-14	-2%
Unclassified	7	8	0%	0%	1	14%
Total	19,126	20,046	100%	100%	920	4.8%

Unemployment rates for the Kenai Peninsula Borough decreased relatively steadily from 2010 to 2022, with a brief spike in 2020 and 2021, due to the COVID-19 pandemic.

Unemployment rates in the Borough tended to be slightly higher than rates for Alaska overall. As of September 2022, the Borough had an unemployment rate of 4%, and the state had an unemployment rate of 3.5%.

Exhibit 37: Unemployment Rate, Kenai Peninsula Borough, Alaska, 2010-2020

Source: Alaska Department of Labor and Workforce Development, Unemployment Rates by Area Not Seasonally Adjusted, 2010-2020



Visitors

Pre-pandemic travel to Alaska was strong growing from 1.77 million out-of-state visitors in 2009-10 to 2.54 million in 2018-19 an increase of 43%.²⁴ While more recent visitor data at the state level is lacking, increases in hotel occupancy in the Kenai Peninsula (Exhibit 22) and increased visitor counts to Soldotna suggest that tourism to the Kenai Peninsula has recovered from the pandemic and is exceeding pre-pandemic levels.

What is Placer.ai data?

Placer.ai is a proprietary artificial intelligence software that estimates foot traffic trends via anonymized cellular location data. To generate their visit estimates, Placer.ai relies upon a dataset of over 30 million unique monthly users. A visit is triggered when a panel cellphone scans for a Bluetooth or WIFI signal two consecutive times in a five- to fifteen-minute period. Several caveats to be mindful of when interpreting Placer.ai's visit estimates are as follows:

- Placer.ai counts only one visit per person per day to a location. If a visitor happens to make multiple visits to the same location, Placer.ai groups them into one daily visit.
- Placer.ai attributes a single visit to a location when the dwell time at that location exceeds seven minutes. This excludes short visits. In the case of this analysis, we use the City of Soldotna as the "location." This means that we may have captured some visitors who were passing through if their cell phone was scanned twice during their time in the City. While imperfect, we used this method since part of the goal for the Riverfront Redevelopment is to capture visitors for "one more hour, one more day."
- Placer.ai, by default, filters out employee counts from visit estimates.
- Placer.ai's mobile device panel is created exclusively from U.S.-based phone applications. It is unlikely that their panel dataset represents international tourists.

²⁴ Alaska Visitor Volume Report for Winter 2018-19 and Summer 2019.

Visitor counts in 2021 and 2022 exceeded pre-pandemic levels.

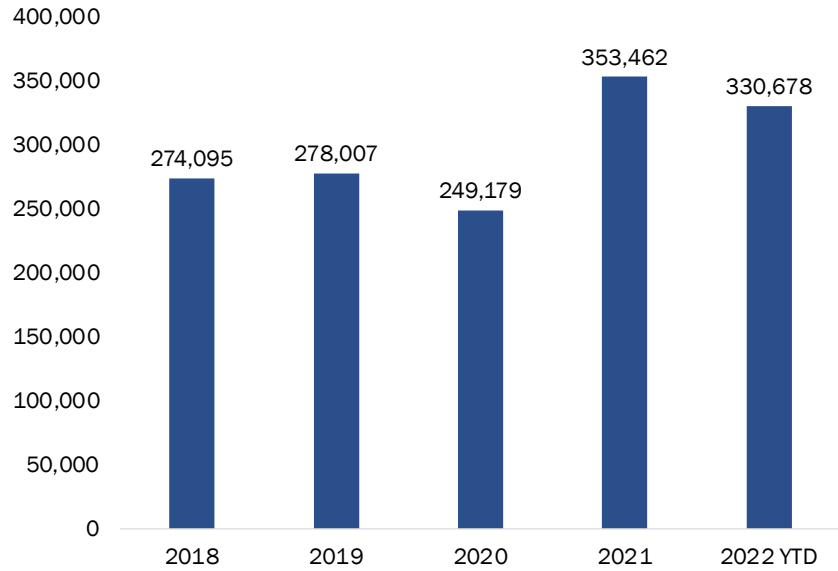
About 330,000 people visited Soldotna between January and November 2022.

Exhibit 38: Total Visitors to Soldotna, 2018 – 2022

Source: Placer.ai

Note: 2022 data available through November 2022

Note: Residents from zip codes 99611, 99669, 99568, 99672, and 99610 were considered locals and not included in visitor analysis. International travelers are not captured in the data.

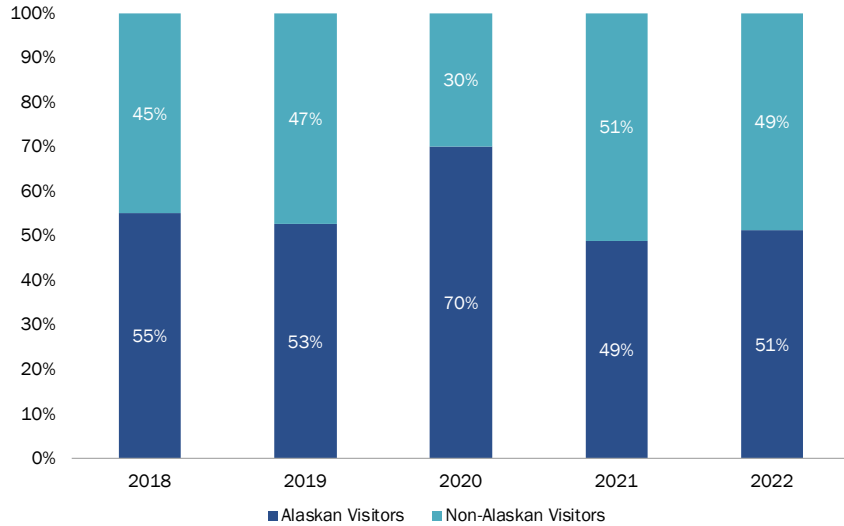


Soldotna attracts visitors from both within Alaska and out-of-state.

In 2022, nearly half (169,667) of all visitors were from other areas of Alaska compared to 161,011 visitors from outside of Alaska.

Exhibit 39: Ratio of Alaskan Visitors to Non-Alaskan Visitors to Soldotna, 2018 – 2022

Source: Placer.ai
 Note: 2022 data available through November 2022
 Note: Residents from zip codes 99611, 99669, 99568, 99672, and 99610 were considered locals and not included in visitor analysis. International travelers are not captured in the data.

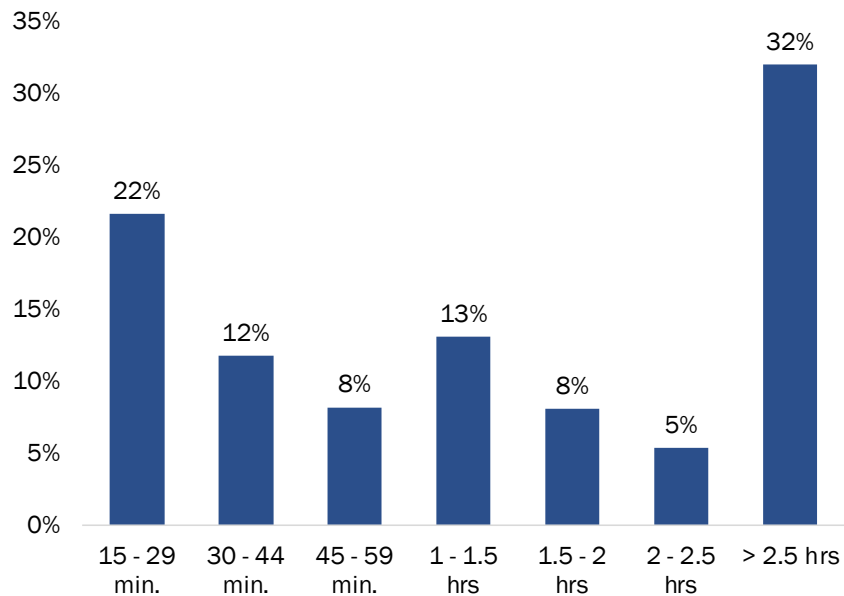


In 2022, there were approximately 6.3 million visits to the City of Soldotna. Nearly a third of these visits to the City of Soldotna lasted greater than 2.5 hours. About a quarter of visits were less than 30 minutes.

People may visit multiple locations within Soldotna during their stay.

Exhibit 40: Soldotna Visits by Length of Stay, 2022

Source: Placer.ai
 Note: 2022 data available through November 2022
 Note: Based on 6,354,621 total visits in 2022. Total visits exclude people who live or work in the City of Soldotna but does not exclude residents from other zip codes as in previous charts. This is due to data limitations. International travelers are not captured in the data.



Alaska Visitor Statistics Program

The Alaska Visitor Statistics Program is a statewide visitor study commissioned by the Alaska Department of Commerce Community, and Economic Development. The last study was completed in 2016. This section includes information on the Southcentral Region and communities including visitor counts, spending, and activities.

Between May and September 2016, about 1.86 million out-of-state visitors came to Alaska spending nearly \$1.97 billion. The Southcentral region was the second most-visited region in Alaska (following the Southeast region) with approximately 975,000 visitors (52% of total visitors to Alaska). This was an increase from 884,000 visitors to the region in summer 2011. Approximately, 44% of all visitors to Alaska (817,000) in summer 2016 stayed overnight in the Southcentral region averaging 6.1 nights in the region. Kenai Peninsula attracted 562,800 visitors with an average of 5 nights spent in the Peninsula.

Travelers to Kenai/Soldotna accounted for about 127,000 day and/or overnight trips in summer 2016, meaning 13% of all Southcentral region visitors spent time in Kenai/Soldotna. Nearly a third of visitors to Soldotna/Kenai reported fishing while in the community followed by wildlife viewing and hiking. Visitors spent an average of \$333 per person while in the community.

Direct travel spending in the Kenai Peninsula was estimated at \$187 million, directly creating 2,500 jobs.

Exhibit 41. Visitor Trends, Kenai Peninsula and Soldotna/Kenai, Summer 2016

Source: Kenai Peninsula Visitor Profile and Economic Impact Analysis Summer 2016 report and Alaska Visitor Statistics Program 7 Summer 2016 prepared by McDowell Group

	Soldotna/Kenai	Kenai Peninsula
Origin (%)		
Vacation/pleasure	62	77
Visiting friends/relatives	26	17
Business or business/pleasure	12	6
Stay Length		
Average # of nights in the region	N/A	5
Lodging Types (%)		
Hotel/motel	N/A	42
Campground/RV		20
Lodge		15
Friends/Family		15
Bed and Breakfast		8
Vacation rental		7
Wilderness camping		3
Other		4
Spending		
Average per person in region/community	N/A	\$333
Spending by Category		
Lodging	N/A	\$78
Tours/activities/entertainment	N/A	\$100
Gifts/souvenirs/clothing	N/A	\$26
Food/beverage	N/A	\$70
Rental cars/fuel/transportation	N/A	\$26
Other	N/A	\$33

Exhibit 42. Visitor Demographics, Kenai Peninsula and Soldotna/Kenai, Summer 2016

Source: Kenai Peninsula Visitor Profile and Economic Impact Analysis Summer 2016 report and Alaska Visitor Statistics Program 7 Summer 2016 prepared by McDowell Group

	Soldotna/Kenai	Kenai Peninsula
Origin (%)		
Western US	48	34
Southern US	16	22
Midwestern US	20	19
Eastern US	8	12
Canada	1	3
Other International	6	10
Other Demographics		
Average Party size	2.6	2.5
Average group size	3.8	4.1
Male/female (%)	59/41	51/49
Average Age	50.6	54
Children in household (%)	28	23
Retired/semi-retired (%)	37	44
College graduate (%)	62	65
Average income	\$112,000	\$113,000

Direct travel spending in the Kenai Peninsula was estimated at **\$187 million** in summer 2016.

Exhibit 43. Total Visitor Spending in Kenai Peninsula Borough, By Sector, Summer 2016

Source: Kenai Peninsula Visitor Profile and Economic Impact Analysis Summer 2016 report and Alaska Visitor Statistics Program 7 Summer 2016 prepared by McDowell Group

\$61m	\$53m	\$44m	\$15m	\$15m
Tours / Activities	Lodging	Food / Beverage	Gifts / Clothing	Transportation

The industry with the most direct employment generated by travel spending in the Kenai Peninsula in 2016 was in tours and activities.

Exhibit 44. Largest Industry Employment Generated by Travel Spending, Kenai Peninsula Borough Summer 2016

Source: Source: Kenai Peninsula Visitor Profile and Economic Impact Analysis Summer 2016 report and Alaska Visitor Statistics Program 7 Summer 2016 prepared by McDowell Group

840 jobs	750 jobs	700 jobs
Tours / Activities	Lodging	Food and beverage

Total direct jobs generated from visitor spending was estimated to be 2,500.

APPENDIX A: PROJECT INITIATION

A.1 Environmental Review

Document: Environmental Review, Soldotna Riverfront Redevelopment, Soldotna, Alaska. Shannon and Wilson, Geotechnical and Environmental Consultants

Description: Environmental review of the River Terrace Site, including summary of the site characterization and remediation activities conducted at the site, and developing recommendations for actions which may be necessary to facilitate site redevelopment.

A.2 Market Analysis

Document: Soldotna AK Market Analysis; ECONorthwest, Economics and Research Consultant

Description: Identifies beneficial uses for the community, focusing on Soldotna in 2022. It explores market conditions, assesses the potential of residential and commercial waterfront uses based on existing demand, and outlines how redevelopment can benefit both Soldotna and Kenai Borough residents.

A.3 Transportation Conditions Assessment

Document: City of Soldotna Riverfront Plan: Existing Traffic and Safety Memo; Kinney Engineering

Description: Assessment of the current transportation network and traffic operations serving the Project area, identifies areas of concern, potential mitigations and opportunities for addressing challenges related to access and movement for traffic modes, including walking, biking and driving.

A.4 Parks and Trails Considerations

Document: Parks and Trails Considerations (Diagram), Greenworks Landscape Architecture

Description: *Project area diagram indicating distinct character areas between Soldotna Creek Park and the bridgehead with considerations for a complete trail, boardwalk and pedestrian network and opportunities for additional park facilities and riverfront overlooks.*

DATE: December 16, 2022

SUBJECT: City of Soldotna Riverfront Plan: Existing Traffic and Safety Memo

Introduction

Figure 1 shows the study area for this Soldotna Riverfront Plan which includes the Sterling Highway from approximately the Kenai Spur Highway intersection to the Kalifornsky Beach Road intersection, all within the City of Soldotna. As a part of the National Highway System, the Sterling Highway is the primary route for freight and other travel from Homer to the Seward Highway. In the study area, the Sterling Highway runs parallel to and less than a quarter mile from the Kenai River and also provides access to a key commercial center for the City of Soldotna.

Table 1 shows key characteristics of the road network in the study area.



Figure 1: Study Area Overview for City of Soldotna Riverfront Plan

City of Soldotna Riverfront Plan: Existing Traffic and Safety Memo

Table 1: Roadway Characteristics in Study Area

Name & Classification	Number of Lanes	Connections	Speed Limit	Pedestrian Amenities	Intersection Control at Sterling Highway
Sterling Highway Principal Arterial (National Highway System)	4 with TWLTL	Seward Highway (~60 miles) City of Homer (~75 miles)	35 mph	Sidewalk with buffer, both sides Bikes use sidewalk or share road	N/A
Kenai Spur Highway Principal Arterial (National Highway System)	4 with TWLTL	City of Kenai (~10 miles) Port of Kenai (~11 miles)	35 mph	Attached sidewalk, both sides Bikes ride on sidewalk or in road	Signal Control
Smith Way Minor Collector	2 undivided	Commercial area	25 mph	Narrow attached sidewalk, one side Bikes ride on sidewalk or in road	Stop Control
Birch Street Local Road	2 undivided	City of Soldotna offices (~0.5 miles)	25 mph	Narrow attached sidewalk, one side Bike lane, both sides	Signal Control (installed 2014)
Birch Place Local Road	2 undivided	Soldotna Creek Park Kenai River boardwalk	unmarked	Path to park, one side	Signal Control
Binkley Street Minor Collector	2 undivided	Peninsula Center Mall Central Peninsula Hospital (~1 mile)	25 mph	Attached sidewalk and bike lane, both sides	Signal Control
Binkley Circle Local Road	2 undivided	Commercial area Kenai River boardwalk	unmarked	Narrow attached sidewalk, one side Bikes ride on sidewalk or in road	Signal Control
Tern Circle Local Road	2 undivided	Soldotna Mall Kenai River	unmarked	None (bike and walk in street)	Stop Control
Warehouse Drive Local Road	2 undivided	Commercial area	unmarked	Narrow attached sidewalk, one side Bikes ride on sidewalk or in road	Stop Control
Kobuk Street Minor Collector	2 undivided	Residential neighborhood grid network	25 mph	Narrow attached sidewalk and bike lane, both sides	Signal Control
Lovers Lane Local Road	2 undivided	Commercial area Kenai River	unmarked	Narrow attached sidewalk, one side Bikes ride on sidewalk or in road	Signal Control
Riverside Drive Local Road	2 undivided	Commercial area	25 mph	None (walk and bike in road)	Stop Control

TWLTL = two-way-left-turn lane

City of Soldotna Riverfront Plan: Existing Traffic and Safety Memo

Name & Classification	Number of Lanes	Connections	Speed Limit	Pedestrian Amenities	Intersection Control at Sterling Highway
Kalifornsky Beach Road Minor Arterial	2 with TWLTL	City of Kenai (~10 miles)	45 mph	Separated pathway, one side	Signal Control
Funny River Road Major Collector	2 undivided	Soldotna Municipal Airport (~2 miles)	45 mph	Shoulders	Signal Control
Wilson Lane Local Road	2 undivided	Commercial area	25 mph	Narrow attached sidewalk, one side Bikes ride on sidewalk or in road	N/A (parallel to Sterling Hwy)

TWLTL = two-way-left-turn lane

Walking

As shown in Table 1, most roads in the study area have sidewalk along at least one side of the road. In addition, 2,300 feet of riverfront boardwalk with 12 sets of river access stairs connect Soldotna Creek Park to Binkley Circle.

The only marked pedestrian crossings of the Sterling Highway in the study area are at the signalized intersections. On average, the crossing locations are about 1/3 of a mile apart; the maximum distance between signed crossings is about 2,150 feet (0.41 miles) from Kobuk Street to Kalifornsky Beach Road and the minimum distance is about 1,200 feet (0.23 miles) from Birch Street to Binkley Street.

Bicycling

The Unity Trail is a paved path forming a loop that connects the City of Soldotna with the City of Kenai. It uses the paved, separated paths along Kalifornsky Beach Road and Kenai Spur Highway as the connections from the study area to the City of Kenai. Within Soldotna, the trail is not marked, and bicyclists often travel between Kalifornsky Beach Road and Kenai Spur Highway on the local neighborhood roads. A map produced by the City of Soldotna (see Appendix) shows the trail along Riverside Drive to Kobuk Street, north to Knight Drive, and then east along Knight Drive to Kenai Spur Highway.

The Soldotna Travel Guide includes a Soldotna Trails and Recreation Map (see Appendix) that identifies Birch Street, Binkley Avenue, and Riverside Drive to Kobuk Street as “Bikeable Roadways.”

There are also recreational biking trails in Centennial Park that connect to the Sterling Highway near the Soldotna Visitor Center, between the Kenai River and Kalifornsky Beach Road.

BIK&S is a bicycling advocacy group for the Kenai and Soldotna area. According to a June 22, 2022 [news article](#) on the KDLL website, they submitted an application to the League of American Bicyclists for Soldotna to be designated a bicycle friendly community. The city has been given a bronze designation. Now the group is working to make improvements that were recommended by the League of American Bicyclists, including providing bicycle racks to local businesses.

Public Transportation

The Central Area Rural Transit System provides public transportation on a demand-response basis in Kasilof, Kenai, Soldotna, Sterling, and Nikiski. Rides are open to everyone and must be scheduled by close of business the day before the ride is needed.

The Alaska Bus Company provides bus service for longer distance travel between Anchorage and Homer, including a stop in Soldotna near the intersection of Sterling Highway and Kenai Spur Highway.

Parking

Soldotna’s zoning code is found in Title 17 of the Soldotna, Alaska Municipal Code, including off-street parking and loading standards. The land uses on either side of the Sterling Highway in the study area are all commercial district except for the Soldotna Creek Park and a small area zoned as institutional district. The zoning code includes a minimum number of required parking spaces for 25 different uses and authorizes the Administrative Officer to determine a standard for uses not included in the code. The code also allows the Zoning Commission to require recreational vehicle parking spaces in some locations.

Parking has come up as an important consideration for the study area during the study team’s interviews with area stakeholders in September 2022. Events at Soldotna Creek Park generate a demand for parking that exceeds the available parking at the Park. To accommodate the parking demand, the city has identified parking locations where there are either city owned lots or where business owners are willing to allow parking in their lots during events, and these sites are identified in the Downtown Soldotna Parking Map (see Appendix).

Traffic Operations

Traffic volumes on the Sterling Highway are extremely seasonal. Typical daily traffic volumes in the study area are almost twice as high in July as compared to December. In terms of weekly traffic patterns, the summer traffic follows recreational weekly patterns (highest volumes Friday thru Sunday), while winter traffic follows a more commute-oriented pattern with peak volumes during the week and the lowest volumes on Saturday and Sunday.

For most of the year, traffic flow in the study corridor is at a good level of service (LOS C), with minimal delay at the signals and sufficient opportunities to turn on and off the highway at driveways and side streets between signals. During the summer (end of June through beginning of August), Friday traffic volumes increase to the point that there is some noticeable delay at the signals. During the last two weeks of July, traffic volumes increase to the point that there is significant delay from Thursday through Monday and noticeable delay every day.

Crash Experience

Alaska Department of Transportation and Public Facilities (DOT&PF) provided a database with 6 years of crash data (2015 to 2020) for the study area, a total of 222 crashes. The database was reviewed to identify crash type, severity, contributing factors, and to assign each to a segment or intersection in the study area.

Crash Rates by Segment and Intersection

Crash rates were calculated for each segment and intersection based on the number of crashes over the 6-year study period and the associated average annual daily traffic (AADT). Table 2 compares the calculated crash rates to the average statewide crash rate for similar locations. Where the rates for a segment or intersection are above the statewide average, a statistical comparison was used to determine if the rate is statistically above average, which would indicate a location of concern.

Based on this analysis, the segment between Birch Street and Binkley Street is identified as a location of concern, and the segments from Binkley Street to Kalifornsky Beach Road may also benefit from closer consideration.

Table 2: Crash Rates for Intersections and Segments (2015 to 2020)

	Segment Length (miles)	Crash Frequency (2015 to 2020)	Crash Rate (crashes/MEV or MVM)	Statewide Average Rate (crashes/MEV or MVM)	Statistical Comparison
Kenai Spur Highway Intersection		55	1.26	1.57	Below average
Segment Kenai Spur Highway to Birch Street	0.33	10	0.99	1.30	Below average
Birch Street Intersection		16	0.44	1.57	Below average
Segment Birch Street to Binkley Street	0.23	20	2.04	1.30	Above average
Binkley Street Intersection		33	0.71	1.57	Below average
Segment Binkley Street to Kobuk Street	0.31	19	1.56	1.30	Same as average
Kobuk Street Intersection		23	0.55	1.57	Below average
Segment Kobuk Street to Kalifornsky Beach Road	0.41	25	1.66	1.30	Same as average
Kalifornsky Beach Road Intersection		21	0.50	1.57	Below average
TOTAL		222			

The information in this document is compiled for highway safety planning purposes. Federal law prohibits its discovery or admissibility in litigation against state, tribal or local government that involves a location or locations mentioned in the crash data. 23 U.S.C. § 407; 23 U.S.C. § 148(h)(4); Walden v. DOT, 27 P.3d 297, 304-305 (Alaska 2001). This compilation is derived from reports maintained by the DMV, and the DOT can make no representation about their accuracy.

Vulnerable User Crashes

Three vulnerable user types were identified as involved in crashes in the study area: pedestrians, bicyclists, and motorcyclists. There were a total of 6 vulnerable user crashes in the study area from 2015 through 2020:

- 1 bicycle crash occurred on September 7, 2015, in the segment between Birch Street and Binkley Street when a vehicle driver failed to yield to a bicyclist at a driveway for the Peninsula Center Mall. The bicyclist sustained minor injuries.
- 1 pedestrian crash occurred at the Binkley Street intersection on October 5, 2016, when a vehicle struck a pedestrian. The pedestrian sustained serious injuries.
- 1 bicycle crash occurred on June 20, 2018, at Riverside Drive when a vehicle driver turning right struck a bicyclist. The bicyclist sustained minor injuries.
- 1 motorcycle crash occurred on April 8, 2017, near Riverside Drive when a motorcycle fell on its side, resulting in minor injuries to the driver.
- 1 pedestrian crash occurred on February 19, 2020, at the Kalifornsky Beach Road intersection when a vehicle in the channelized right turn lane from the Sterling Highway to Kalifornsky Beach Road struck a pedestrian, resulting in minor injuries to the pedestrian. The crash occurred at dusk when snow was falling, and the road conditions were icy.
- 1 motorcycle crash occurred on June 5, 2018, at the Kalifornsky Beach Road intersection when a motorcyclist turning left from the Sterling Highway onto Kalifornsky Beach Road failed to yield to an oncoming car continuing straight on the Sterling Highway. The crash resulted in property damages only.

Crash Severity

Table 3 shows the severity of the crashes at each of the study locations. Only two crashes resulted in serious injury: the pedestrian crash at the Binkley Street intersection described in the previous section and a crash that occurred on March 31, 2020, when a vehicle turning left from the Sterling Highway onto Kalifornsky Beach Road failed to yield to an oncoming car continuing straight on the Sterling Highway.

Table 3: Crash Severity for Intersections and Segments (2015 to 2020)

	Property Damage Only	Minor Injury	Serious Injury	Unknown
Kenai Spur Highway Intersection	43	11		1
Segment Kenai Spur Highway to Birch Street	8	2		
Birch Street Intersection	9	7		
Segment Birch Street to Binkley Street	15	5		
Binkley Street Intersection	28	4	1	
Segment Binkley Street to Kobuk Street	16	3		
Kobuk Street Intersection	17	6		
Segment Kobuk Street to Kalifornsky Beach Road	17	8		
Kalifornsky Beach Road Intersection	15	5	1	
TOTAL	168	51	2	1

Crash Types

Table 4 shows the types of crashes for the study area, separated by crashes that occurred at signalized intersections and those that occurred in the segments between the signalized intersections. Rear end and sideswipe crashes, right angle crashes, and left turn crashes are the most common of the crash types. The number of right angle crashes occurring at locations that are not signalized is a concern. Right angle crashes most often

happen when vehicles entering the main road from a side street or driveway conflict with vehicles traveling straight on the main road.

Table 4: Crash Types (2015 to 2020)

Crash Type	Signalized Intersections	Other Locations	Total
Rear End & Sideswipe	93	20	113
Right Angle	24	23	47
Left Turn	13	7	20
Head-On	3	5	8
Single Vehicle Run-Off-Road	0	8	8
Backing	6	2	8
Other	3	4	7
Animal-Vehicle	3	2	5
U-Turn	1	1	2
Bicycle	0	2	2
Pedestrian	2	0	2
<i>Total</i>	<i>148</i>	<i>74</i>	<i>222</i>

Crashes by Time of Year

Figure 1 shows how the number of crashes in the study area changes by month throughout the year, as well as how the average daily traffic volumes change by month throughout the year. There is a clear correlation between the number of crashes and the traffic volumes, especially at the intersections. There is also an increase in the number of crashes from November through February, which corresponds to time periods during which darkness, as well as icy or snowy conditions, may be of concern.

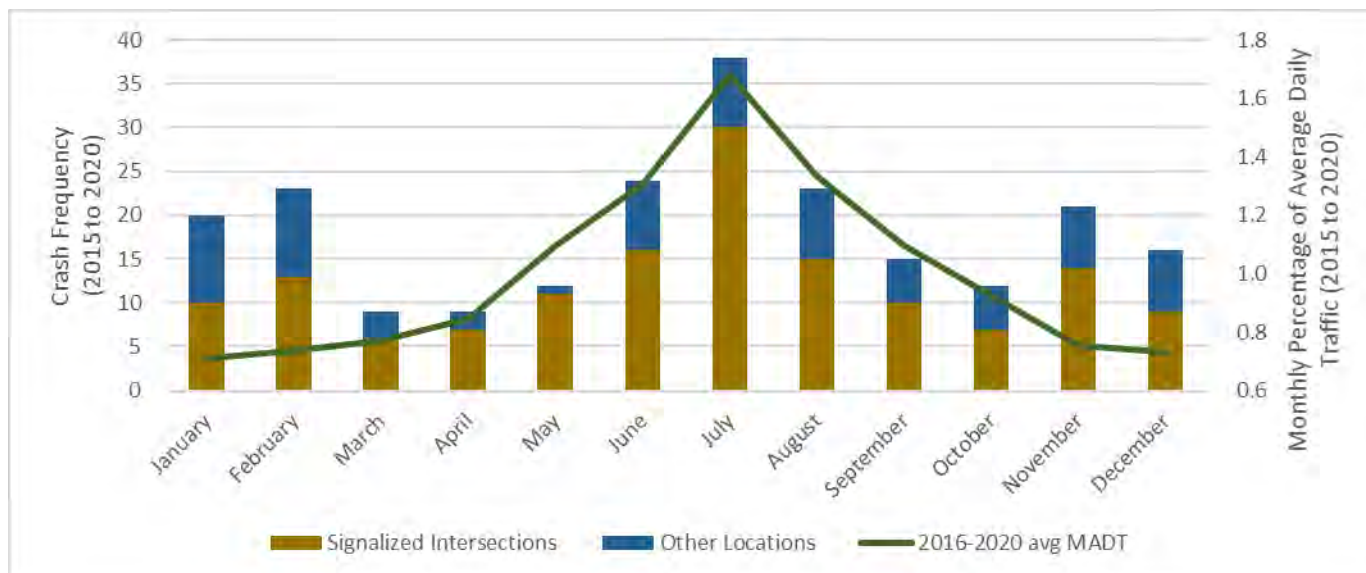


Figure 2: Crash Frequency and Percentage of Average Traffic Volumes by Month

Areas of Concern, Potential Mitigations, and Opportunities

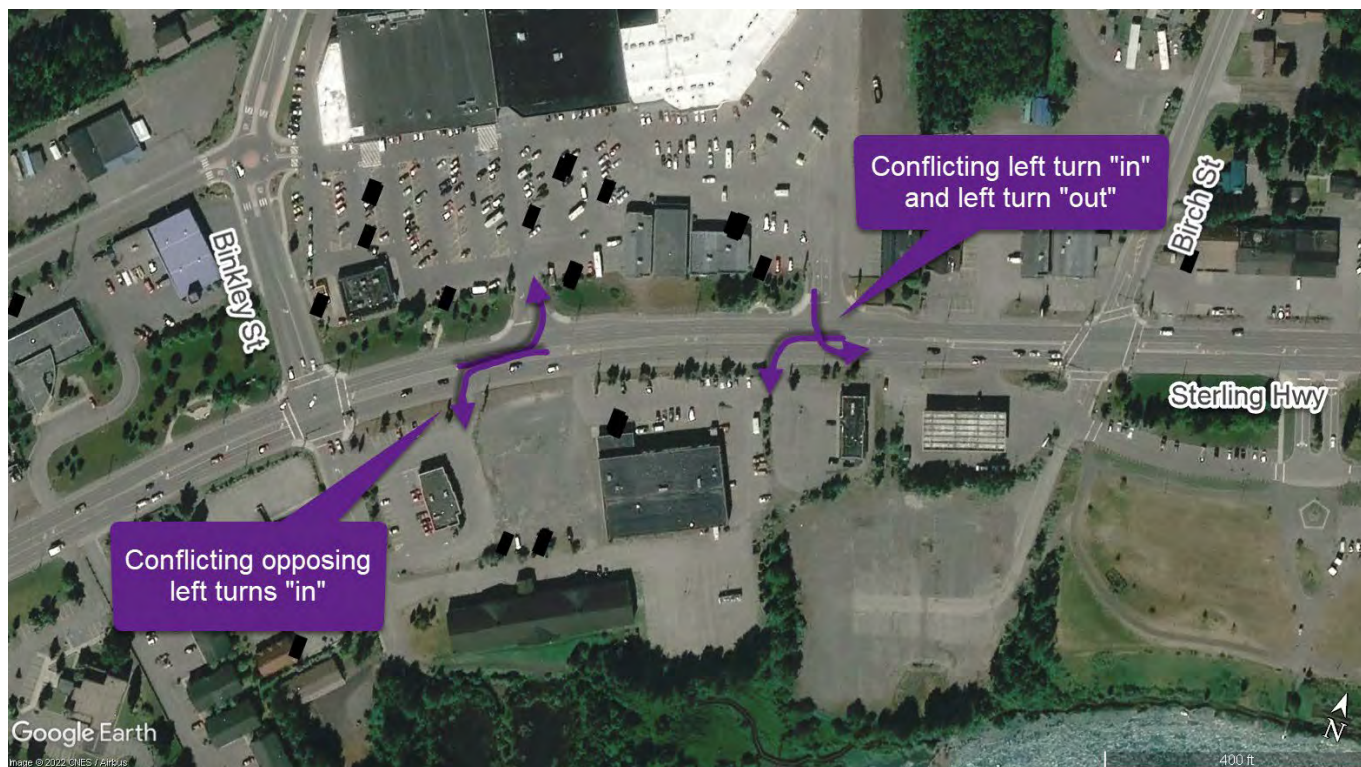
Crash Concerns

In general, there are more crashes between the signalized intersections in the study area than would be expected based on similar locations throughout the state. Looking at the types of crashes in the segments between the signals, both right angle crashes and left turn crashes are higher than would be expected. These types of crashes happen when vehicles are turning onto or off of the main road to/from the driveways and side streets. Typical causes of this kind of crashes include:

- Drivers can't see oncoming traffic due to an obstruction (a sign or shrubbery, for example) in their sight lines
- Drivers can't see oncoming traffic because vehicles in a turn lane or in an oncoming lane block the sight lines
- Traffic volumes are high enough that turning drivers become anxious about the delay they are experiencing and make their turn in too short of a gap, forcing oncoming traffic to brake

The number and spacing of access points has been shown to have an effect on safety. In this case, the close spacing of access connections on the opposite sides of the Sterling Highway appears to be contributing to the observed crash patterns. Figure 2 shows two types of conflicting left turn maneuvers that may be occurring between Binkley Street and Birch Street and may contribute to the frequency of crashes for this area.

The frequency of crashes related to access could be reduced by eliminating or relocating driveways (for example, establishing joint access agreements where two parcels share the same driveway but in a more optimal location) or restricting movements into or out of a driveway or side street (such as by building a median). Another option could be building a "backage road" that runs parallel to the main highway and provides access to the businesses on the main highway.



Source: Google Earth

Figure 3: Conflicting Movements for Access Points on Sterling Highway

The Transportation Research Board (TRB) *Access Management Manual, 2nd edition* provides guidance on when a two-way-left-turn lane (TWLTL) should be converted to a non-traversable median based on daily traffic volumes. The guidance says that safety and operations will both benefit when a non-traversable median is used to divide a highway that is carrying more than 24,000 to 28,000 vehicles per day (vpd). In the study area, volumes are typically above 24,000 vpd in June, July, and August.

Walking and Biking Improvement Opportunities

While there have not been many crashes involving people walking or biking in the study area, there are some challenges to each. In terms of walking or biking parallel to the Sterling Highway, in the existing condition people walking and biking must share the 6-foot wide sidewalk on either side of the roadway that is separated from the travel lanes by a 2-foot wide buffer. While the adjacent speeds aren't very high (35 mph speed limit), the traffic volumes are above 15,000 vpd all year round, which can make for an uncomfortable walking or biking trip.

Potential improvements to walking and biking parallel to the Sterling Highway include:

- Build a 10-foot wide separated path along the highway. A wider, separated path would separate people walking and biking from the heavy traffic and allow both bicyclists and pedestrians to better share the space. This could potentially be constructed within the wide DOT&PF right-of-way on the north side of the highway.
- Construct alternate routes offset from the main highway.
 - Wilson Lane runs parallel to the Sterling Highway on the north side between Binkley Street and Kobuk Street, less than a tenth of a mile from the main highway. Because Wilson is low-speed and low-volume, many bicyclists would be comfortable sharing the roadway with the vehicle traffic. If there were also a sidewalk, pedestrians would also find this route more comfortable than walking along Sterling Highway. Ideally, an alternate route of this type would extend the entire length of the study corridor.
 - There is a boardwalk that stretches along the river from Soldotna Creek at Soldotna Creek Park to Binkley Circle near the Aspen Hotel. This facility allows pedestrians to enjoy a natural setting while walking parallel to the Sterling Highway but is not designed for bicycle use. Extending the boardwalk and providing convenient access points to the nearby land uses would improve the usefulness of this facility as a walking route.

For people walking and biking, crossing the Sterling Highway is accomplished at the signalized intersections. According to the *Alaska Traffic Manual* (the Alaska supplement to the federal *Manual on Uniform Traffic Control Devices*), marked crossings of the Sterling Highway at other locations are inappropriate due to the high volume of traffic (> 15,000 vpd). Moreover, the spacing between the signals accommodates pedestrians fairly well, with most destinations within ¼ mile of a traffic signal.

- Installation of a pedestrian hybrid beacon (a traffic signal to control a pedestrian crosswalk) could be considered if there is a crossing location with a high pedestrian demand (more than 20 pedestrians per hour) that is farther than ¼ mile from a traffic signal.
- The design of new development in the study area should direct non-motorized users to the existing signal locations, to encourage crossing at the existing signal locations.

For people walking and biking to the study area from other areas of Soldotna, most of the connecting roads (Birch Street, Binkley Street, and Kobuk Street) have bike lanes and narrow sidewalks on at least one side of the road. These types of facilities (attached sidewalk and bike lane) meet guidelines for the speed (25 mph) and volume of traffic (3,000 to 6,000 vpd) but are too narrow to allow comfortable walking or biking in groups of two or more.

Parking Needs


While the Riverfront Redevelopment is envisioned to be walkable and bikeable, not everyone will be able to reach the area on foot or by bike. As such, people will need to be able to arrive in the area by car and park, in order to access the walkable area. To attract tourists passing through Soldotna, consideration should also be given to providing parking for RVs and trucks pulling trailers.

Appendix

1. Unity Trail Map
2. Soldotna Trails & Recreation Map
3. Downtown Soldotna Parking Map



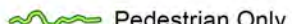
Kenai and Soldotna Unity Trail Map

 Unity Trail


Other Trails


 Unpaved

 Paved

 Pedestrian Only

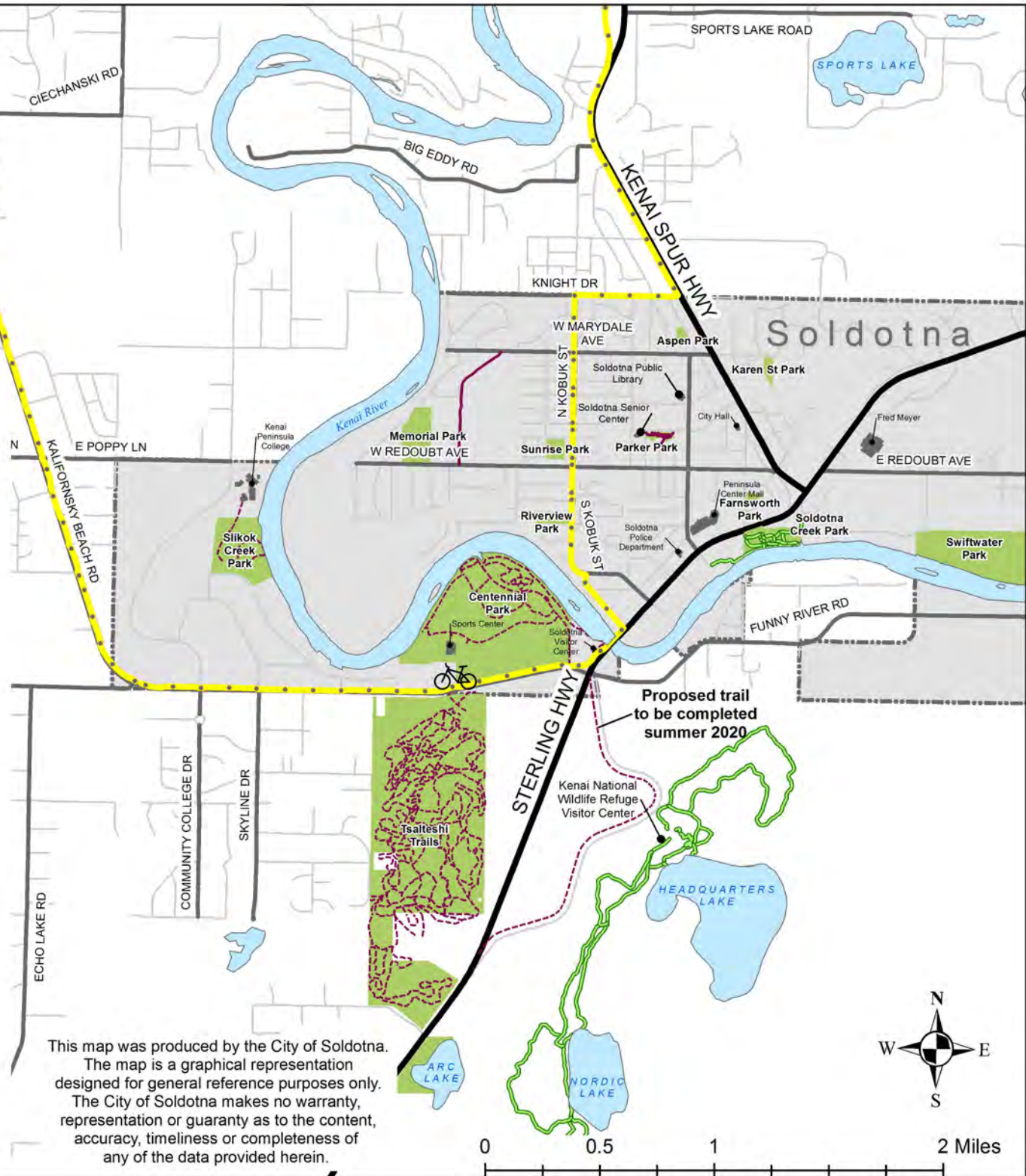
 Bike Maintenance Station

 City Parks

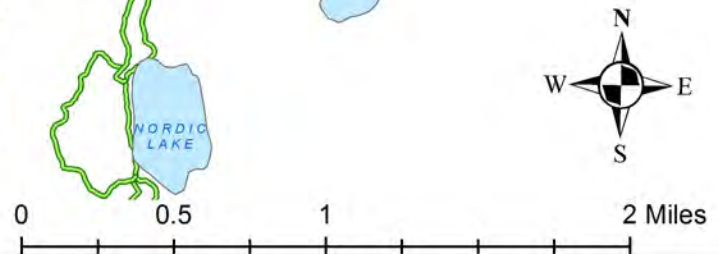
 City Limits



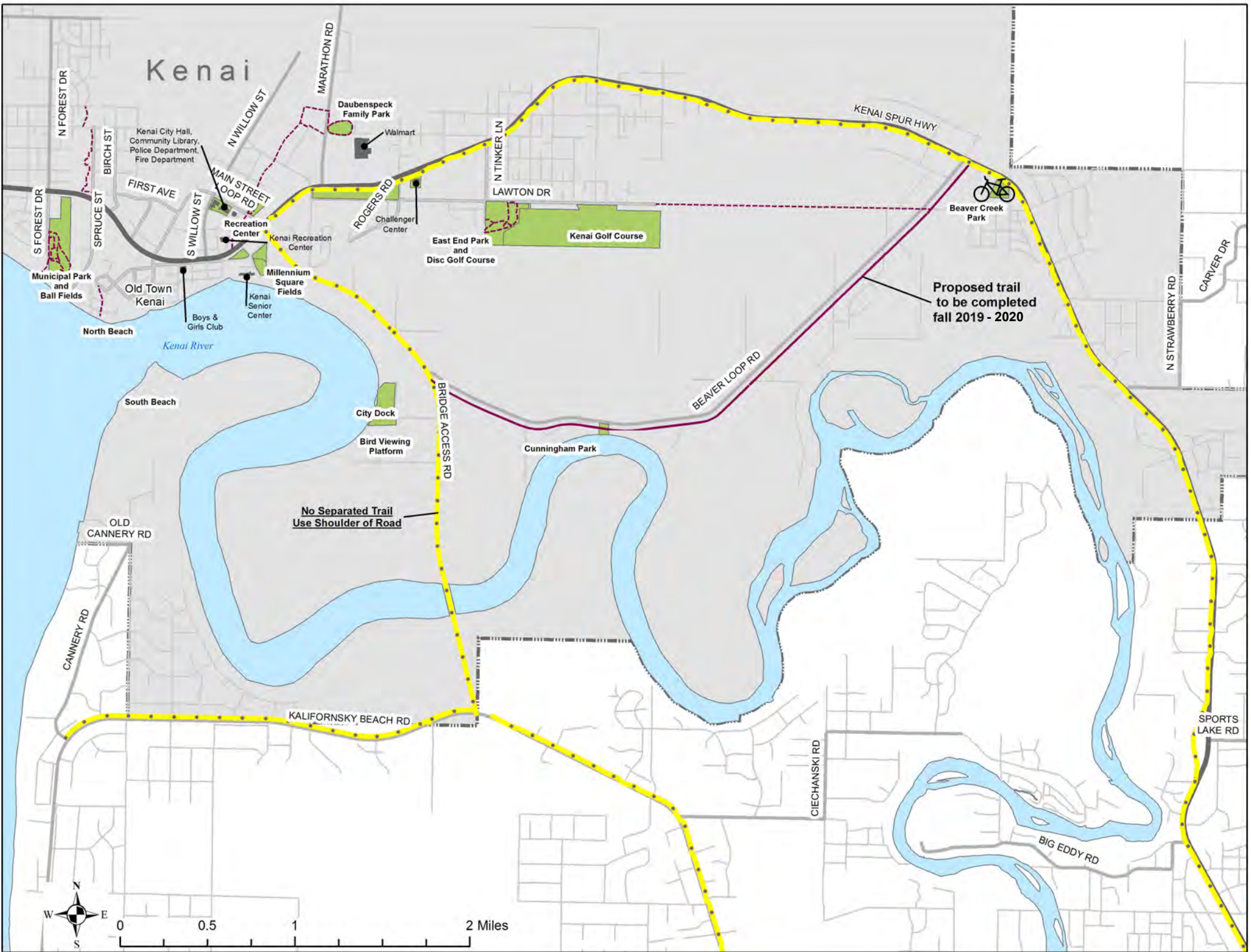
SOLDOTNA



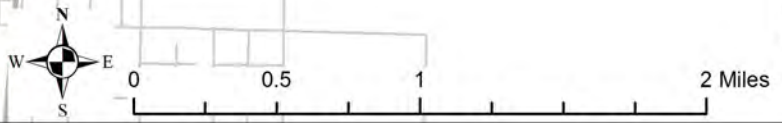
This map was produced by the City of Soldotna. The map is a graphical representation designed for general reference purposes only. The City of Soldotna makes no warranty, representation or guaranty as to the content, accuracy, timeliness or completeness of any of the data provided herein.



Kenai

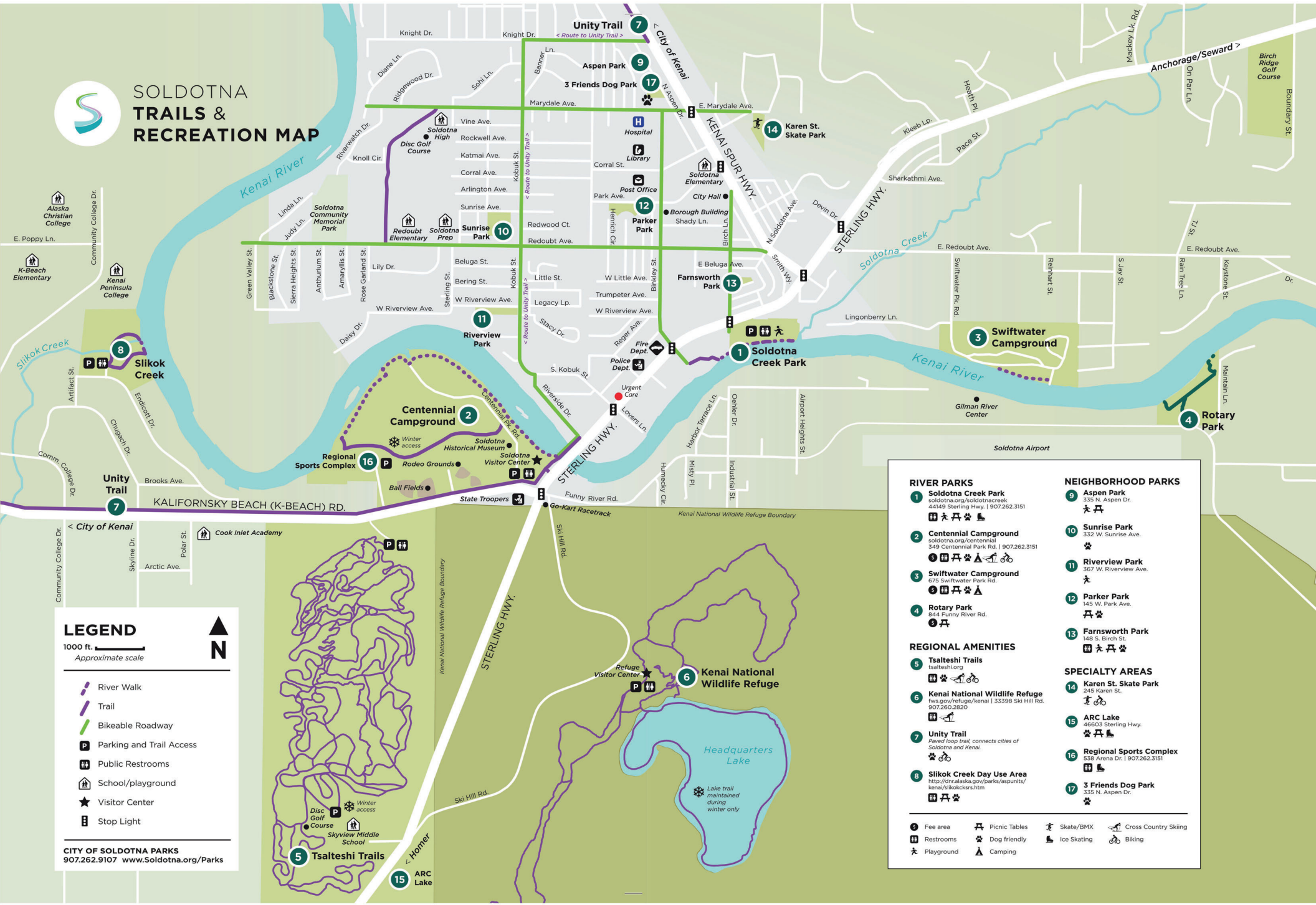


**No Separated Trail
Use Shoulder of Road**





SOLDOTNA TRAILS & RECREATION MAP



LEGEND

1000 ft. Approximate scale



- River Walk
- Trail
- Bikeable Roadway
- Parking and Trail Access
- Public Restrooms
- School/playground
- Visitor Center
- Stop Light

CITY OF SOLDOTNA PARKS
907.262.9107 www.Soldotna.org/Parks

RIVER PARKS

- 1 Soldotna Creek Park**
soldotna.org/soldotnacreek
44149 Sterling Hwy. | 907.262.3151
- 2 Centennial Campground**
soldotna.org/centennial
349 Centennial Park Rd. | 907.262.3151
- 3 Swiftwater Campground**
675 Swiftwater Park Rd.
- 4 Rotary Park**
844 Funny River Rd.

REGIONAL AMENITIES

- 5 Tsalteshi Trails**
tsalteshi.org
- 6 Kenai National Wildlife Refuge**
fws.gov/refuge/kenai | 33398 Ski Hill Rd.
907.260.2820
- 7 Unity Trail**
Paved loop trail, connects cities of Soldotna and Kenai.
- 8 Slikok Creek Day Use Area**
<http://dnr.alaska.gov/parks/aspunits/kenai/slikokckcrs.htm>

NEIGHBORHOOD PARKS

- 9 Aspen Park**
335 N. Aspen Dr.
- 10 Sunrise Park**
332 W. Sunrise Ave.
- 11 Riverview Park**
367 W. Riverview Ave.
- 12 Parker Park**
145 W. Park Ave.
- 13 Farnsworth Park**
148 S. Birch St.
- 14 Karen St. Skate Park**
245 Karen St.
- 15 ARC Lake**
46603 Sterling Hwy.
- 16 Regional Sports Complex**
538 Arena Dr. | 907.262.3151
- 17 3 Friends Dog Park**
335 N. Aspen Dr.

SPECIALTY AREAS

- Fee area
- Restrooms
- Playground
- Picnic Tables
- Dog Friendly
- Camping
- Skate/BMX
- Ice Skating
- Cross Country Skiing
- Biking

Event Parking Legend



Public parking is permitted in areas that are shaded blue



DOWNTOWN SOLDOTNA PARKING MAP

Soldotna Creek Park
44149 Sterling Highway
Soldotna, AK 99669

Farnsworth Park
148 S Birch Lane
Soldotna, AK 99669



APPENDIX A: PROJECT INITIATION

A.1 Environmental Review

Document: Environmental Review, Soldotna Riverfront Redevelopment, Soldotna, Alaska. Shannon and Wilson, Geotechnical and Environmental Consultants

Description: Environmental review of the River Terrace Site, including summary of the site characterization and remediation activities conducted at the site, and developing recommendations for actions which may be necessary to facilitate site redevelopment.

A.2 Market Analysis

Document: Soldotna AK Market Analysis; ECONorthwest, Economics and Research Consultant

Description: Identifies beneficial uses for the community, focusing on Soldotna in 2022. It explores market conditions, assesses the potential of residential and commercial waterfront uses based on existing demand, and outlines how redevelopment can benefit both Soldotna and Kenai Borough residents.

A.3 Transportation Conditions Assessment

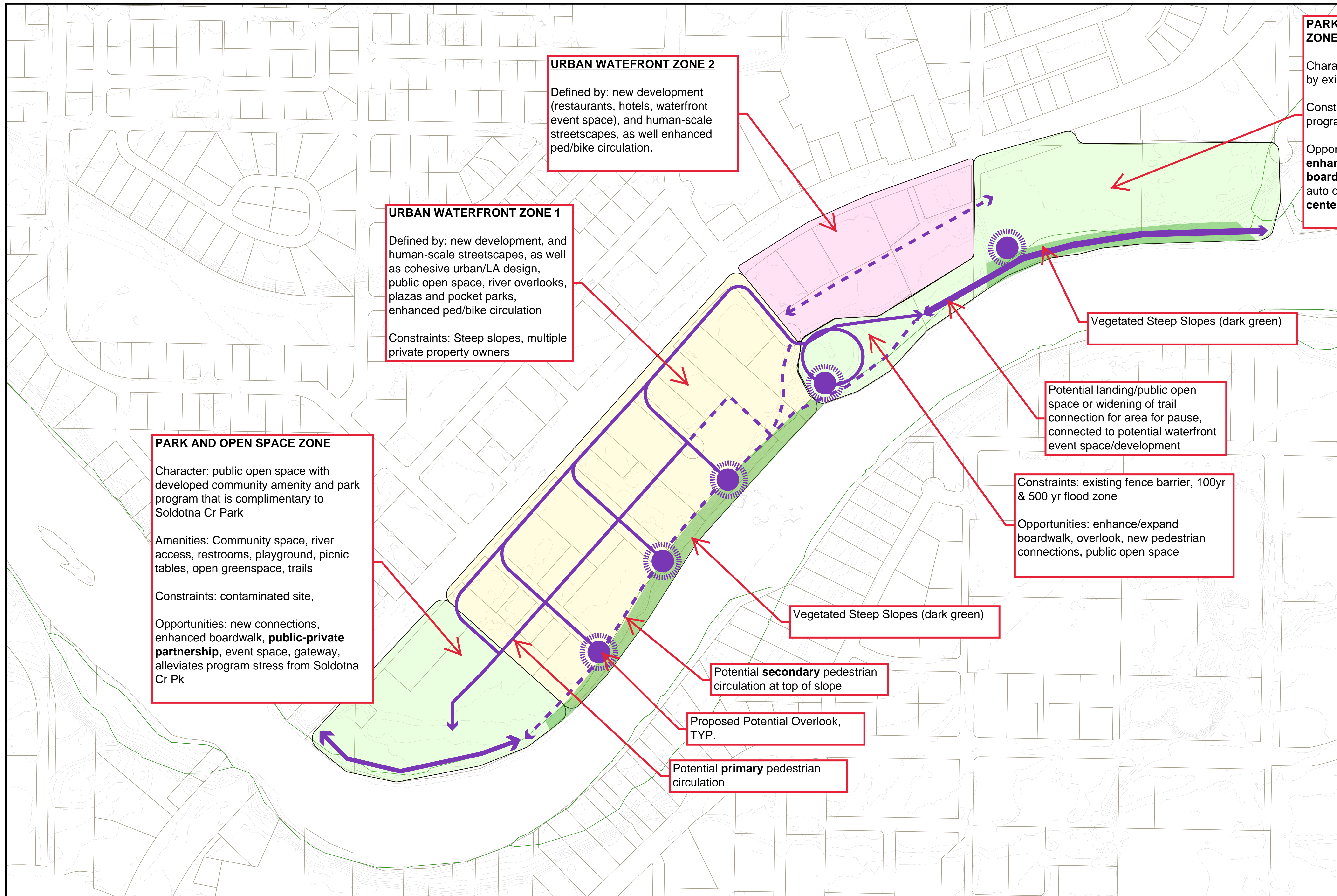
Document: City of Soldotna Riverfront Plan: Existing Traffic and Safety Memo; Kinney Engineering

Description: Assessment of the current transportation network and traffic operations serving the Project area, identifies areas of concern, potential mitigations and opportunities for addressing challenges related to access and movement for traffic modes, including walking, biking and driving.

A.4 Parks and Trails Considerations

Document: Parks and Trails Considerations (Diagram), Greenworks Landscape Architecture

Description: Project area diagram indicating distinct character areas between Soldotna Creek Park and the bridgehead with considerations for a complete trail, boardwalk and pedestrian network and opportunities for additional park facilities and riverfront overlooks.



URBAN WATERFRONT ZONE 2
 Defined by: new development (restaurants, hotels, waterfront event space), and human-scale streetscapes, as well enhanced ped/bike circulation.

URBAN WATERFRONT ZONE 1
 Defined by: new development, and human-scale streetscapes, as well as cohesive urban/LA design, public open space, river overlooks, plazas and pocket parks, enhanced ped/bike circulation
 Constraints: Steep slopes, multiple private property owners

PARK AND OPEN SPACE ZONE
 Character: public open space with developed community amenity and park program that is complimentary to Soldotna Cr Park
 Amenities: Community space, river access, restrooms, playground, picnic tables, open greenspace, trails
 Constraints: contaminated site,
 Opportunities: new connections, enhanced boardwalk, **public-private partnership**, event space, gateway, alleviates program stress from Soldotna Cr Pk

PARK AND OPEN SPACE ZONE
 Character and program defined by existing Soldotna Cr Park
 Constraints: steep slopes, over-programmed,
 Opportunities: new connections, **enhanced expanded/widened boardwalk**, overlook, enhanced auto circulation, **new visitor center**

Vegetated Steep Slopes (dark green)

Potential landing/public open space or widening of trail connection for area for pause, connected to potential waterfront event space/development

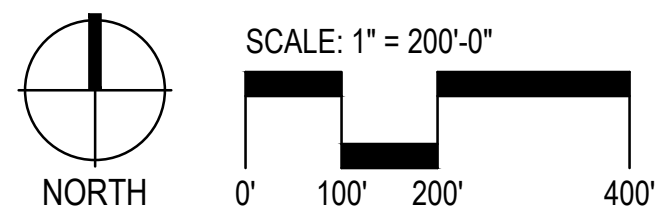
Constraints: existing fence barrier, 100yr & 500 yr flood zone
 Opportunities: enhance/expand boardwalk, overlook, new pedestrian connections, public open space

Vegetated Steep Slopes (dark green)

Potential **secondary** pedestrian circulation at top of slope

Proposed Potential Overlook, TYP.

Potential **primary** pedestrian circulation



Parks and Trails Considerations