

# APPENDICES

## **APPENDIX A: PROJECT INITIATION**

- A.1 Environmental Review
- A.2 Market Analysis
- A.3 Transportation Conditions Assessment
- A.4 Parks and Trails Considerations

## **APPENDIX B: BUILD THE VISION**

- B.1 Preliminary Development Concepts
- B.2 Utilities Impacts Analysis
- B.3 Traffic and Safety Impacts Analysis
- B.4 Market Hall Case Studies
- B.5 Market Hall Assessment
- B.6 Development Feasibility

## **APPENDIX C: MASTER PLAN**

- C.1 Development Summary
- C.2 Business Case- 20-Year Build-out
- C.3 Development Strategy
- C.4 Streets, Sterling Trail and Utilities Cost Estimate
- C.5 Plazas and Parks Cost Estimate

## **APPENDIX D: COMMUNITY ENGAGEMENT**

- D.1 Community Engagement Plan
- D.2 Project Advisory Committee Plan
- D.3 Engagement Milestone #1 Objectives and Vision
- D.4 Engagement Milestone #2 Preliminary Concepts
- D.5 City Council Work Sessions

## **APPENDIX E: DRAFT MIXED USE ZONING**

- E.1 Draft Downtown Riverfront Mixed-Use District



**SOLDOTNA**  
City of Soldotna, Alaska

# Soldotna Downtown Riverfront Redevelopment Plan Appendices

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- A.4 Parks and Trails Considerations**

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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

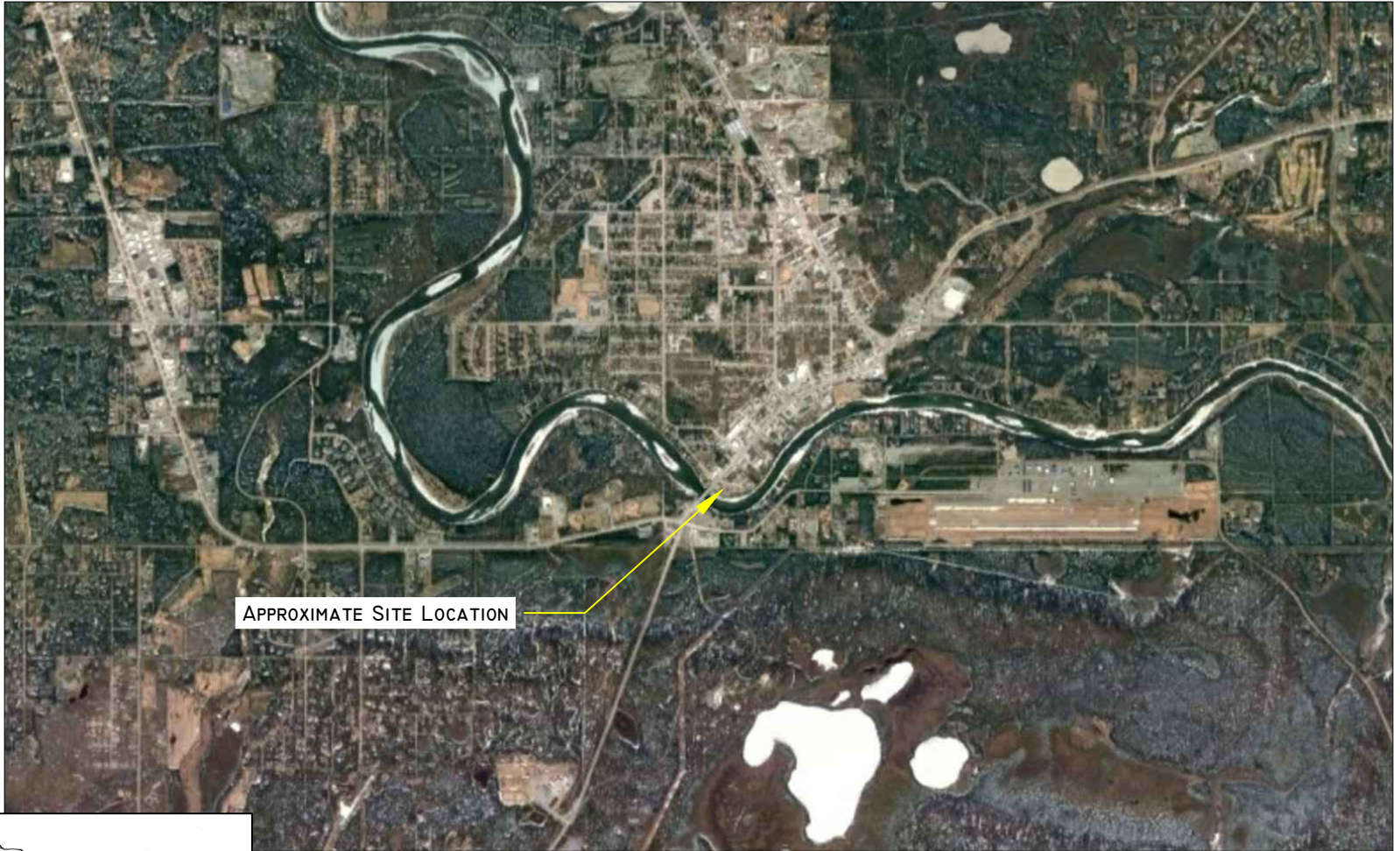


Jessa Tibbetts  
Environmental Scientist

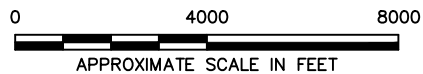


Dan P. McMahon, PMP  
Vice President

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

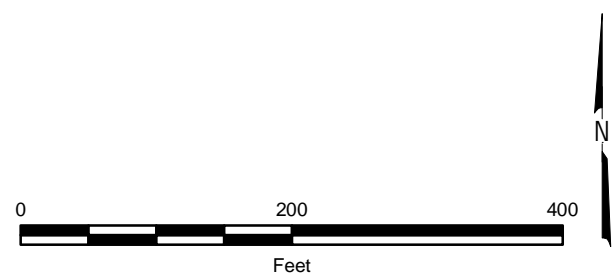
109861-001




**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	
<b>CATALYST SITE</b>	
March 2023	109861-001
 SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS	<b>FIG. 2</b>



Attachment 1

FIGURES FROM SUPPORTING DOCUMENTS



### Soldotna Riverfront Project Area



0 520 1,040 Feet



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.



FIGURE

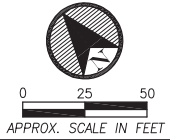
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**SITE PLAN AND SAMPLING LOCATIONS**

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

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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.<sup>1</sup>
  - **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).

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<sup>1</sup> 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
<b>Rental Housing</b>	<ul style="list-style-type: none"> <li>Steadily increasing multifamily rents</li> <li>Very low multifamily vacancy</li> <li>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.</li> </ul>	<p><b>Increasing home prices</b> indicate demand for ownership housing.</p> <p><b>Low vacancy rate</b> indicates a constrained supply of multifamily units and upward rent pressures.</p> <p><b>Rising interest rates</b> could temper demand for homeownership.</p>
<b>Ownership Housing</b>	<ul style="list-style-type: none"> <li>Steadily increasing home prices with significant increases since 2019</li> <li>Nearly 80% of population own their home</li> <li>Rising interest rates</li> </ul>	
<b>Retail</b>	<ul style="list-style-type: none"> <li>Rents peaked in 2019 and 2021.</li> <li>Very low vacancies that have remained low for about 8 consecutive years.</li> <li>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.)</li> </ul>	<p><b>Built-to-suit development</b> could be viable.</p> <p><b>Small-sized retail</b> could be absorbed in the trade area.</p>
<b>Office Space<sup>2</sup></b>	<ul style="list-style-type: none"> <li>Fluctuating rents between 2012 and 2022; declining rents in 2022</li> <li>Low vacancy rates between 2015 and 2019; Fluctuating vacancy rates between 2020 and 2022</li> <li>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.</li> </ul>	<p><b>Potential limited demand</b> 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>
<b>Lodging</b>	<ul style="list-style-type: none"> <li>Average daily room rate (ADR) for hotels in the Kenai Peninsula reached a decade-high of \$175.</li> <li>Since 2012, hotel occupancy has increased year-over-year (except for in 2020) reaching a decade peak of about 70% in 2022.</li> <li>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.</li> </ul>	<p><b>Growing ADR, high occupancy, and limited new development</b> 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>

<sup>2</sup> 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
<b>Retail</b>	<b>Strong</b> Strong visibility, proximity to other retailers, and large daytime population	<b>Moderate</b> Local market fundamentals are stable, with near to mid-term demand for retail.	<b>Moderate</b> 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.
<b>Office</b>	<b>Weak</b> Strong highway access, small concentration of office related jobs, trends in work-from-home	<b>Weak to Moderate</b> Market trends need to correct for low vacancies with increasing rents; low demand outlook.	<b>Weak</b> Expectation of low demand growth. Rent levels currently would not justify new construction.
<b>Rental Residential</b>	<b>Moderate</b> Access to employment center, increasing population, limited lifestyle amenities, and potential for riverfront view premiums	<b>Moderate to Strong</b> Local market conditions are improving with moderate demand.	<b>Weak to Moderate</b> Expectation of moderate demand growth. Rent levels currently would not justify new construction. Limited area amenities lessen the attractiveness of the area.
<b>For Sale Residential</b>	<b>Moderate</b> Access to employment center, increasing population, limited lifestyle amenities, and potential for riverfront view premiums	<b>Strong</b> Home prices have increased steadily, homeownership rates are high, and expected future growth of high-income households.	<b>Moderate to Strong</b> The Kenai Peninsula has more affordable homes compared to Anchorage. Forecasts of household growth are strong in mid- to upper income cohorts.
<b>Lodging</b>	<b>Moderate</b> Strong visibility from highway and proximity to recreation and tourism assets; potential riverfront access and views	<b>Strong</b> Market recovery has been strong surpassing pre-pandemic levels.	<b>Moderate</b> 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.<sup>34</sup> 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)

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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.

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## 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.

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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.

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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.

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

<sup>4</sup> 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.**<sup>5</sup> 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.

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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.

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<sup>5</sup> 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.



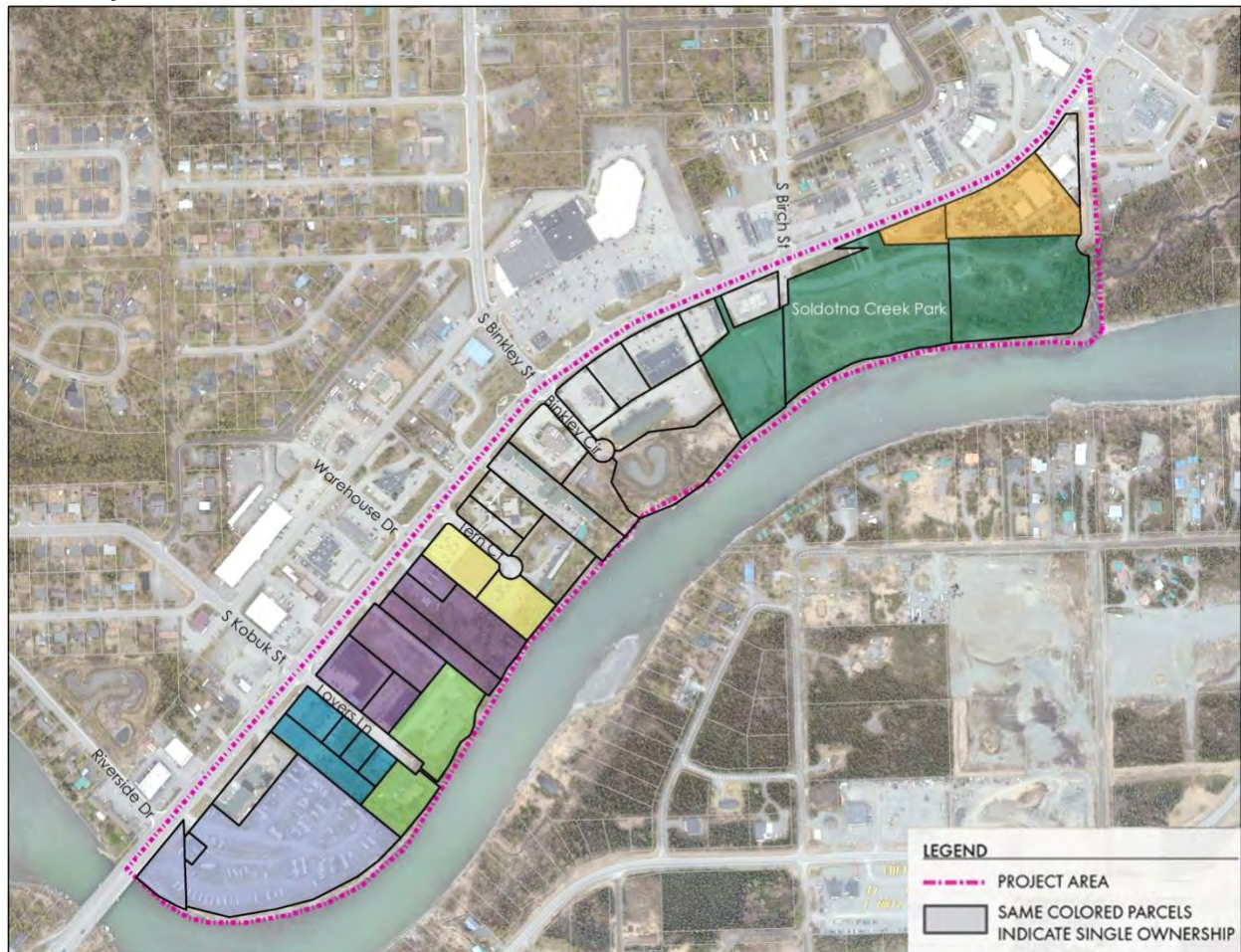
# Project Area Overview

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

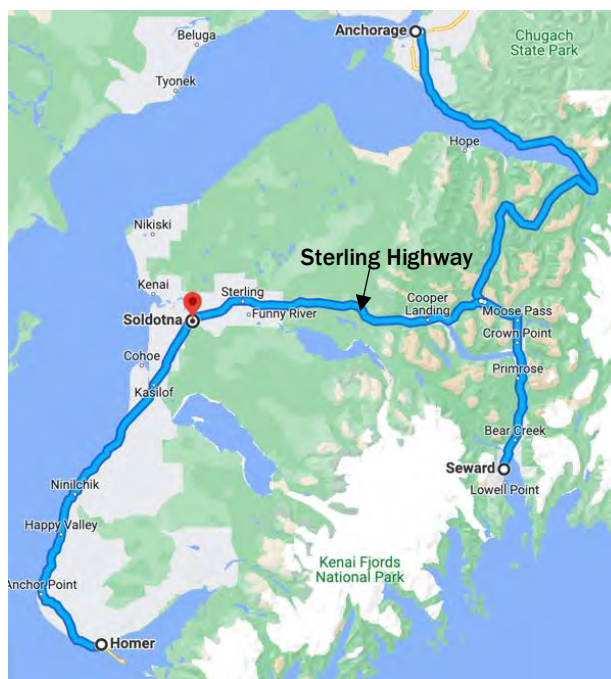


## Regional Access

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).<sup>6</sup> 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.<sup>7</sup> 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

<sup>6</sup> Alaska Department of Transportation and Facilities, AADT for 2021

<sup>7</sup> 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.<sup>8</sup>

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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.

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<sup>8</sup> 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.<sup>9</sup>
- **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.

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<sup>9</sup> 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).<sup>10</sup> 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.

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<sup>10</sup> 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.

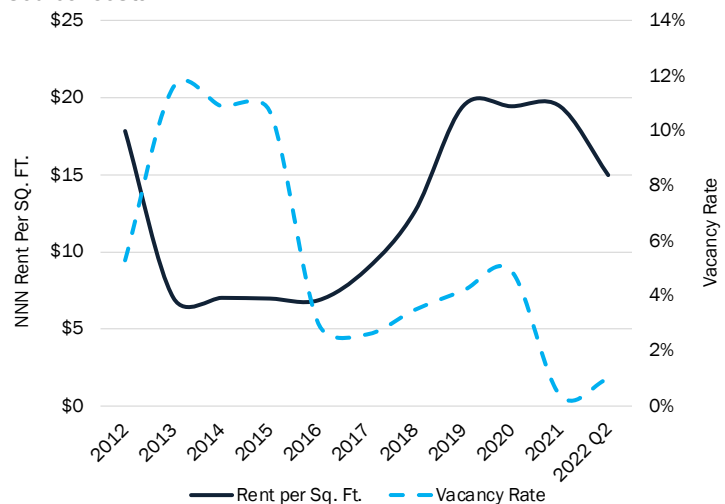
Retail rents increased sharply from 2016 to 2019 before dropping slightly to \$15 per square foot as of 2022. Vacancy rates fell 4.5% from 2020 to 2021, with a slight uptick in 2022. From 2012 to 2022, roughly 110,000 square feet of retail space was absorbed in the market.<sup>11</sup> The increase in 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



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

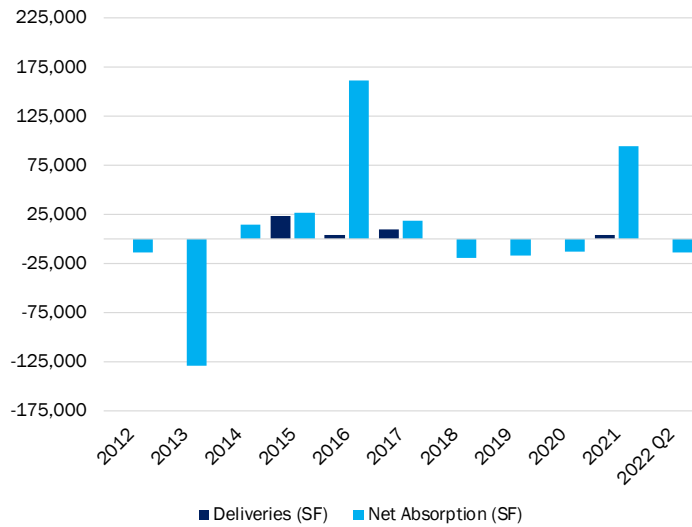
**Net absorption has far exceeded deliveries for retail space in Soldotna, signifying strong market demand and likely contributing to high rent rates.**

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.

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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.

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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.

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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.

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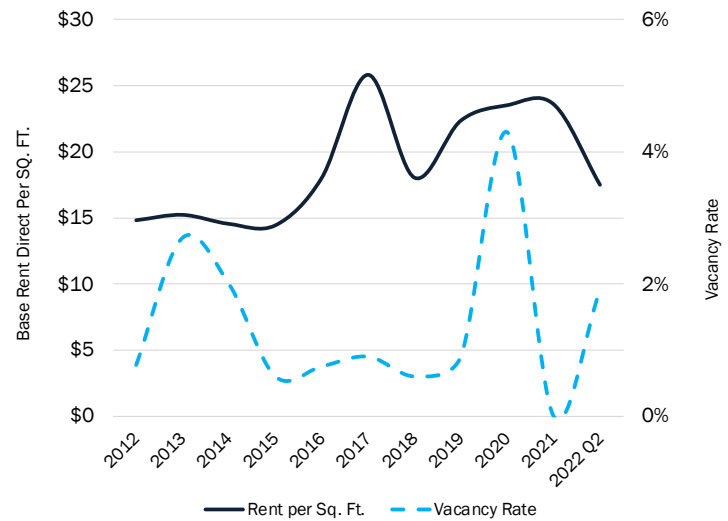
Office rents have fluctuated since 2012 recently decreasing to \$17.49 per square foot in 2022. Vacancy rates, while low, have also fluctuated in recent years, with a large spike in 2020 (likely due to the COVID-19 pandemic), followed by a large drop in 2021. Most recently, vacancy rates increased to 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



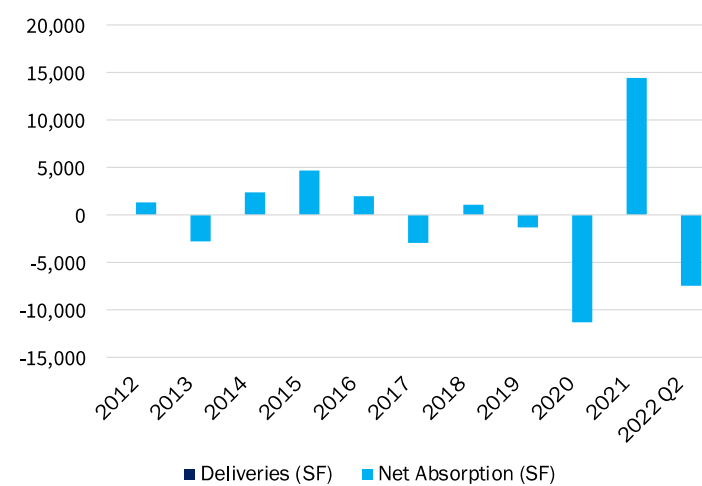
According to Costar, there were no deliveries of new speculative office space in Soldotna between 2012 and 2022.

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.

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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.

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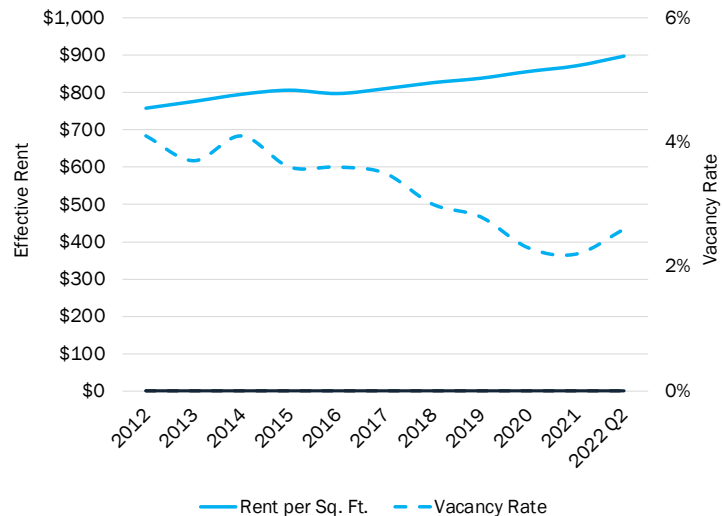
### Multifamily Rental (Costar)

**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

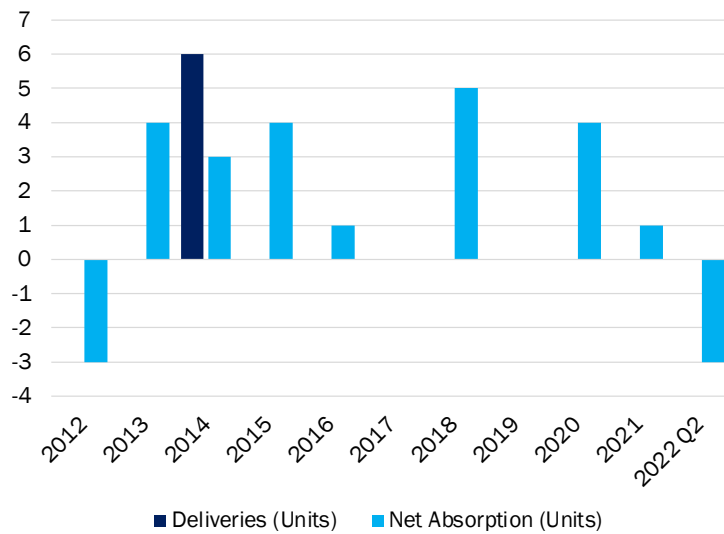


**Net absorption for multifamily rental units was positive and outweighed deliveries, signifying that construction has not kept pace with demand.**

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

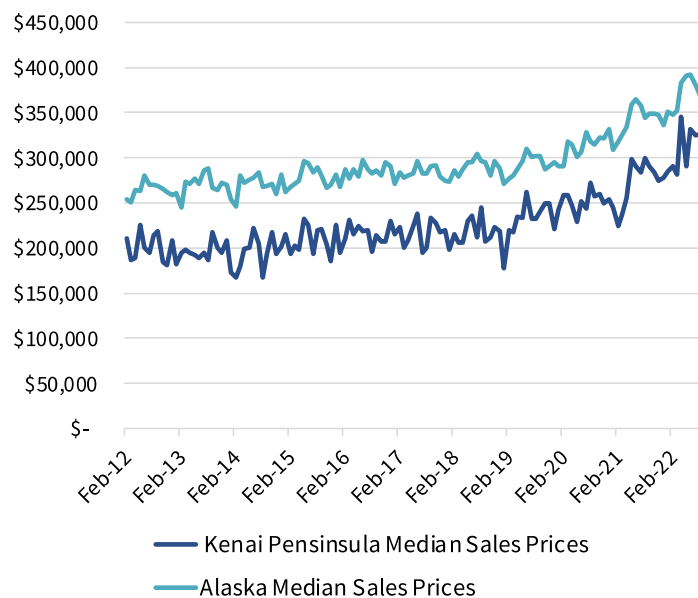
**Median sales price for single family homes in the Kenai Peninsula Borough are more affordable than Alaska. In both regions, prices have increased steadily since 2012.**

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
<b>Soldotna</b>	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"> <li>• Kenai National Wildlife Refuge</li> <li>• Fishing</li> <li>• Museums</li> <li>• Sports</li> <li>• Outdoor recreation</li> </ul>	<p>Lower sales tax (6%),</p> <p>Lower property tax (7.61 mil)</p> <p>No bed tax</p>
<b>Homer</b>	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"> <li>• Ferry terminal</li> <li>• Fishing</li> <li>• Museums</li> <li>• Outdoor recreation</li> <li>• Homer Spit</li> <li>• Distinct neighborhoods with amenities</li> </ul>	<p>High sales tax (7.85%),</p> <p>High property tax (11.24 mil)</p> <p>No bed tax</p>
<b>Seward</b>	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"> <li>• Cruise ship dock</li> <li>• Aquarium</li> <li>• Outdoor recreation</li> <li>• Walkable downtown with amenities</li> <li>• Boardwalk</li> <li>• Fishing</li> </ul>	<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.

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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.

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**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	
<b>Total Expenditures</b>	\$351,770,614	\$417,688,843	-\$65,918,227	
<b>Retail Trade</b>	\$279,852,058	\$364,168,331	-\$84,316,271	
<b>Food and Drink</b>	\$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.<sup>12</sup> 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

<b>Retail Store Type</b>	<b>Trade Area Demand</b>	<b>Non-Alaska Visitor Demand</b>	<b>Total Demand</b>	<b>Supply</b>	<b>Leakage</b>
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

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

## 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)<sup>13</sup>, 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.

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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.

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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.**<sup>14</sup>

### 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 <sup>15</sup>	Restaurant	2,000 to 5,000	4 to 5
Clothing and clothing accessories stores	\$21,312,336	3,552 <sup>16</sup>	Boutique Clothing Store/ Accessories	1,000 to 2,500	2 to 3
General merchandise stores	\$19,114,365	3,186 <sup>17</sup>	Junior Department Store	30,000	—

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<sup>13</sup> 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.

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

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

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

<sup>17</sup> 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).

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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.

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### 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.

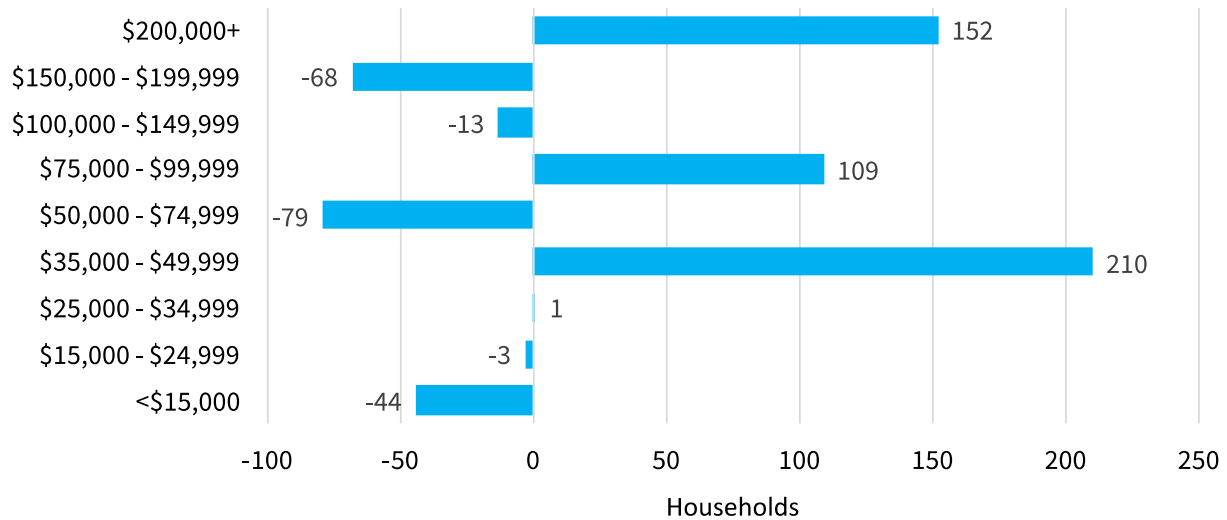
\*Average Annual Growth Rate

	2010	2022	'10- '22	2027	'22- '27	'22-'27 AAGR*
<b>Population</b>	28,127	30,056	+1,929	30,581	+525	0.35%
<b>Households</b>	10,868	11,932	+1,064	12,197	+265	0.44%
<b>Families</b>	7,264	7,647	+383	7,765	+118	0.31%
<b>Family Share</b>	66.8%	64.1%	-2.7%	63.7%	-0.4%	N/A
<b>Renter Share</b>	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.<sup>18</sup> 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.<sup>19</sup> Many of the new households that earn between \$75,00-\$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.<sup>20</sup>

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


<sup>18</sup> 2016-2020 5 Year ACS for the Kenai Peninsula

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

<sup>20</sup> 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.<sup>21</sup> 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.

	<p>Mixed Use Residential</p> <p>3600 Spenard Rd, Anchorage, Alaska</p> <p>Built: 2017</p> <p>Units: 33</p> <p>Total Square Feet: 33,000</p> <p>Commercial space: 2,800 SF</p>
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## 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.

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<sup>21</sup> 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.

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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.

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## 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.<sup>22</sup> 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%.

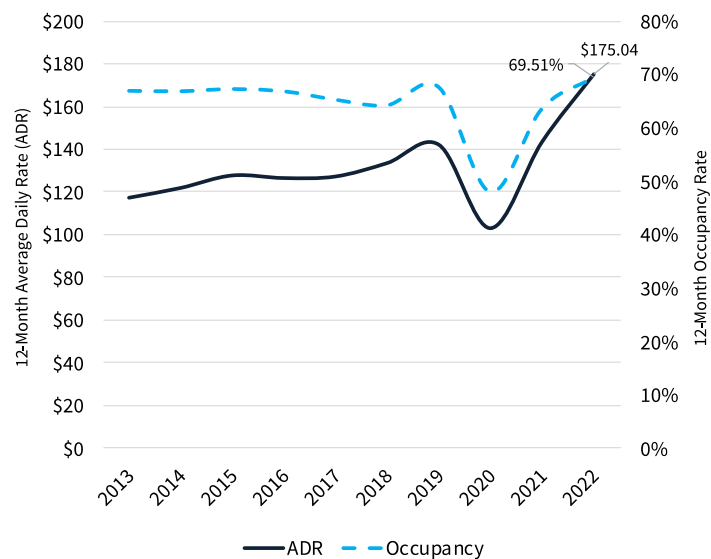
Natural occupancy rates vary by market. The variations are due primarily to climate and the types of visitors who come to the market. For example, places catering mostly to business travelers often have high natural occupancy rates. Places catering to seasonal leisure guests have lower natural occupancy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



<sup>22</sup> 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.

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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.

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### 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.**<sup>23</sup> 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.

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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.

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<sup>23</sup> 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

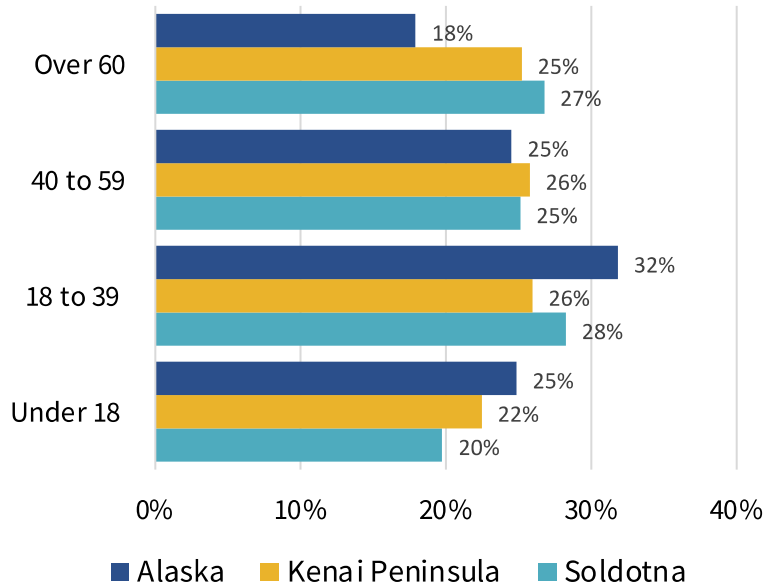
Population	2020	2030	2040	Change, 2020-2040		AAGR
				Number	Percent	
Kenai Peninsula	58,809	59,927	60,027	1,218	2.1%	0.1%

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

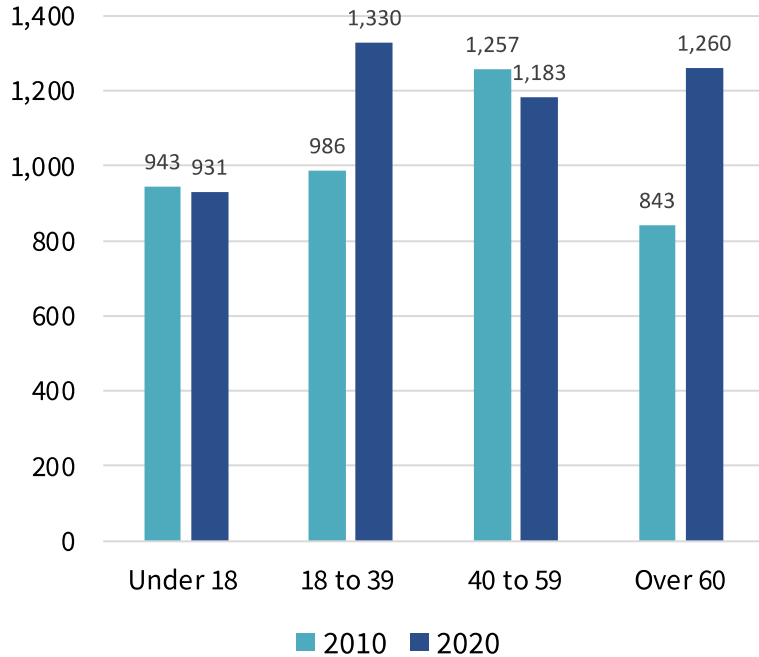


The number of residents aged 60 and over increased by nearly 50% (about 400 people) between 2010 and 2020.

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

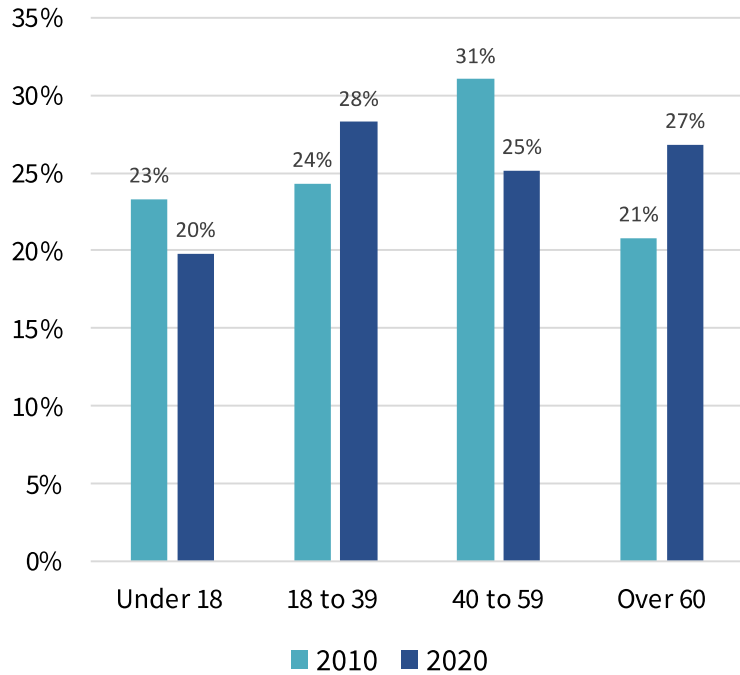


From 2010 to 2020, the share of residents 60 and older increased by 6% and the share of residents 18 to 39 increased by 4%.

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

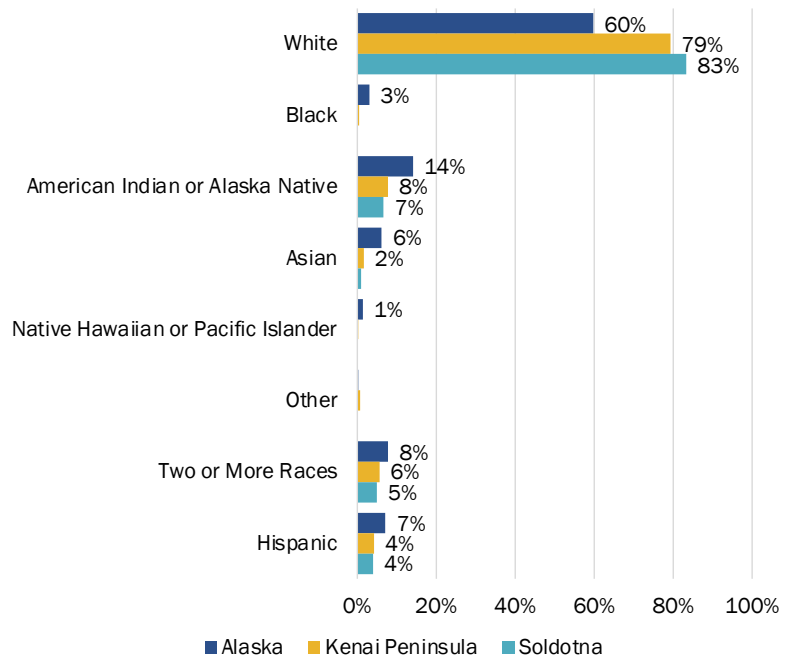


Soldotna has a higher share of White residents (83%) than the Kenai Peninsula Borough (79%) and Alaska as a whole (60%).

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

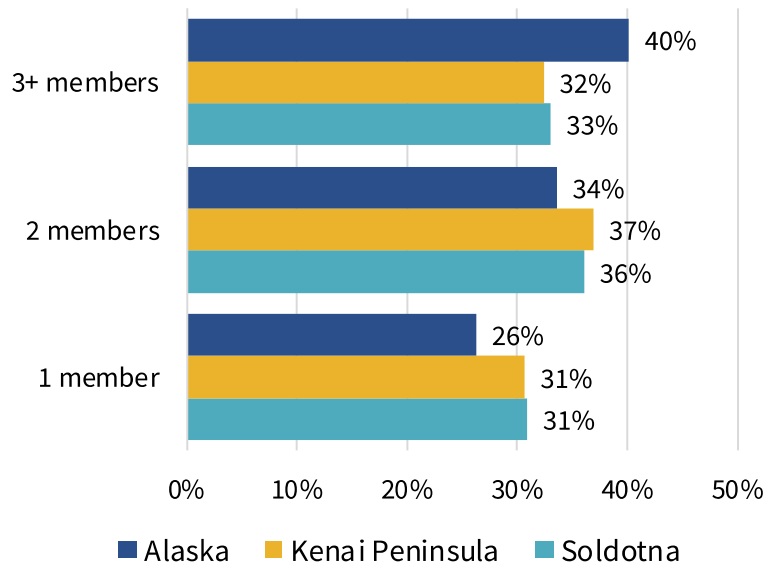


About 67% of Soldotna households have one or two members. This is similar to Kenai Peninsula but a greater share than Alaska overall (60%)

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%

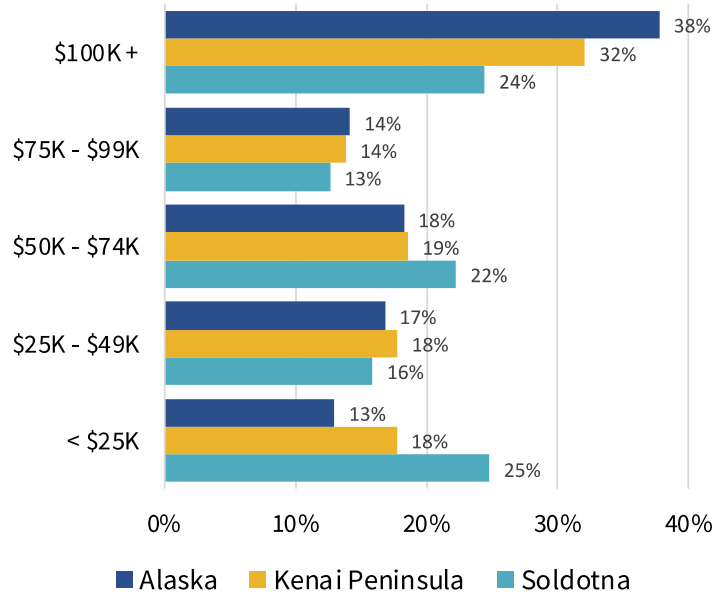
A quarter of Soldotna households have an annual income of less than \$25,000, a higher share than both the Borough and the state overall.

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

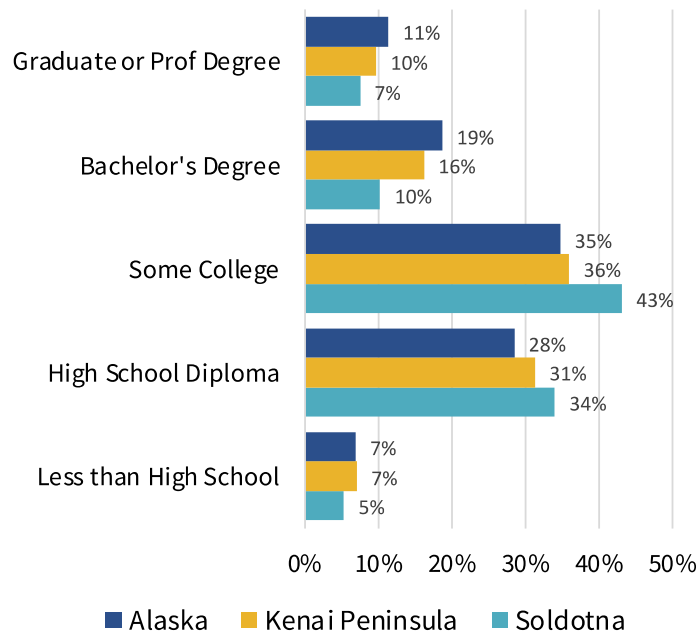


Educational attainment for Soldotna residents is lower than Borough and statewide trends.

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

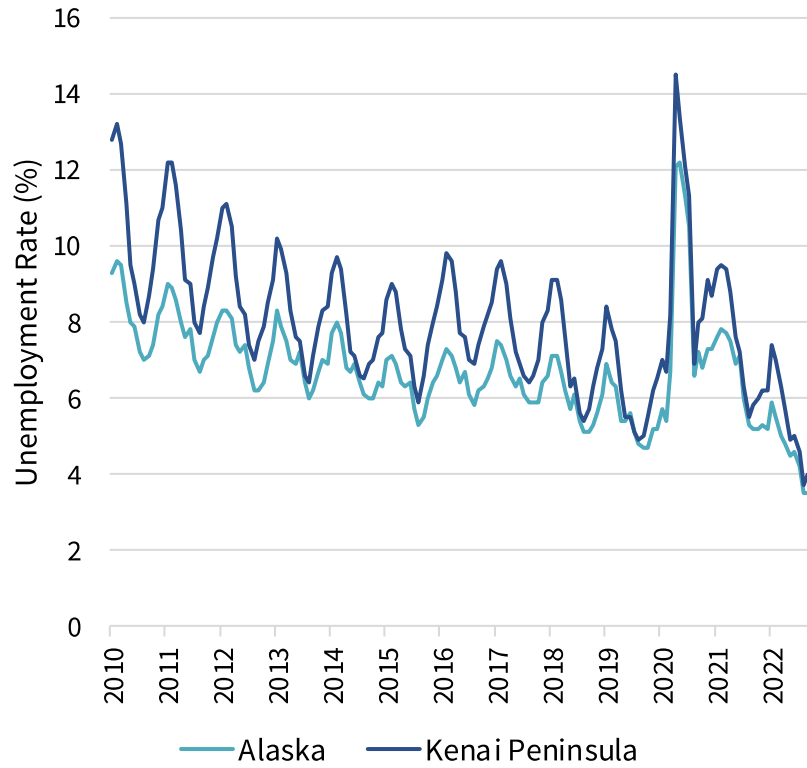
NCAIS Sector	Employment		% Share of Total Employment		Change, 2010-2021	
	2010	2021	2010	2021	Difference	% Change
Government	4,740	4,759	25%	24%	19	0%
Agriculture, Forestry, Fishing, Hunting	48	156	0%	1%	108	225%
Mining	1,087	720	6%	4%	-367	-34%
Construction	926	963	5%	5%	37	4%
Manufacturing	933	1,061	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%
<b>Total</b>	<b>19,126</b>	<b>20,046</b>	<b>100%</b>	<b>100%</b>	<b>920</b>	<b>4.8%</b>

**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%.<sup>24</sup> 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.

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<sup>24</sup> Alaska Visitor Volume Report for Winter 2018-19 and Summer 2019.

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

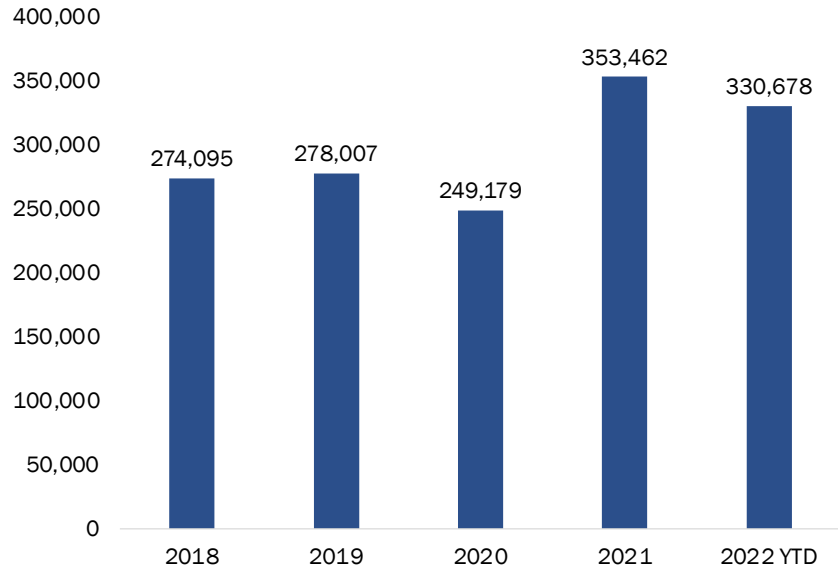
About 330,000 people visited Soldotna between January and November 2022.

**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.

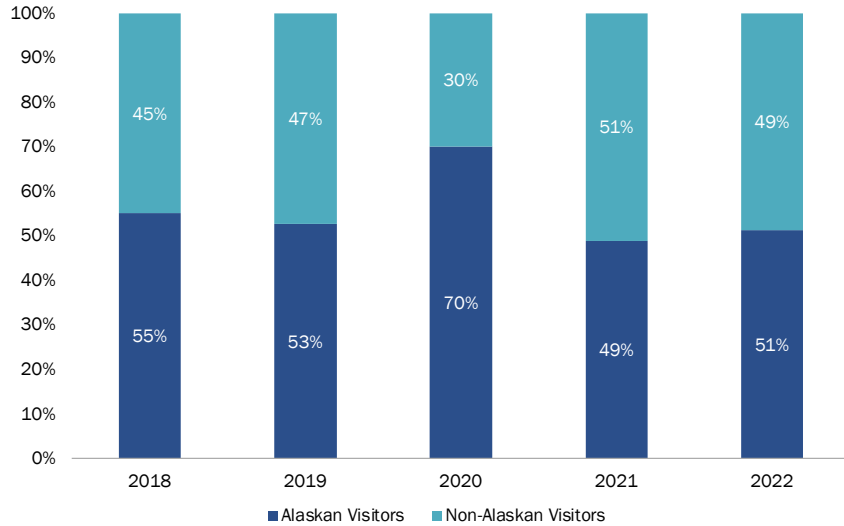


**Soldotna attracts visitors from both within Alaska and out-of-state.**

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.

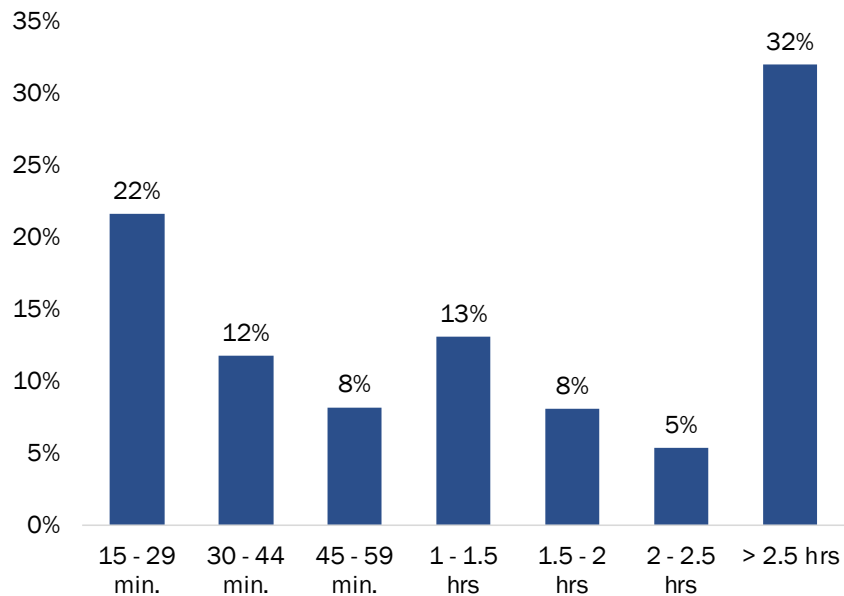


**In 2022, there were approximately 6.3 million visits to the City of Soldotna. Nearly a third of these visits to the City of Soldotna lasted greater than 2.5 hours. About a quarter of visits were less than 30 minutes.**

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
<b>Origin (%)</b>		
Vacation/pleasure	62	77
Visiting friends/relatives	26	17
Business or business/pleasure	12	6
<b>Stay Length</b>		
Average # of nights in the region	N/A	5
<b>Lodging Types (%)</b>		
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
<b>Spending</b>		
Average per person in region/community	N/A	\$333
<b>Spending by Category</b>		
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
<b>Origin (%)</b>		
Western US	48	34
Southern US	16	22
Midwestern US	20	19
Eastern US	8	12
Canada	1	3
Other International	6	10
<b>Other Demographics</b>		
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.

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

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

## 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

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

## 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

<b>840 jobs</b>	<b>750 jobs</b>	<b>700 jobs</b>
Tours / Activities	Lodging	Food and beverage

# 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  
Page 2

*Table 1: Roadway Characteristics in Study Area*

<b>Name &amp; Classification</b>	<b>Number of Lanes</b>	<b>Connections</b>	<b>Speed Limit</b>	<b>Pedestrian Amenities</b>	<b>Intersection Control at Sterling Highway</b>
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
<b>TOTAL</b>		<b>222</b>			

*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)*

	<b>Property Damage Only</b>	<b>Minor Injury</b>	<b>Serious Injury</b>	<b>Unknown</b>
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	
<b>TOTAL</b>	<b>168</b>	<b>51</b>	<b>2</b>	<b>1</b>

### 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	<b>113</b>
Right Angle	24	23	<b>47</b>
Left Turn	13	7	<b>20</b>
Head-On	3	5	<b>8</b>
Single Vehicle Run-Off-Road	0	8	<b>8</b>
Backing	6	2	<b>8</b>
Other	3	4	<b>7</b>
Animal-Vehicle	3	2	<b>5</b>
U-Turn	1	1	<b>2</b>
Bicycle	0	2	<b>2</b>
Pedestrian	2	0	<b>2</b>
<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.

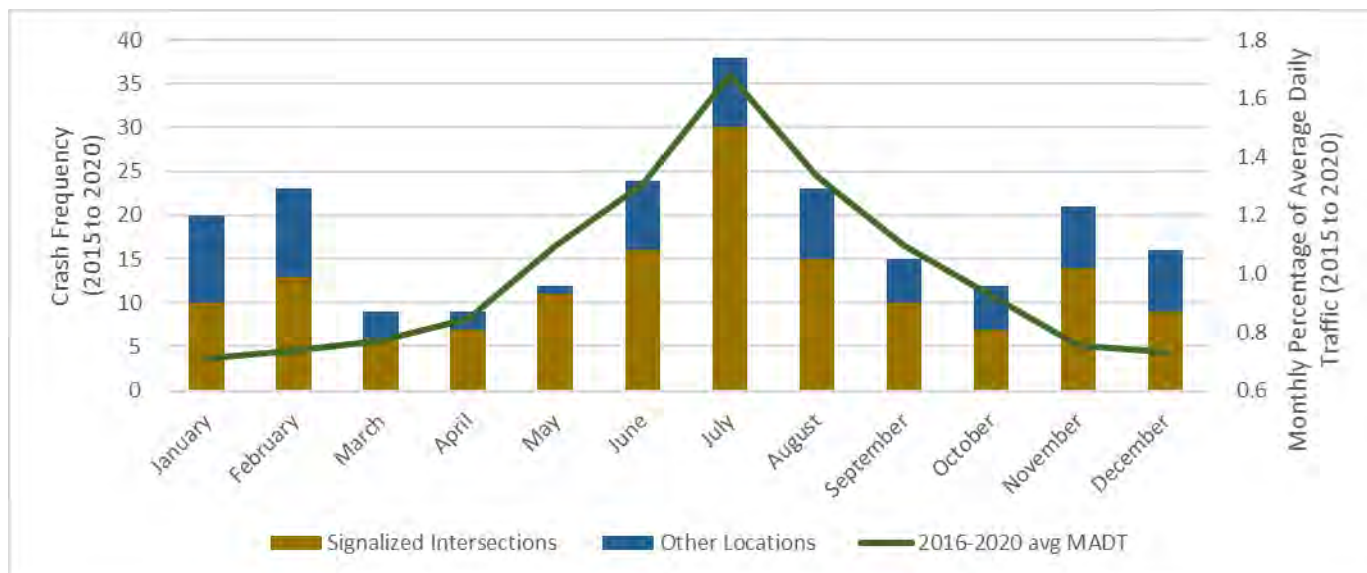


Figure 2: Crash Frequency and Percentage of Average Traffic Volumes by Month

## Areas of Concern, Potential Mitigations, and Opportunities

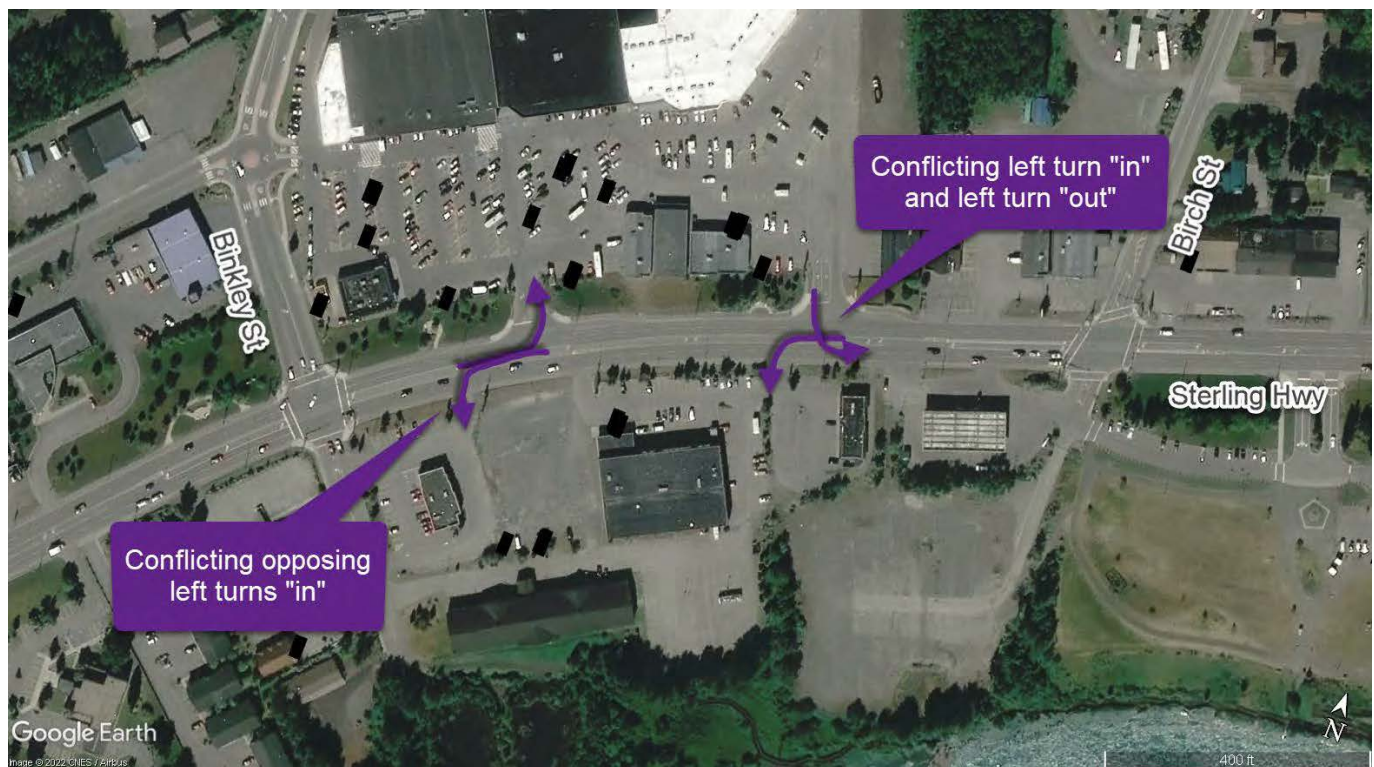
### Crash Concerns

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, 2<sup>nd</sup> 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

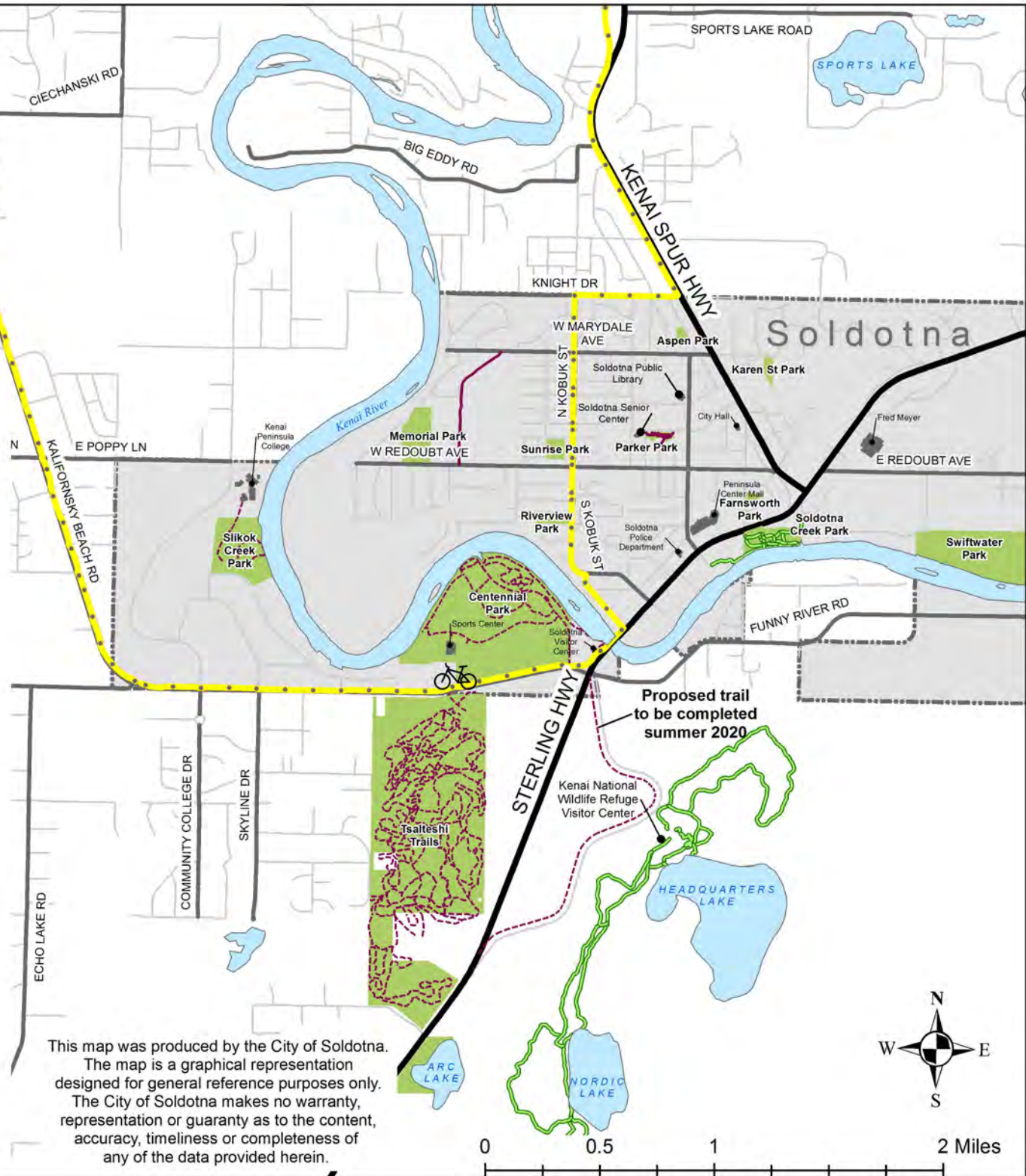
Bike Maintenance Station

City Parks

City Limits



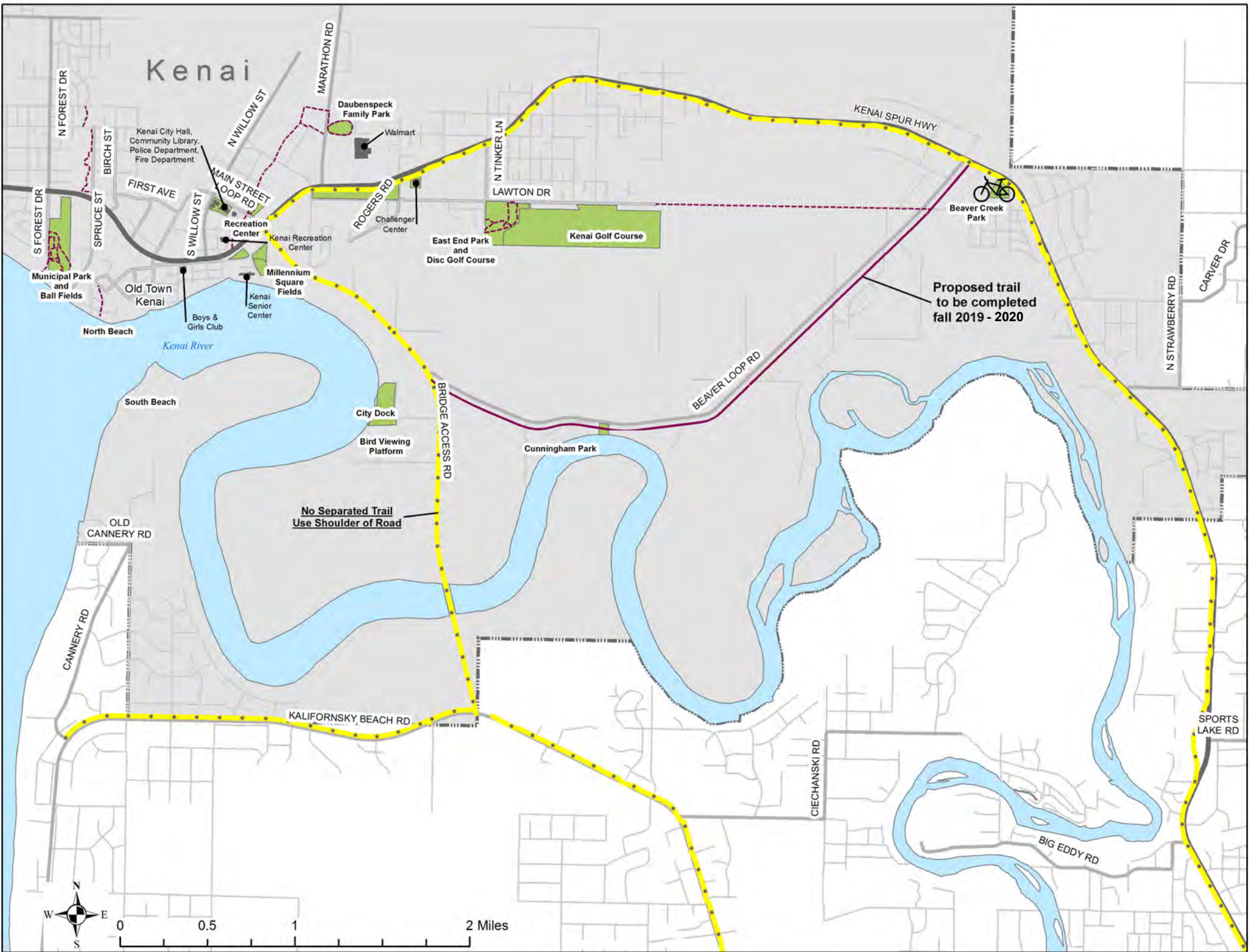
SOLDOTNA



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.

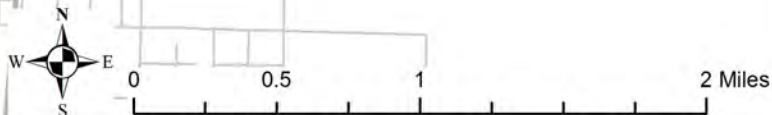


# Kenai



Proposed trail to be completed fall 2019 - 2020

No Separated Trail Use Shoulder of Road





# SOLDOTNA TRAILS & RECREATION MAP

- Alaska Christian College
- K-Beach Elementary
- Kenai Peninsula College

- Community College Dr.
- Community College Dr.
- Community College Dr.

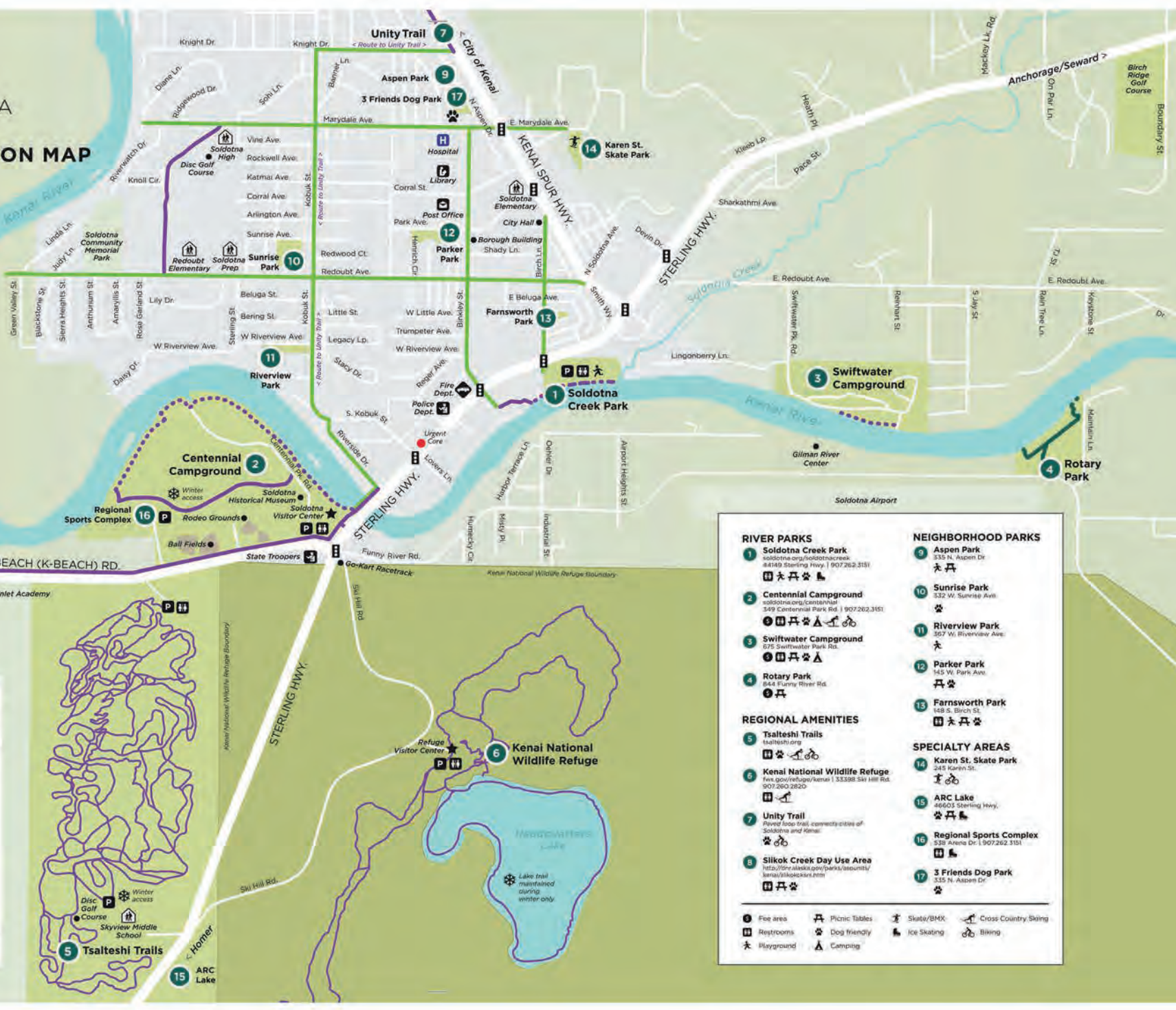
## LEGEND

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](http://www.Soldotna.org/Parks)



RIVER PARKS		NEIGHBORHOOD PARKS	
1	<b>Soldotna Creek Park</b> soldotna.org/riodotnacrees 84149 Sterling Hwy.   907.262.3131 	9	<b>Aspen Park</b> 335 N. Aspen Dr. 
2	<b>Centennial Campground</b> soldotna.org/centennial 349 Centennial Park Rd.   907.262.3151 	10	<b>Sunrise Park</b> 332 W. Sunrise Ave. 
3	<b>Swiftwater Campground</b> 575 Swiftwater Park Rd. 	11	<b>Riverview Park</b> 557 W. Riverview Ave. 
4	<b>Rotary Park</b> 844 Funny River Rd. 	12	<b>Parker Park</b> 145 W. Park Ave. 
<b>REGIONAL AMENITIES</b>		13	<b>Farnsworth Park</b> 148 S. Birch St. 
5	<b>Tsalteshi Trails</b> tsalteshi.org 	<b>SPECIALTY AREAS</b>	
6	<b>Kenai National Wildlife Refuge</b> kenai.nwr.usfws.gov/kenai   33398 Ski Hill Rd. 907.260.2820 	14	<b>Karen St. Skate Park</b> 245 Karen St. 
7	<b>Unity Trail</b> Paved loop trail, connects cities of Soldotna and Kenai. 	15	<b>ARC Lake</b> 46603 Sterling Hwy. 
8	<b>Slikok Creek Day Use Area</b> <a href="https://www.alaska.gov/parks/county/kenai/slikokcreek.htm">https://www.alaska.gov/parks/county/kenai/slikokcreek.htm</a> 	16	<b>Regional Sports Complex</b> 538 Arena Dr.   907.262.3101 
		17	<b>3 Friends Dog Park</b> 335 N. Aspen Dr. 

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

# Event Parking Legend



Public parking is permitted in areas that are shaded blue



Street Parking on the East side of Birch Street

No Event Parking

No Event Parking

No Event Parking

Walking Trail to Park

Boardwalk to Park

# 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

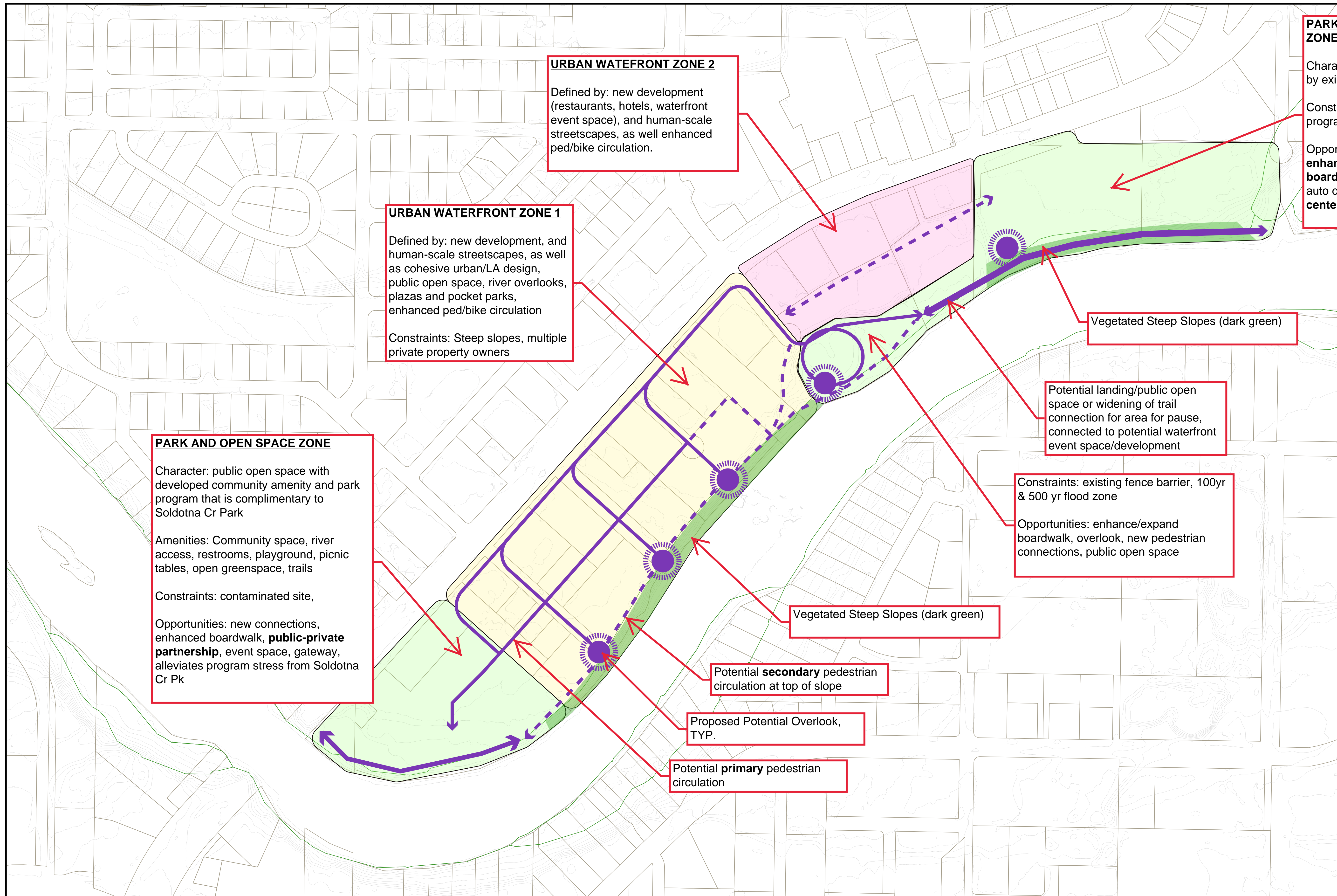
Document: City of Soldotna Riverfront Plan: Existing Traffic and Safety Memo; Kinney Engineering

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

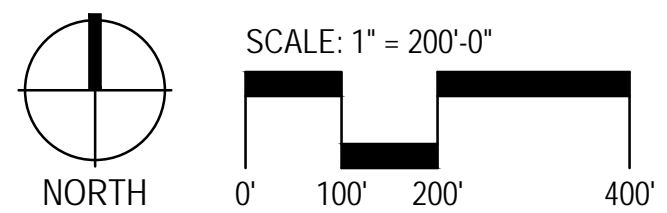
Constraints: existing fence barrier, 100yr & 500 yr flood zone  
 Opportunities: enhance/expand boardwalk, overlook, new pedestrian connections, public open space

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

# Soldotna Downtown Riverfront Redevelopment Plan Appendices

## **APPENDIX A: PROJECT INITIATION**

- A.1 Environmental Review
- A.2 Market Analysis
- A.3 Transportation Conditions Assessment
- A.4 Parks and Trails Considerations

## **▶ APPENDIX B: BUILD THE VISION**

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- B.1 Preliminary Development Concepts**
- B.2 Utilities Impacts Analysis**
- B.3 Traffic and Safety Impacts Analysis**
- B.4 Market Hall Case Studies**
- B.5 Market Hall Assessment**
- B.6 Development Feasibility Analysis**

## **APPENDIX C: MASTER PLAN**

- C.1 Development Summary
- C.2 Business Case- 20-Year Build-out
- C.3 Development Strategy
- C.4 Streets, Sterling Trail and Utilities Cost Estimate
- C.5 Plazas and Parks Cost Estimate

## **APPENDIX D: COMMUNITY ENGAGEMENT**

- D.1 Community Engagement Plan
- D.2 Project Advisory Committee Plan
- D.3 Engagement Milestone #1 Objectives and Vision
- D.4 Engagement Milestone #2 Preliminary Concepts
- D.5 City Council Work Sessions

## **APPENDIX E: DRAFT MIXED USE ZONING**

- E.1 Draft Downtown Riverfront Mixed-Use District

# APPENDIX B: BUILD THE VISION

## B.1 Preliminary Development Concepts

**Document:** Preliminary Development Concepts, FIRST FORTY FEET

**Description:** Summary of the project objectives, vision, and guiding principles that informed a set of “big ideas” for future development within the project area. Concepts include mobility, land uses, development scenarios and the supporting riverfront public use areas amenities that are essential to attract investment and establish downtown as a one-of-a-kind destination.

## B.2 Utilities Impacts Analysis

**Document:** Utilities Impacts Analysis Memo; Kinney Engineering

**Description:** Assessment of the current utilities (water, sewer, storm, gas, electric and communications) serving the Project area, identifies utilities in need of upgrade, and new utilities to support planned future development.

## B.3 Traffic and Safety Impacts Analysis

**Document:** Traffic and Safety Impacts Analysis Memo; Kinney Engineering

**Description:** Assessment of the preliminary development concepts for land uses and mobility improvements to determine potential impacts to traffic operations, Sterling Highway access and pedestrian and bicycle circulation. Provides a summary of the main benefits or impacts.

## B.4 Market Hall Case Studies

**Document:** Market Hall Case Studies; ECONorthwest, Economics and Research Consultant

**Description:** Memo showcasing three case studies that have varying governance and operations structures, varying public investment, and different missions. These case studies demonstrate a range of what the City might want to consider and can help the City identify which elements they like from each.

## B.5 Market Hall Assessment

**Document:** Market Hall Assessment Presentation; ECONorthwest, Economics and Research Consultant

**Description:** Slideshow presentation showcasing three case studies, their takeaways and considerations for Soldotna. Provides results of stakeholder interviews and recommendations for the Market Hall’s potential offerings, critical elements, potential tenant mix, partners and programming for the City to consider.

## B.6 Development Feasibility

**Document:** Soldotna Riverfront Redevelopment, Feasibility Analysis Results; ECONorthwest, Economics and Research Consultant

**Description:** Feasibility study on four development types based on the preliminary development concepts and discussions with the City. These development types include mixed-use, multifamily, townhomes, and hotel. The study provides insights into the feasible scale and types of development for the initial “catalytic” phase, which is intended to kick-start future development.



# CONCEPTUAL PLANNING I OBJECTIVES, VISION & GUIDING PRINCIPLES



## IDENTITY

The Riverfront Redevelopment Plan is intended to be transformative and a strategy to guide the redevelopment of an 85-acre portion of downtown— currently a mix of auto-oriented businesses along the busy Sterling Highway along with underutilized and undeveloped properties located between the Sterling Hwy and the world-renowned Kenai River. The plan will direct the Downtown's long-term economic development goals based on a set of **project objectives**. Through an engagement process with the City staff, Council and Mayor, Project Advisory Committee and the community, **a vision and guiding principles** for the project were identified.

## Project Area

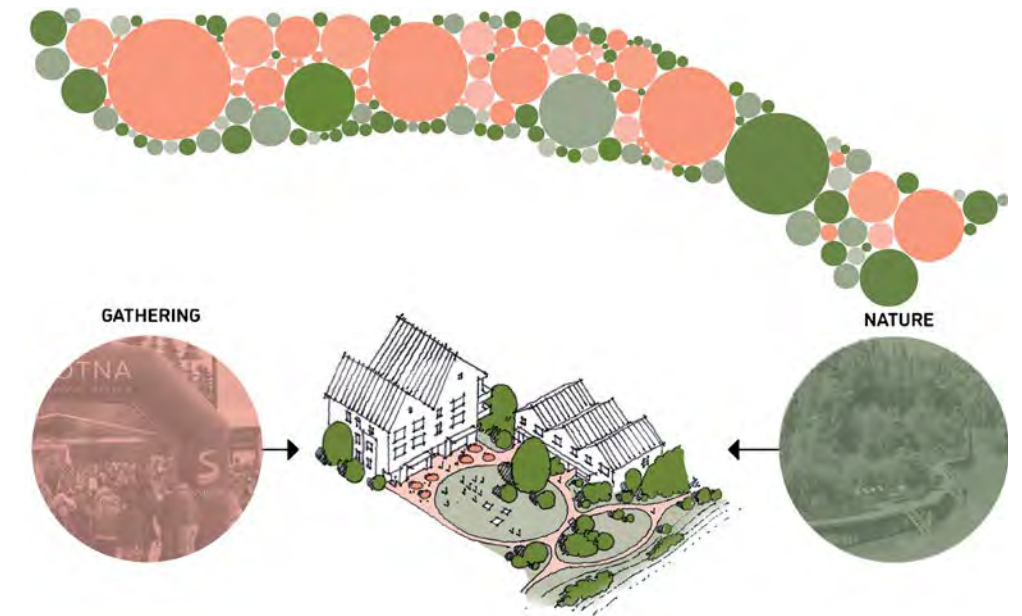


## Project Objectives

-  Create a **one-of-a-kind riverfront experience** with shopping, dining, entertainment, and lodging in a walkable destination
-  Support **local businesses, expansion and attract** new entrepreneurs
-  **Highlight the Kenai River and incorporate the natural landscape** into the Downtown
-  Identify opportunities for **public and private partnerships**
-  Identify **critical infrastructure** to support redevelopment
-  Explore **options and strategies** for funding and implementation
-  Provide **housing options** to meet local needs

## Vision:

Downtown Soldotna is a place where **nature** and community **gathering** spaces coexist, expanding and enhancing one another.



## Guiding Principles:

The Kenai River corridor is a **woven blend** of nature, wildlife, recreation, and gathering

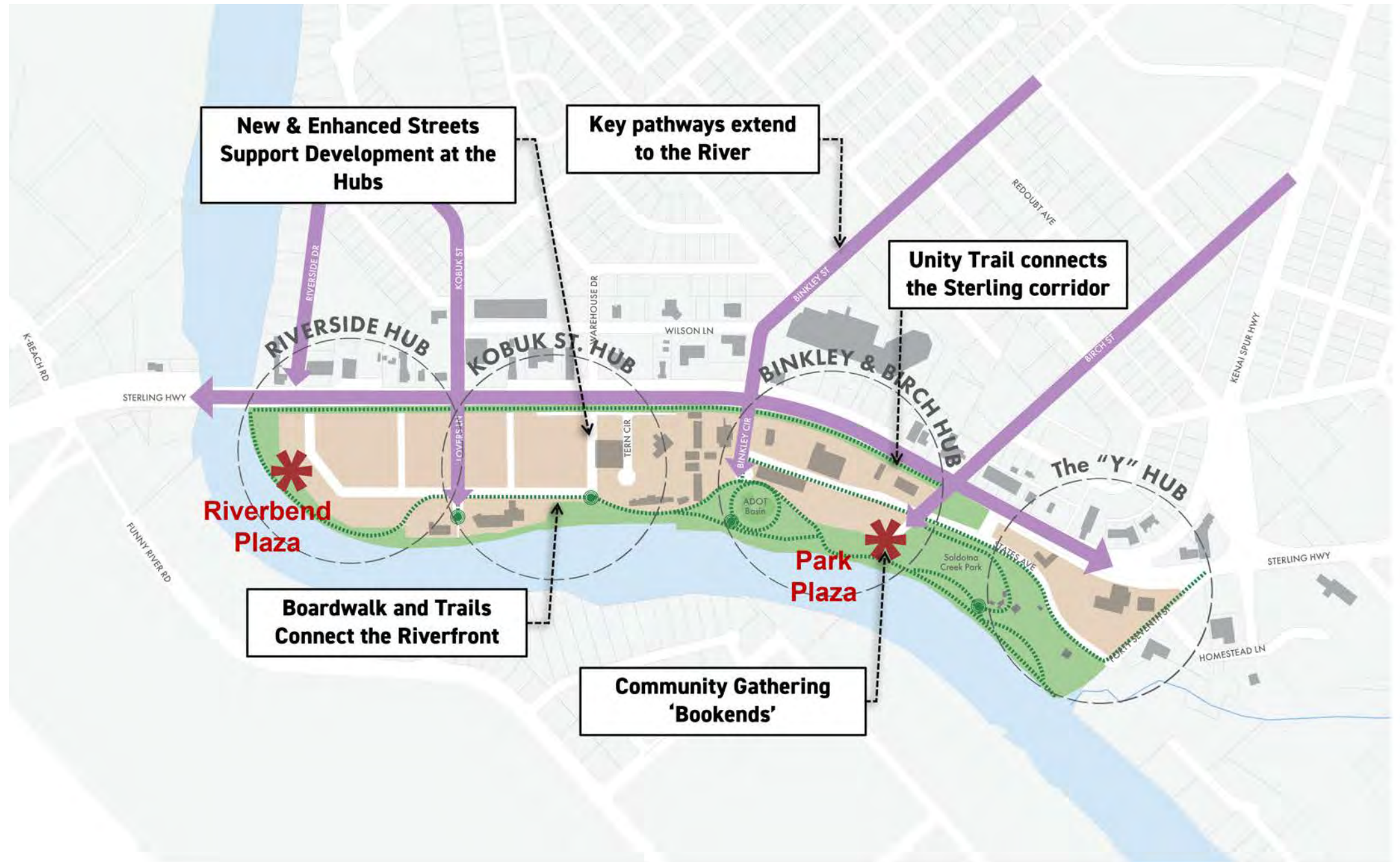
New and enhanced **streets support Downtown Hubs** as places to live, work, and play

Key **pathways connect** neighborhoods to the river and destinations along Sterling Highway

# CONCEPTUAL PLANNING I THE BIG IDEAS

The big ideas represent strategies that will bring the vision to life: a place where nature and community gathering spaces can coexist--expanding and enhancing one another. The Big Ideas were translated into alternative development scenarios with supporting land use and mobility frameworks.

## The Big Ideas



# CONCEPTUAL PLANNING | PRELIMINARY REDEVELOPMENT CONCEPTS FOR BUILDING THE DISTRICTS

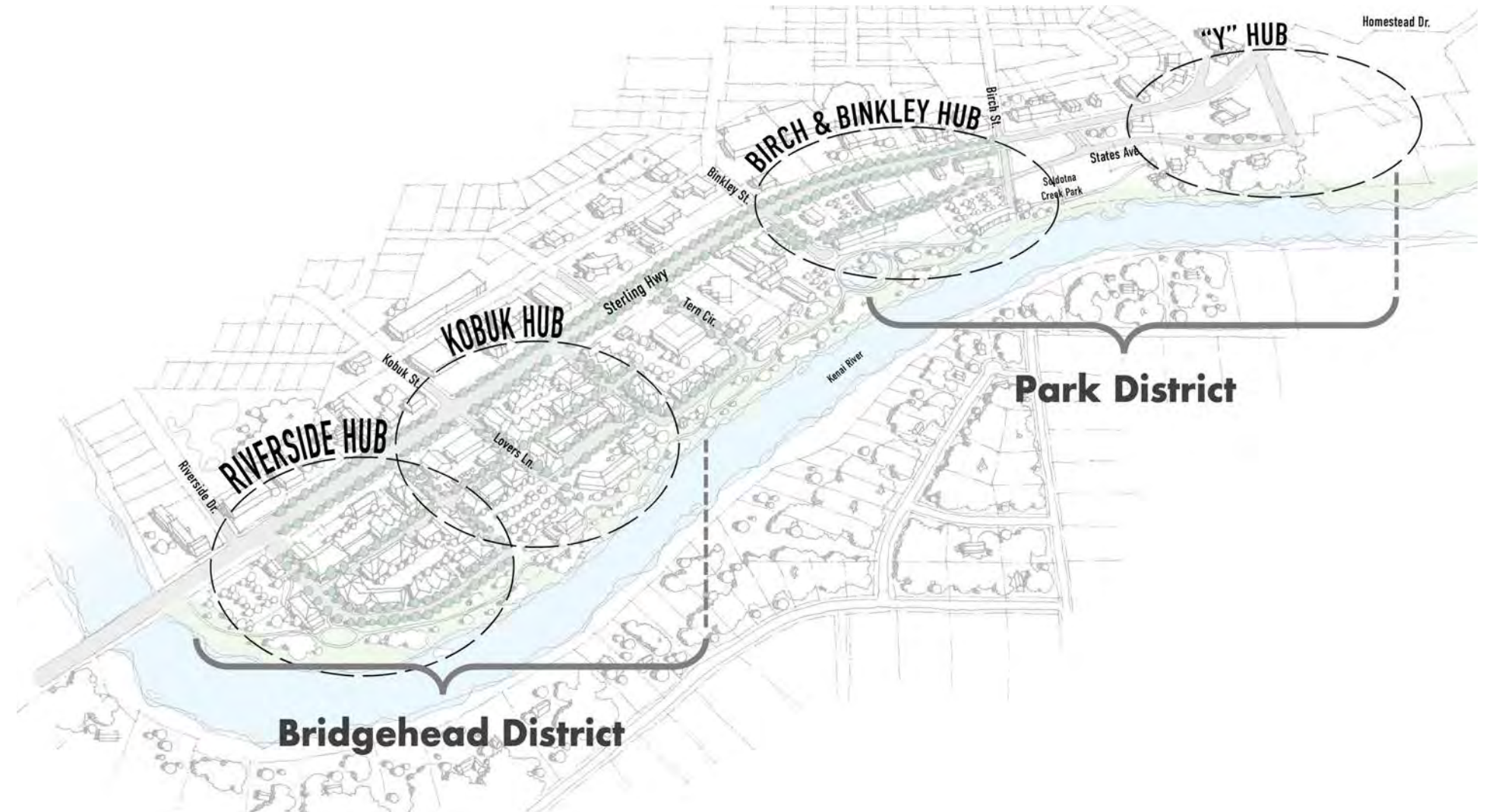


## PLACE

### Downtown Districts

The project area consists of two distinct areas that include the Park District, centered around Soldotna Creek Park, and the supporting commercial uses within Hubs located at the Binkley and Birch Streets and the “Y” intersections; and the Bridgehead District oriented to the Kenai River and the supporting commercial uses at the intersections of Riverside Drive and Kobuk Street.

Two Bridgehead District scenarios depict how future development might be organized. The Main Street scenario is built around retail storefronts extending across a few blocks along a new street between the highway and the river. The River Street scenario orients retail storefronts to the Kenai River and along a new street supporting housing and businesses with river views. The Park District scenarios provide opportunities for improved park access, parking, and an active riverfront gathering space.



# CONCEPTUAL PLANNING | PRELIMINARY REDEVELOPMENT CONCEPTS FOR BUILDING THE DISTRICTS



## Bridgehead District Scenarios

### Main Street + Bridgehead Plaza



**Main Street Concept**—Three blocks of storefronts span edge-to-edge, offering retail, dining, entertainment and housing and anchored by Bridgehead Plaza, a riverfront park, and the existing Blazy Mall. The riverfront includes public gathering spaces, trails, a boardwalk, and a hotel with a restaurant and bar. River-oriented storefronts and housing will grace the new River Street, while commercial uses align with Sterling Highway. Both Main Street and River Street feature wide sidewalks, street trees, lighting, and a shared roadway for bicycles and vehicles.

A continuous trail network would extend along the riverfront and the Sterling Highway connecting the “bookend” public plazas at Soldotna Creek Park and the bridgehead.

### River Street + Public Market and Bridgehead Plaza



**River Street Concept**—This concept would “cluster” edge-to-edge storefronts with retail, dining, and entertainment uses along a new River Street. Anchored by Bridgehead Plaza, and a riverfront park, the riverfront area features public gathering, trails, a boardwalk, and a public market building. River oriented storefronts and housing would line the new River Street, while new commercial uses would be oriented along Sterling Highway. River Street will have wide sidewalks, street trees, lighting, and a shared roadway for bicycles and vehicles.

A continuous trail network would extend along the riverfront and the Sterling Highway connecting the “bookend” public plazas at Soldotna Creek Park and the bridgehead.

# CONCEPTUAL PLANNING | PRELIMINARY REDEVELOPMENT CONCEPTS FOR BUILDING THE DISTRICTS



## Park District Scenarios

### States Avenue Extension + Public Market and Parkside Plaza



**States Avenue Extension + Public Market and Parkside Plaza-** Soldotna Creek Park will host a public market and plaza at Birch Street, activating the park's edge. States Avenue is extended and enhanced between Binkley Circle and 47th Street, improving local access between existing businesses and the park, to create a more connected downtown.

A continuous trail network would extend along the riverfront and the Sterling Highway connecting the "bookend" public plazas at Soldotna Creek Park and the bridgehead.

### States Avenue Extension + Parkside Plaza



**States Avenue Extension + Parkside Plaza-** Soldotna Creek Park hosts a public plaza at Birch Street, activating the park's edge. States Avenue extends between Binkley Circle and 47th Street, enhancing local access, creating a connected downtown.

A continuous trail network would extend along the riverfront and the Sterling Highway connecting the "bookend" public plazas at Soldotna Creek Park and the bridgehead.

# BRIDGEHEAD & PARK DISTRICT SCENARIOS | MAIN STREET CONCEPT

## Main Street Development Framework

Within the Bridgehead District, the Main Street Concept provides for a retail and shopping destination with storefronts and housing oriented along a three block Main Street. A hotel, public plaza and riverfront open space anchor the Main Street with infill development of commercial uses oriented to Sterling Highway. New and enhanced streets extend access improvements between the highway and the riverfront and establish a pattern of “blocks” to support existing and future development within a walkable street environment. A new States Avenue connection, public parking, plaza and Public Market anchor Soldotna Creek Park within the Park District.

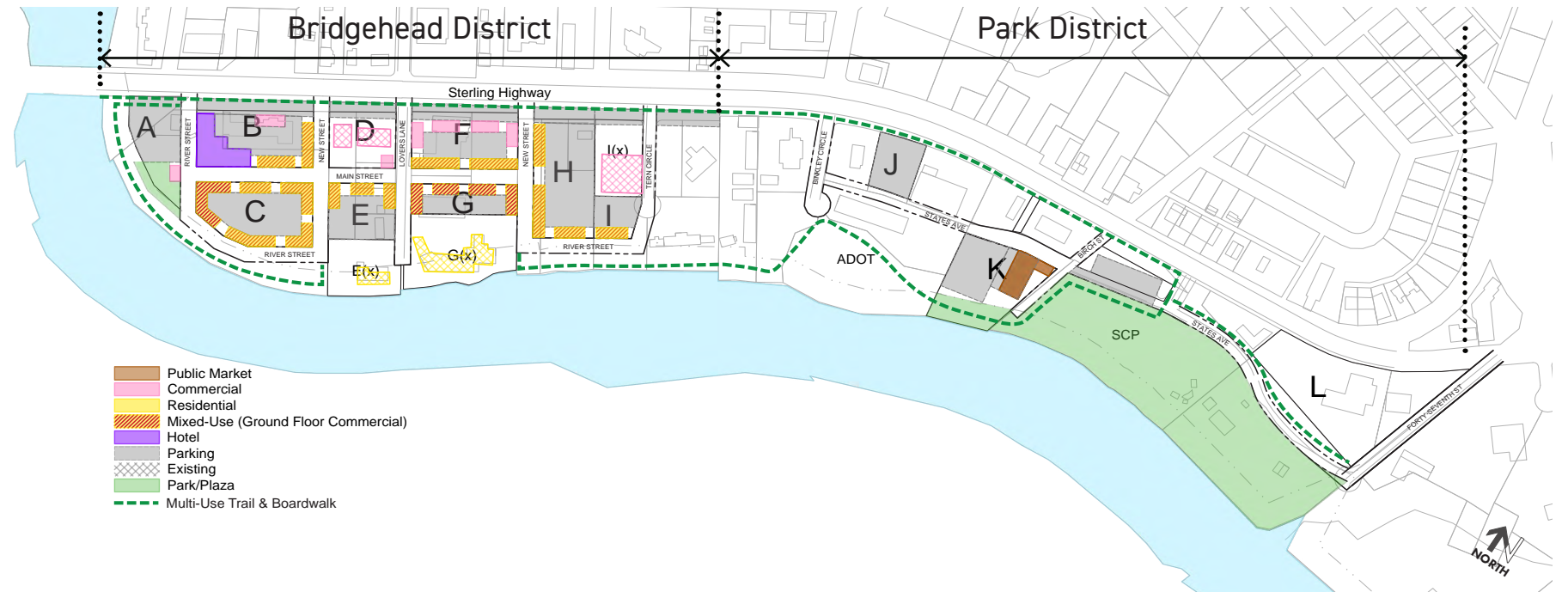
## Development Potential:

Highway Commercial:	43,500 square feet
Main Street Retail:	130, 875 square feet
Hotel:	50-75 Rooms w/ Restaurant-Bar
Residential:	294 units
Plaza and Open Space:	6.5 acres
Public Market:	30,000 square feet

## Main Street Mobility Framework



## Main Street Land Use Framework

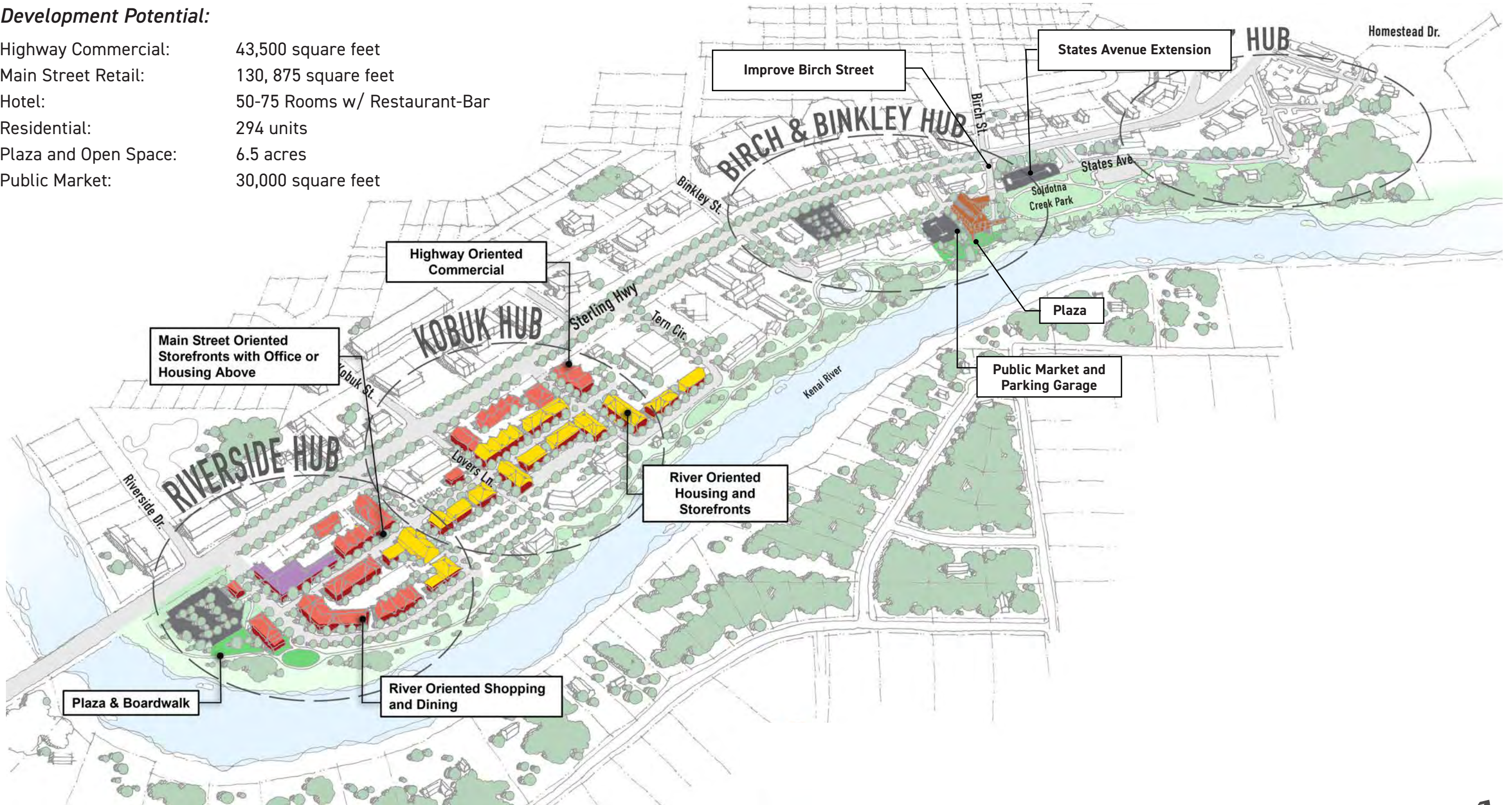


# BRIDGEHEAD & PARK DISTRICT SCENARIOS | MAIN STREET CONCEPT

## Main Street Development Framework

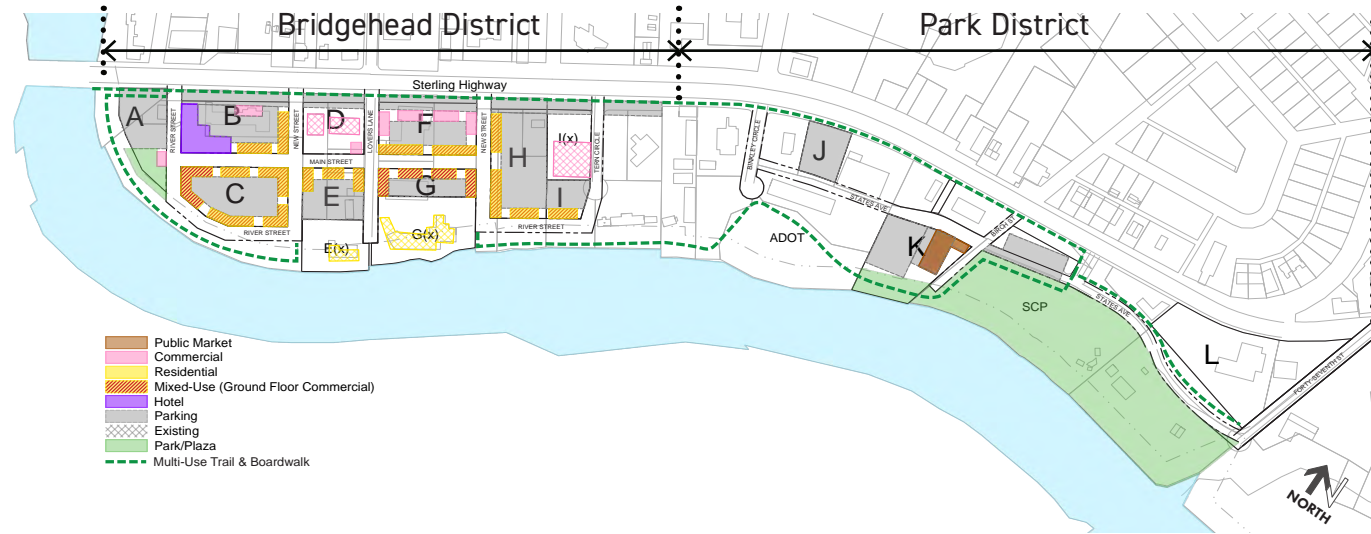
### Development Potential:

Highway Commercial:	43,500 square feet
Main Street Retail:	130, 875 square feet
Hotel:	50-75 Rooms w/ Restaurant-Bar
Residential:	294 units
Plaza and Open Space:	6.5 acres
Public Market:	30,000 square feet



# BRIDGEHEAD & PARK DISTRICT SCENARIOS | MAIN STREET CONCEPT

## Main Street Development Framework



### NEW DEVELOPMENT

#### Option: Main Street

Block	Type	Total Area	Height (stories)	Res Units	Non Res SF*	New Surface Parking*	Calc - Required parking
A	Redevelop	62,000	1	—	2500	108	6
B	Redevelop	96,500	3.5	27	66500	96	207
C	Redevelop	99,500	3.5	78	39200	122	216
D	Existing	54,500	—	—	2100	—	5
—	—	—	—	—	—	—	—
E	Redevelop	55,000	3.5	24	12000	91	66
E(x)	Existing Riverquest	58,000	—	—	—	—	—
F	Redevelop	88,500	3.5	29	31300	75	122
G	Redevelop	47,000	3.5	36	17900	56	98
G(x)	Existing Asst Living	106,500	—	—	—	—	—
H	Redevelop	106,500	3.5	41	20400	178	112
I	Redevelop	27,000	3.5	10	5000	48	28
I(x)	Existing Blazy Mall	53,500	—	—	—	—	—
<b>Subtotal: Bridgehead District</b>				<b>245</b>	<b>196900</b>	<b>775</b>	<b>860</b>
J	Redevelop	37,000	—	—	—	87	0
K	Redevelop (Market)	104,500	3.0	—	32000	233	80
L	Redevelop	180,000	—	—	—	—	0
Soldotna Creek Park	Existing	343,000	—	—	—	30	0
<b>Subtotal: Park District</b>				<b>—</b>	<b>32000</b>	<b>350</b>	<b>80</b>
<b>TOTAL</b>				<b>245</b>	<b>228,900</b>	<b>1,125</b>	<b>940</b>

\*Does not include existing

\*Does not include Sterling Frontage road parking or on-

### NEW & ENHANCED STREETS

	Linear Feet	Parking Stalls
Bridgehead District Streets	5,100	392
Park District Streets	3,720	286
<b>TOTAL ON-STREET PARKING</b>		<b>678</b>
<b>TOTAL ROW</b>	<b>8820</b>	
TOTAL NEW STREETS	5590	
TOTAL ENHANCED STREETS	2270	
Sterling Highway Frontage Road	1,970	246

### NEW OPEN SPACE

	Square Feet
<b>TOTAL OPEN SPACE</b>	<b>285,500</b>

### ASSUMPTIONS

Comm. Parking Ratio	0.0025
Res. Parking Ratio	1.50
Res. Unit (average)	1,250
Parking Stall Area	425



# BRIDGEHEAD & PARK DISTRICT SCENARIOS | RIVER STREET CONCEPT

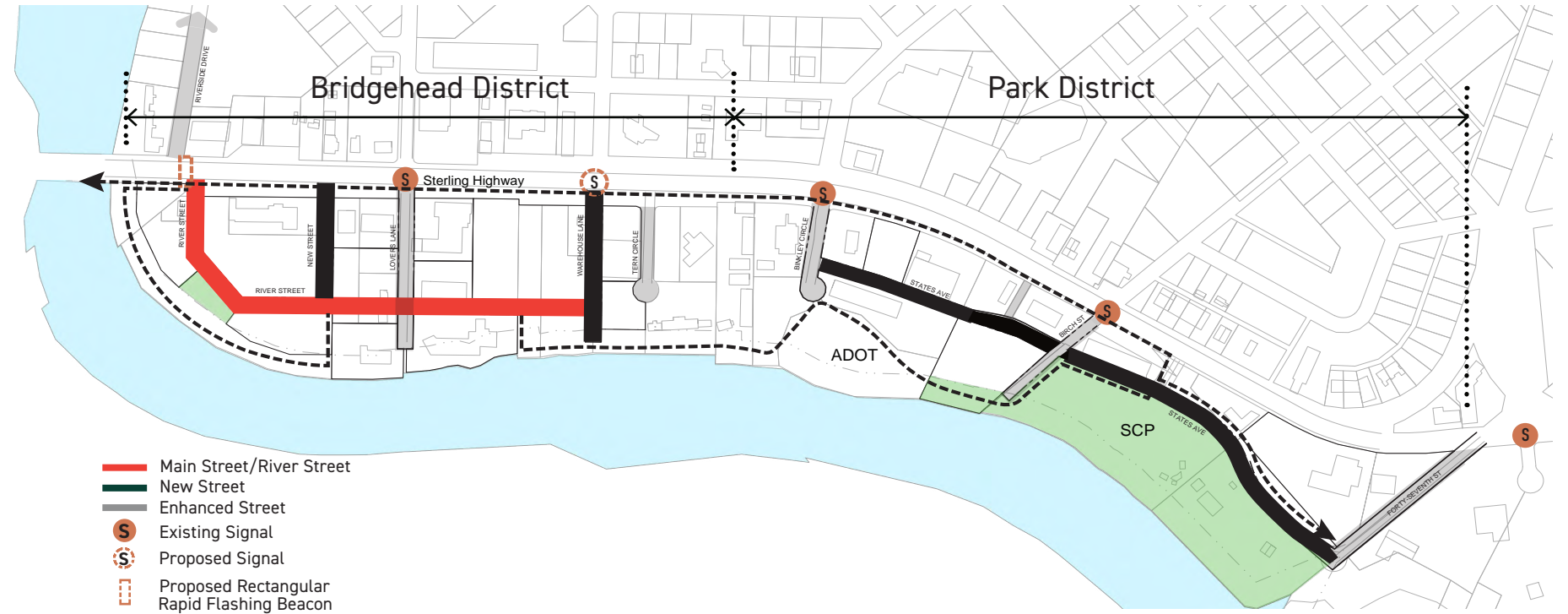
## River Street Development Framework

Within the Bridgehead District, the **River Street Concept** provides for a retail and shopping destination with storefronts and housing oriented along a four-block River Street. The River Street development is anchored by a public market, public plaza and riverfront open space with infill development of commercial uses oriented to Sterling Highway. A new States Avenue connection, parking, and plaza anchor the Park District.

## Development Potential:

Highway Commercial:	29,825 square feet
River Street Retail:	89,475 square feet
Hotel:	TBD
Residential:	225 units
Plaza and Open Space:	7.3 acres
Public Market:	15,000 square feet

## River Street Mobility Framework



## River Street Land Use Framework

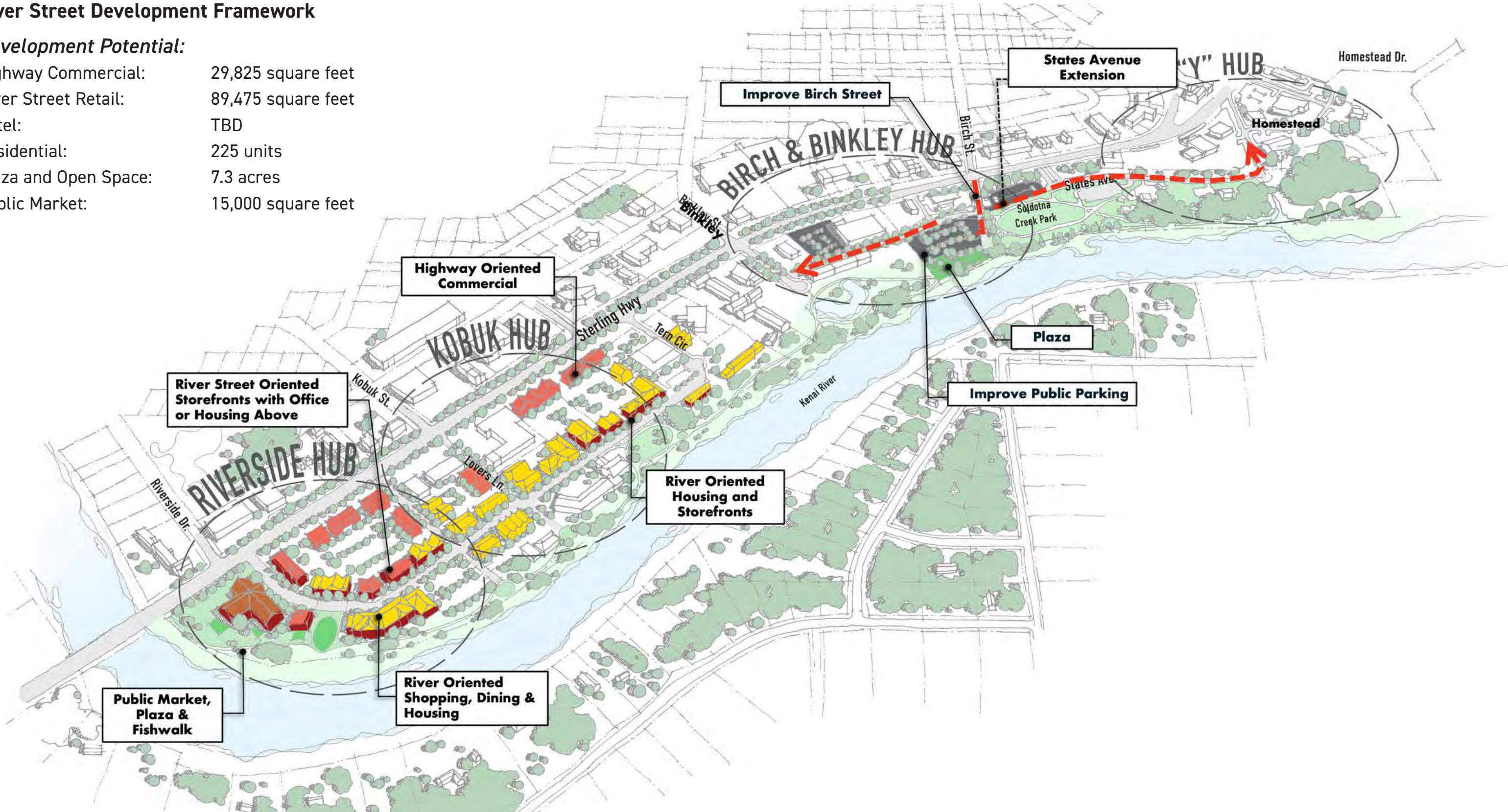


# BRIDGEHEAD & PARK DISTRICT SCENARIOS | RIVER STREET CONCEPT

## River Street Development Framework

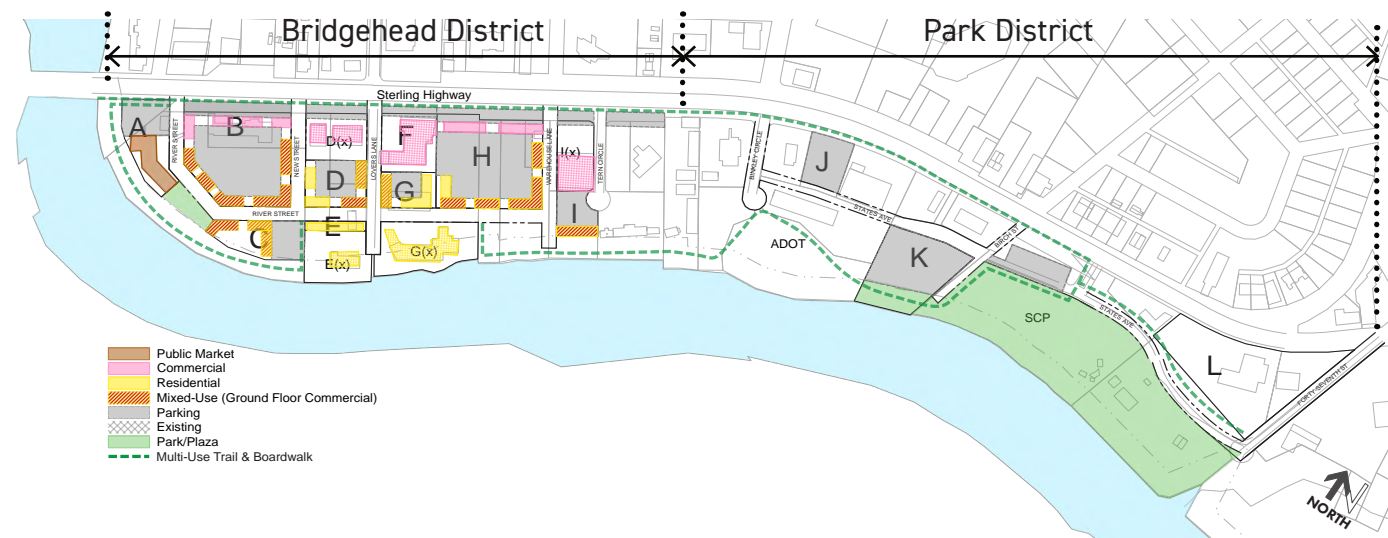
### Development Potential:

Highway Commercial:	29,825 square feet
River Street Retail:	89,475 square feet
Hotel:	TBD
Residential:	225 units
Plaza and Open Space:	7.3 acres
Public Market:	15,000 square feet



# BRIDGEHEAD & PARK DISTRICT SCENARIOS | RIVER STREET CONCEPT

## River Street Development Framework



### NEW DEVELOPMENT

#### Option: River Street

Block	Type	Total Area	Height (stories)	Res Units	Non Res SF*	New Surface Parking*	Calc - Required parking
A	Redevelop (market)	63,500	2	—	19000	69	48
B	Redevelop	162,000	3.5	55	41600	226	186
C	Redevelop	64,500	3.5	29	14300	53	79
D	Redevelop	50,000	3.5	34	9100	61	73
D(x)	Existing DQ/Commercial	50,000	—	—	—	—	—
E	New (TH/potential swap)	10,000	2	10	—	—	15
E(x)	Existing Riverquest	58,000	—	—	—	—	—
F	Existing Sal's Commercial	56,000	—	—	—	—	—
G	Redevelop	34,000	2.5	30	5800	31	60
G(x)	Existing Asst Living	82,000	—	—	—	—	—
H	Redevelop	168,000	3.5	53	22200	244	135
I	Redevelop	29,000	3.5	15	7300	52	40
I(x)	Existing Blazy Mall	44,500	—	—	—	—	—
<b>Subtotal: Bridgehead District</b>				<b>225</b>	<b>119300</b>	<b>735</b>	<b>635</b>
J	Redevelop	37,000	—	—	—	87	—
K	Redevelop	104,500	—	—	—	186	—
L	Redevelop Kendall's	180,000	—	—	—	—	—
Soldotna Creek Park	Existing	343,000	—	—	—	30	—
<b>Subtotal: Park District</b>				<b>—</b>	<b>—</b>	<b>303</b>	<b>—</b>
<b>TOTAL</b>				<b>225</b>	<b>119,300</b>	<b>1,038</b>	<b>635</b>

\*Does not include existing

\*Does not include Sterling Frontage road parking or on-street

### NEW & ENHANCED STREETS

	Linear Feet	Parking Stalls
Bridgehead District Streets	3670	282
Park District Streets	3720	286
<b>TOTAL ON-STREET PARKING</b>		<b>568</b>
<b>TOTAL ROW</b>	<b>7390</b>	
TOTAL NEW STREETS	5120	
TOTAL ENHANCED STREETS	2270	
 Sterling Highway Frontage Road	1,970	235

### NEW OPEN SPACE

	Square Feet
<b>TOTAL OPEN SPACE</b>	<b>321,000</b>

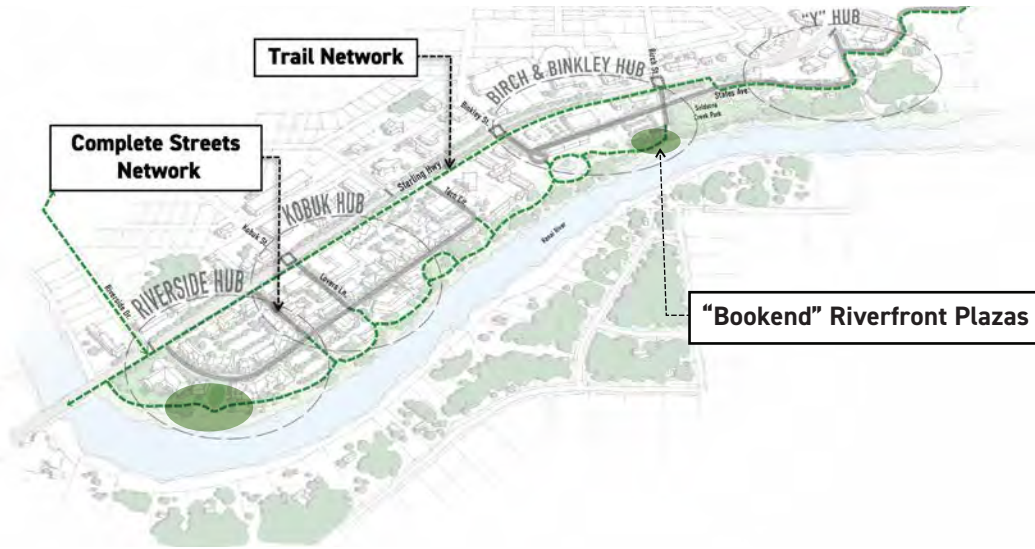
### ASSUMPTIONS

Comm. Parking Ratio	0.0025
Res. Parking Ratio	1.50
Res. Unit (average)	1,250
Parking Stall Area	425

# COMPLETE STREETS AND TRAILS | SAFE AND DIRECT ACCESS FOR ALL AGES AND ABILITIES



## Complete Streets + Trails Framework



Complete streets and trails provide safe, direct, and continuous access to destinations for all ages, abilities and users, whether you walk, bike, roll, or drive.

New and enhanced streets provide direct and convenient local access between the Sterling Highway and the Kenai River and an interconnected street grid supports existing and future development within Hubs along the corridor.

**A Main Street or River Street serves as a destination** for retail, dining and housing within an emphasis on slower vehicle speeds and encouraging walking and biking.

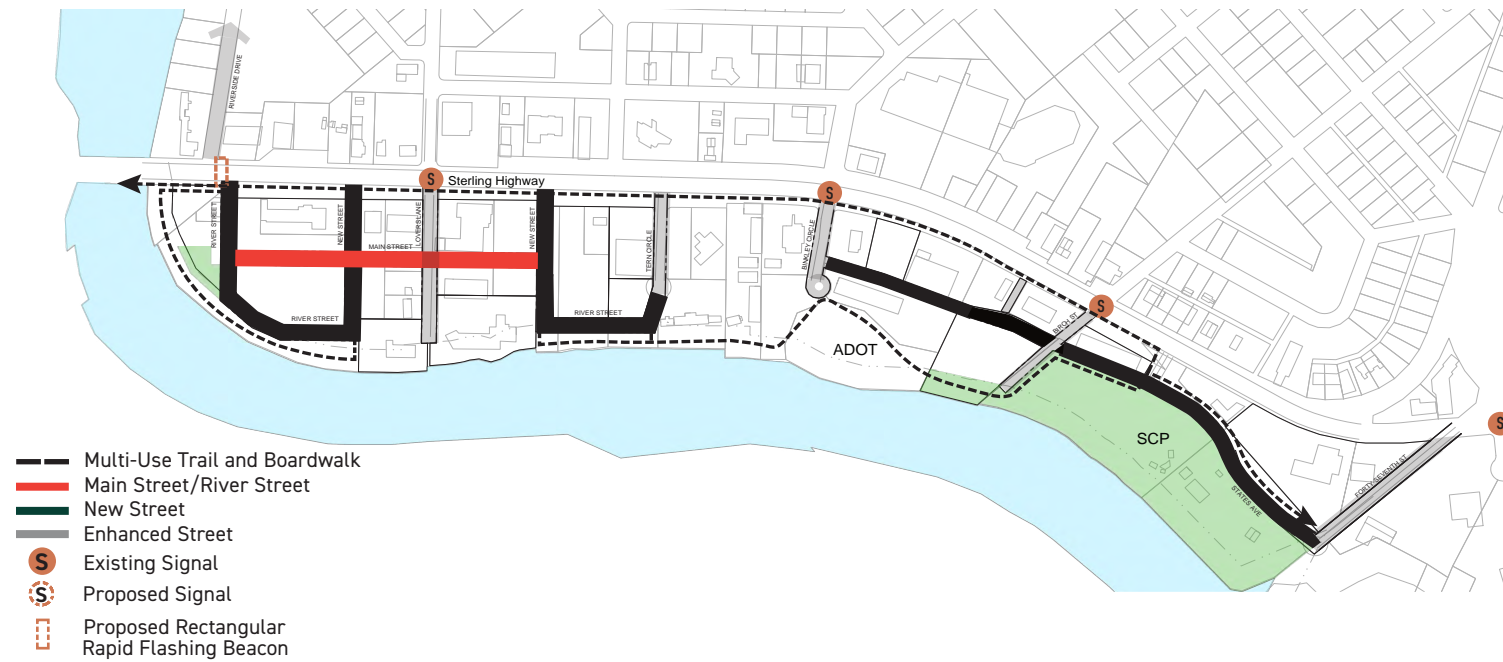
Trails along Sterling Highway and the Kenai Riverfront support **a continuous multi-use trail connection** to promote walking and biking and access management measures to support highway operations.



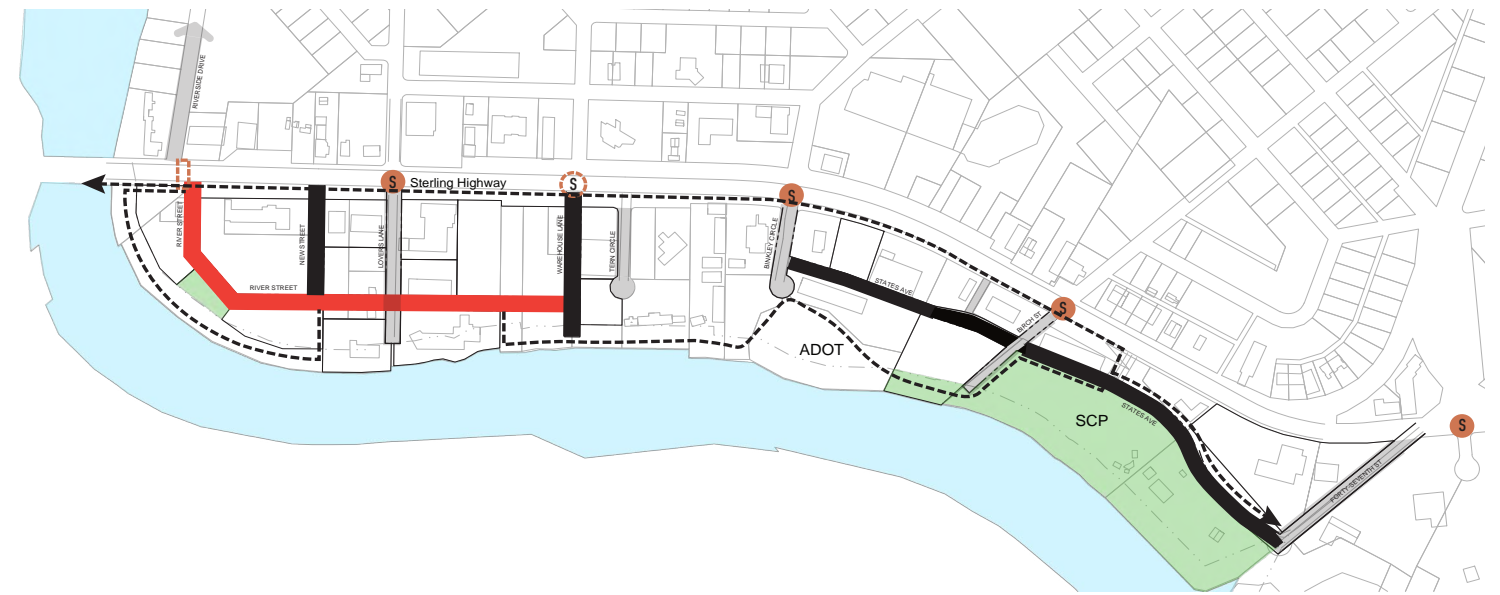
# COMPLETE STREETS AND TRAILS | SAFE AND DIRECT ACCESS FOR ALL AGES AND ABILITIES



## Main Street Mobility Framework



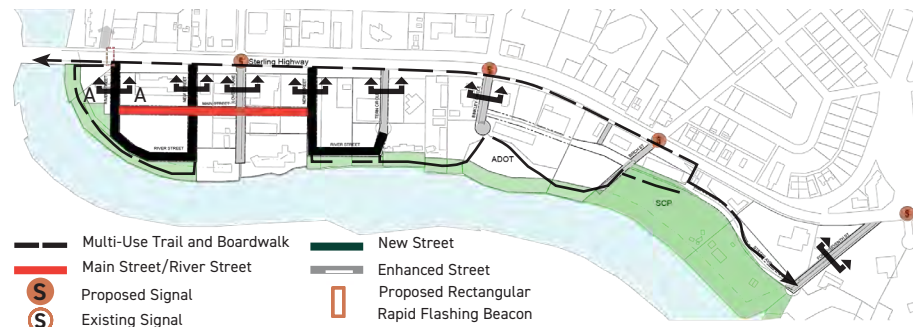
## River Street Mobility Framework



The Mobility Framework diagram illustrates a network of streets designed to support redevelopment and encourage the use of streets for more than just vehicular movement, transforming them into vibrant spaces for people. Detailed cross-sections and sidewalk elements promoting a walkable downtown and accessible riverfront are further elaborated on the following pages.

# NEW AND ENHANCED STREETS | MAIN STREET

## New Streets & Enhanced Streets Framework



A **new Main Street**, located between the Sterling Highway and the Kenai River, **provides local traffic access, convenient on-street parking to support businesses and residents and an enhanced pedestrian environment** with wide sidewalks, street trees and lighting.

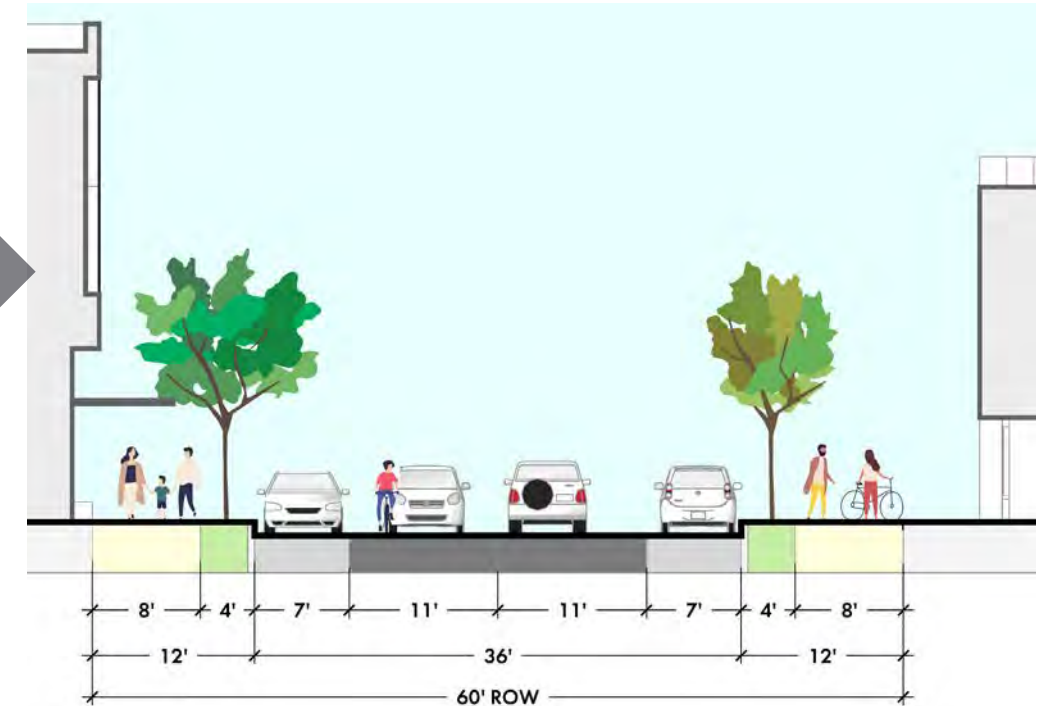
Enhanced streets consist of improvements to Lover's Lane, Birch Street, Binkley Street, and Tern Circle.

All new and enhanced street improvements would be supported within a typical 60-foot right-of-way or modified where conditions require adjustments.

## Main Street Precedent



## New, Enhanced, & Main Street Section- (Typical 60' Right-of-way)



Ex. Lover's Lane (60' ROW)



Ex. Tern Circle (60' ROW)



Ex. Binkley Street (60' ROW)

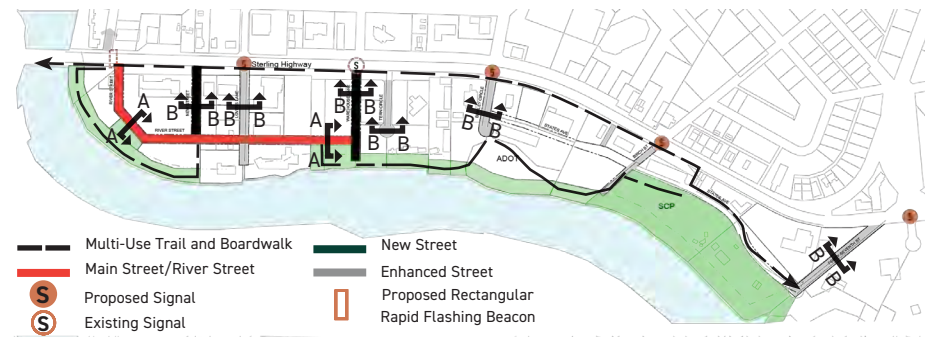


Ex. Birch Street (60' ROW)



# NEW AND ENHANCED STREETS | RIVER STREET

## New Streets and Enhanced Streets Framework

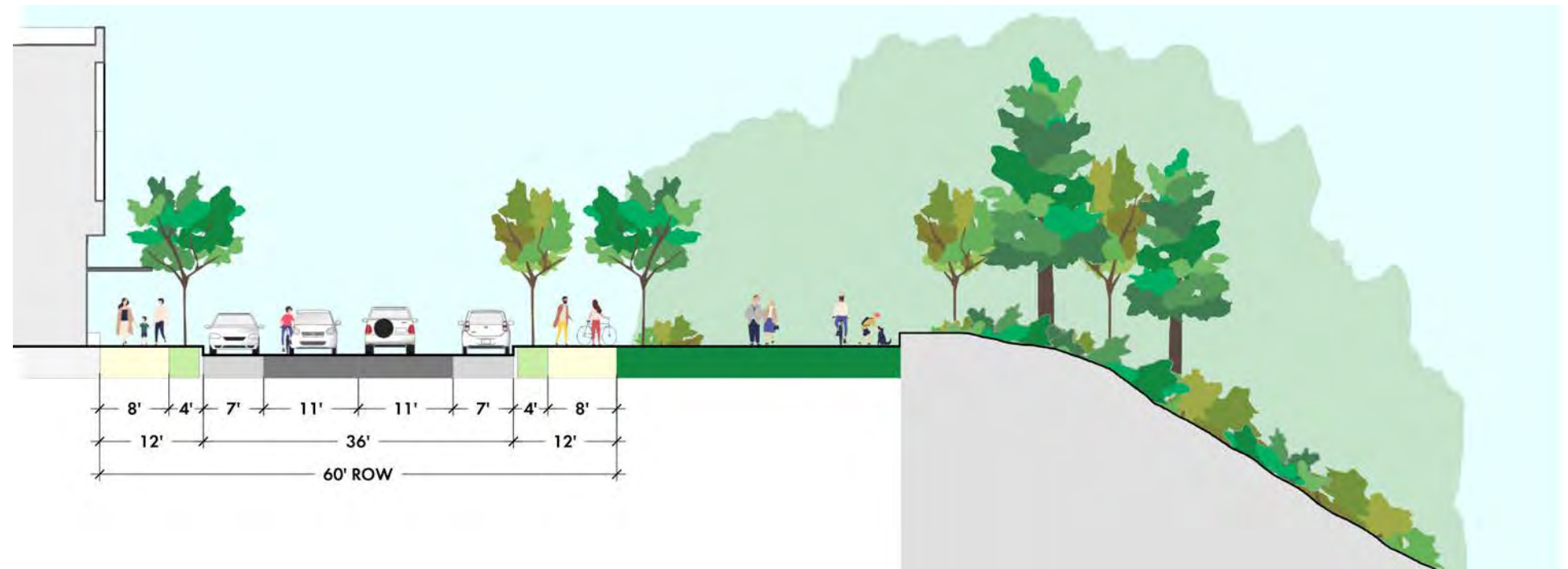


A new River Street, oriented to the Kenai River, provides local traffic access, convenient on-street parking to support businesses and residents and an enhanced pedestrian environment with wide sidewalks, street trees and lighting.

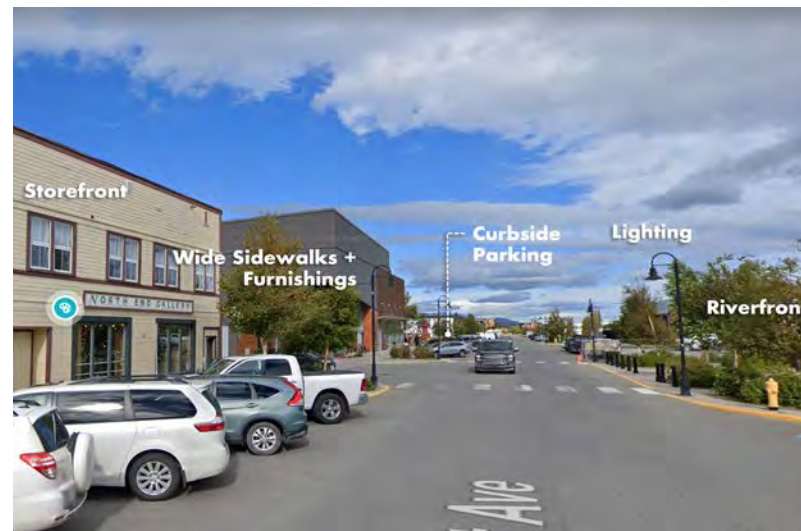
Enhanced streets consist of improvements to Lover's Lane, Birch Street, Binkley Street, and Tern Circle.

All new and enhanced street improvements would be supported within a typical 60-foot right-of-way or modified where conditions require adjustments.

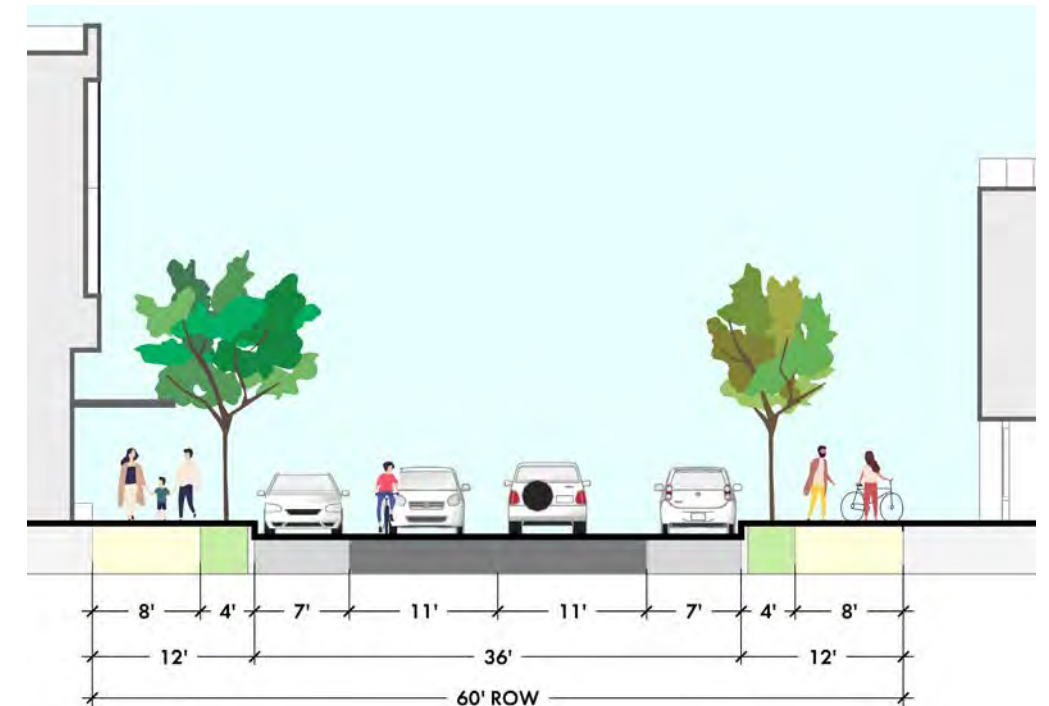
## River Street Section AA- (Typical 60' Right-of-way)



## River Street Precedent

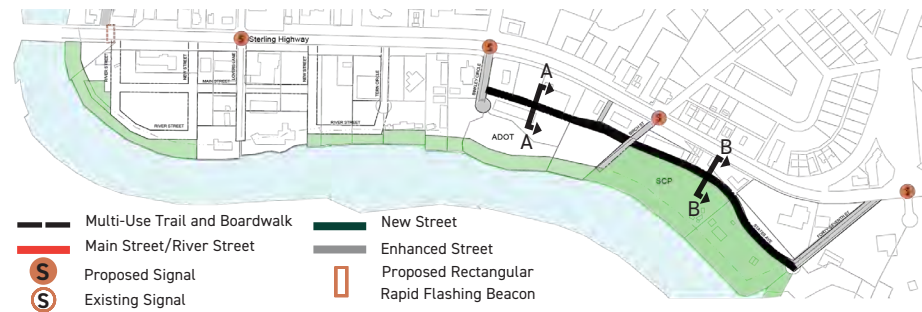


## New, Enhanced, & River Street Section BB - (Typical 60' Right-of-way)



# NEW AND ENHANCED STREETS | STATES AVENUE

## New States Avenue + Enhanced Streets Framework



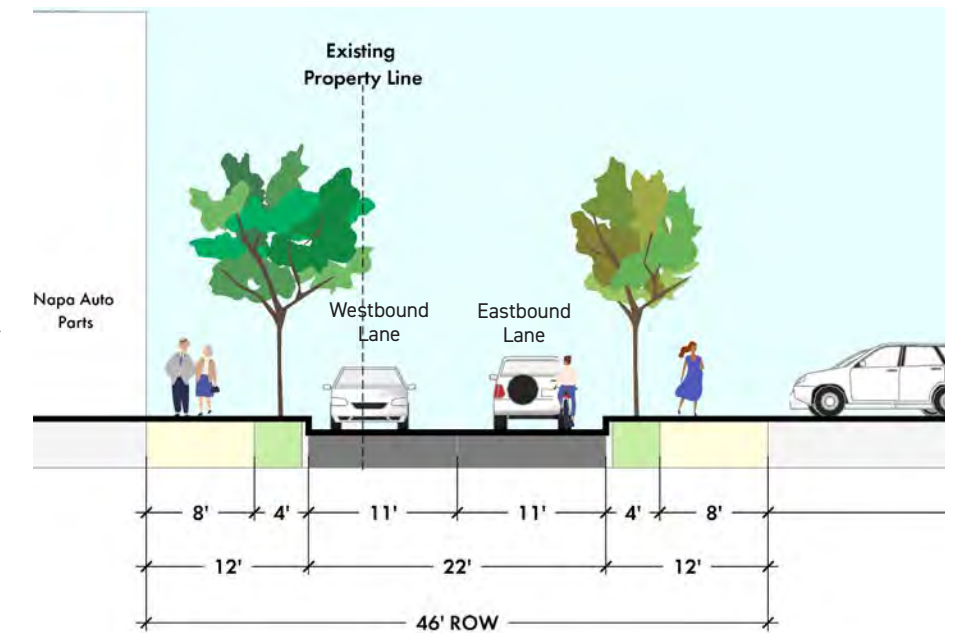
States Avenue replaces the Soldotna Creek Park Driveway and the Aspen Hotel driveway with a new street connection between Binkley Street, Birch Street, and 47th Street. The States Avenue connection combined with the City's planned future improvements to Homestead Drive (between 47th Street and Redoubt Street) will provide a parallel route to Sterling Highway and improved access to businesses between the Binkley Street, Birch Street and the "Y" Intersection Hubs and Soldotna Creek Park.

**States Avenue improvements will support convenient local vehicular access, on-street parking and wide sidewalks with street trees and lighting.** West of Birch Street a multi-use trail will be located along the north side of the street and is an extension of the proposed Sterling Highway trail.

## Existing Aspen Hotel Driveway



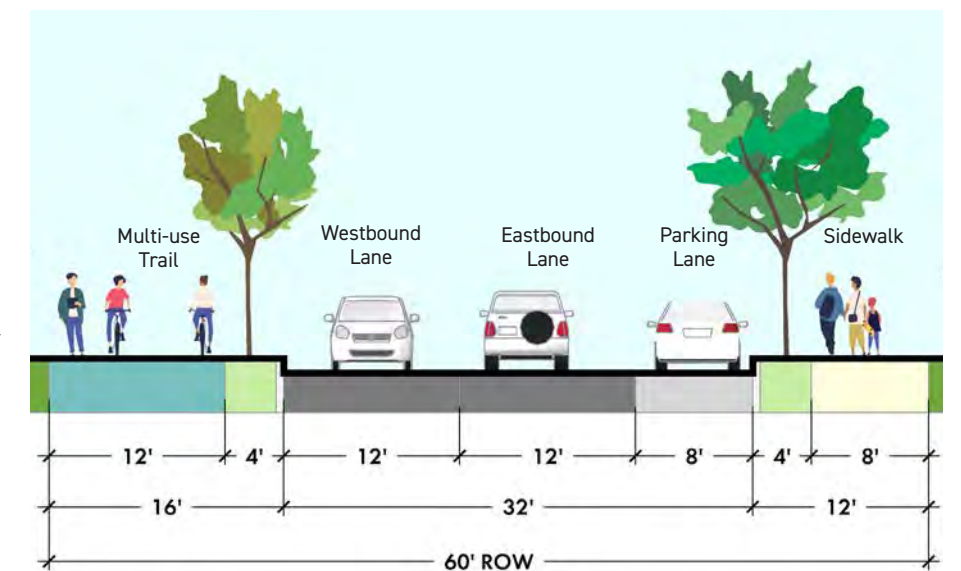
## Proposed States Avenue- Section AA



## Existing Soldotna Creek Park Driveway



## Proposed States Avenue- Section BB





# STERLING HIGHWAY | HIGHWAY ACCESS MANAGEMENT

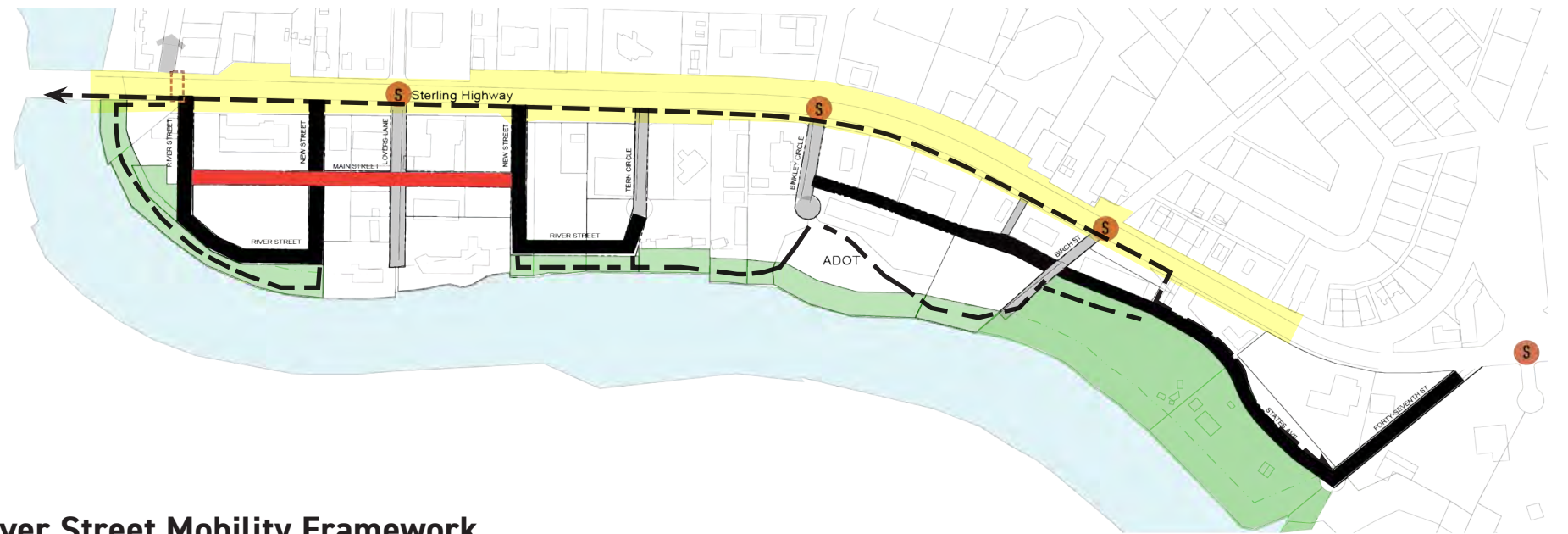
The Sterling Highway provides drive-by traffic and visibility that is essential to support businesses within the project area. Traffic signals at Kobuk Street/Lover's Lane, Binkley Street/Binkley Circle and Birch Street manage traffic flow and access to the local street network. Today, walk and bike use of the corridor is limited due to a lack of bicycle facilities, existing sidewalks located directly next to busy travel lanes and crossings limited to only signalized intersections.

Traffic safety and operations are impacted by the multiple driveways accessing the highway which contributes to traffic collisions. Some portions of the DOT right-of-way are wider and include a landscape setback and/or parking lanes used by adjacent businesses.

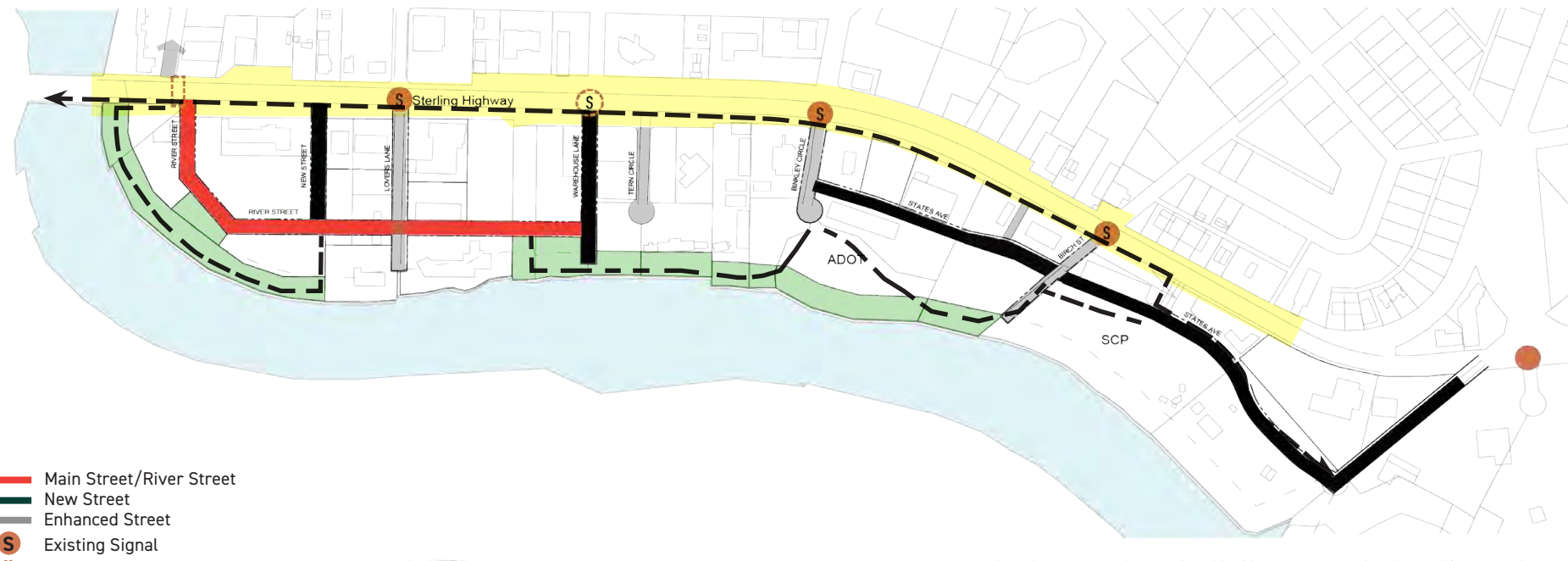
Preliminary concepts for mobility management are intended to address these conditions and provide for:

1. A multi-use trail and landscape buffer along the south side of the roadway to promote safe walking and biking
2. Consideration of additional crossings and or enhancements to existing crossings to promote walk and bike access
3. Consolidation of some driveways to support traffic operations and safety
4. A standardized parking lane and driveways between business to support business access

## Main Street Mobility Framework



## River Street Mobility Framework



- Main Street/River Street
- New Street
- Enhanced Street
- Ⓢ Existing Signal
- Ⓢ Proposed Signal
- - - Proposed Rectangular Rapid Flashing Beacon
- Sterling Highway ROW
- Transportation Demand Management Area

# Soldotna Downtown Riverfront Redevelopment Plan Appendices

## **APPENDIX A: PROJECT INITIATION**

- A.1 Environmental Review
- A.2 Market Analysis
- A.3 Transportation Conditions Assessment
- A.4 Parks and Trails Considerations

## **APPENDIX B: BUILD THE VISION**

- B.1 Preliminary Development Concepts
- B.2 Utilities Impacts Analysis
- B.3 Traffic and Safety Impacts Analysis
- B.4 Market Hall Case Studies
- B.5 Market Hall Assessment
- B.6 Development Feasibility Analysis

## **▶ APPENDIX C: MASTER PLAN**

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### **C.1 Development Summary**

### **C.2 Business Case- 20-Year Build-out**

### **C.3 Development Strategy**

### **C.4 Streets, Sterling Trail and Utilities Cost Estimate**

### **C.5 Plazas and Parks Cost Estimate**

## **APPENDIX D: COMMUNITY ENGAGEMENT**

- D.1 Community Engagement Plan
- D.2 Project Advisory Committee Plan
- D.3 Engagement Milestone #1 Objectives and Vision
- D.4 Engagement Milestone #2 Preliminary Concepts
- D.5 City Council Work Sessions

## **APPENDIX E: DRAFT MIXED USE ZONING**

- E.1 Draft Downtown Riverfront Mixed-Use District

# APPENDIX C: MASTER PLAN

## C.1 Development Summary

**Document:** Illustrative Plan, Catalyst Sites and Catalyst Sites Phasing Exhibits. Development Summary spreadsheets. FIRST FORTY FEET

**Description:** Illustrative Plan exhibits and full development summary spreadsheet for Build-out of the project area, Catalyst Sites build-out and development summary spreadsheet and Catalyst Sites Phase 1 projects and development summary spreadsheet.

## C.2 Business Case- 20-Year Build-out

**Document:** Business Case - Soldotna 20-Year Buildout Analysis; ECONorthwest, Economics and Research Consultant

**Description:** *Analysis memo of the economic impacts of constructing the infrastructure and buildings outlined in the Development Summary and illustrative Plan.. Identifies the economic and community benefits warranting the City's continued investment and support of the Redevelopment Plan's catalyst sites and projects..*

## C.3 Development Strategy

**Document:** Downtown Riverfront Redevelopment Plan - Development Strategy Memo; ECONorthwest, Economics and Research Consultant

**Description:** *Development Strategy delineating initial catalyst projects, actions and strategies that are designed to stimulate immediate development and set in motion a trajectory that aligns with the vision articulated in the Plan. Key focus areas include infrastructure investments, strategic land acquisition, market hall feasibility and mixed-income housing. The strategy offers flexible guidance for the City rather than prescriptive direction, outlining initial actions and investment priorities, along with potential partnerships and funding for catalyst projects,*

## C.4 Streets, Sterling Trail and Utilities Cost Estimate

**Document:** City of Soldotna Riverfront Plan: Utility & Roadway Improvements Construction Cost Estimates Memo, Kinney Engineering

**Description:** *Memo updates the preliminary development concepts utilities and roadway construction costs for the preferred plan. Provides additional utilities and roadway construction costs breakdown for the Catalyst Sites.*

## C.5 Plazas and Parks Cost Estimate

**Document:** Rough Order of Magnitude Costs Estimate for Parks, Trail, Boardwalks and Overlooks, Greenworks Landscape Architecture

**Description:** *Rough order of magnitude construction costs for the Bridgehead Park, River Street Park and Soldotna Creek Park Plazas. Includes added trails, boardwalks and overlooks.*

# Development Summary: Build-out



DEVELOPMENT BLOCKS & NEW PARKING LOTS

Block	Building #	Type	Total Area	Total floors	Res area/floor	Res Area Total	Res Units	Non Res SF*	Off-Street Pkg*	On-Street Pkg	Sterling Frontage Pkg	Calc - Required parking
BRIDGEHEAD DISTRICT												
<b>A</b>		<b>Commercial &amp; Townhome</b>	60,000						35	6		—
	A-1	Comm. Bldg . 1		1.0		—	—	5500	—	—		14
	A-2	Comm. Bldg. 2		1.0		—	—	7500	—	—		19
	A-3	Townhome 1-8		2.0	800	12800	8	—	16	—		16
	TOTAL					12800	8	13000				49
<b>B</b>		<b>Hotel &amp; Commercial</b>	155,000	3.0					100	45	83	—
	B-1	Hotel - Bldg 1 (Rooms 2-3)		2.0	11000	22000.0	62	—	—	—		62
	B-1	Gr. Flr. Lobby-Restaurant		1.0				20000	—	—		82
	B-2	Commercial		1.0				5000				13
	B-3	Commercial		1.0				5000				13
	B-4	Commercial		1.0				7750				19
	B-5	Commercial		1.0				5500				14
	B-6	Mixed-Use- Bldg. 6		4.0								—
	B-6	Gr flr. Comm.		1.0	—	—	—	3000				8
	B-6	Residential (Flrs 2-4)		3.0	8775	26325	30	—				30
	TOTAL					26325	30	46250				240
<b>C</b>		<b>Commercial &amp; Townhome</b>	60,000						24	11		—
	C-1	Commercial		1.0	—	—	—	5000				13
	C-2	Commercial		1.0	—	—	—	6750				17
	C-3	Commercial		1.0	—	—	—	3850				10
	C-4	Townhome 1-6		2.0	800	9600	6	—	12			12
	TOTAL					9600	6	15600				51
<b>D</b>		<b>Mixed Use Comm./Resid.</b>	90,000						64	40	32	—
	D-1 Bldg. 1	Existing DQ	5,400					—				—
	D-1 Bldg. 2	Existing GCI	8,400					—				—
	D-2	Mixed Use						—				—
	D-2	Gr. Flr Comml		1.0				4800				12
	D-2	Residential		3.0	16000	48000	54	—				54
	D3	Townhome (1-10)		2.0	800	16000	10	—	20			20
	TOTAL					64000	64	4800				86
<b>E</b>		<b>Commercial &amp; Townhome</b>	75,000						14	—		—
	E-1 Bldg. 1	Existing Riverquest		2.0	4250	8500	8	—				8
	E-2	Townhomes		2.0	800	30400	19	—	38			38
	TOTAL					38900	19	—				46
<b>F</b>		<b>Mixed Use Comm./Resid.</b>	110,000						74	35	56	—
	F-1	Commercial		2.0				14150				35

F-2	Commercial		2.0				13650			34
F-3	Mixed Use Comm./Resid		3.0							—
	<i>Gr flr. Comm.</i>		1.0				2700			7
	<i>Residential (Flrs 2-3)</i>		2.0	5400	9180	12	—			12
F-4	Mixed Use Comm./Resid.		5.0							—
	<i>Gr flr. Comm.</i>		1.0				6000			15
	<i>Residential (Flrs 2-5)</i>		4.0	12600	36930	50	—			50
F-5	Townhome		2.0	800	12800	8	—		16	16
					58910	70	36500			169
<b>G</b>	<b>G1 Existing Asst Living</b>	95,000							—	
<b>H</b>	<b>Mixed Use Comm./Resid</b>	105,000						95	40	56
H-1	Commercial		2.0				7600			19
H-2	Commercial		2.0				7600			19
H-3	Commercial		2.0				7600			19
H-4	Mixed Use Comm./Resid		4.0							—
H-4	<i>Gr flr. Comm.</i>		1.0				9800			25
H-4	<i>Residential (Flrs 2-4)</i>		3.0	17225	43924	59	—			59
H-5	Mixed Use Comm./Resid		4.0							—
H-5	<i>Gr flr. Comm.</i>		1.0				6500			16
H-5	<i>Residential (Flrs 2-4)</i>		3.0	8450	21548	29	—			29
					65471	87	39100			185
<b>I</b>	<b>Commercial</b>	00,000						18		
I-1	Commercial- Restaurant		1.0	—	—	—	4000			10
							4000			10
<b>J</b>	<b>Commercial</b>	80,000						16	35	23
J-1 Blazy Bldg	Existing Blazy Mall		2.0							—
<b>K</b>	<b>Commercial</b>									
K-1	Commercial- Restaurant		1.0	—	—	—	4200	18		11
							4200			11
<b>L</b>	<b>Commercial</b>	00,000							—	28
L-1	Existing bank									
<b>M</b>	<b>Lodging &amp; Commercial</b>	49,500							—	—
M-1	Existing Kenai River Suites					9				18
M-2	Townhome		2.0	800	27200	17		34		34
					27200	17				52
<b>Subtotal: Bridgehead District</b>				<b>303206</b>	<b>302</b>	<b>163450</b>	<b>594</b>	<b>212</b>	<b>278</b>	<b>898</b>

PARK DISTRICT

N	<b>Public Parking Lot</b>	39,375				69	—	
O	<b>Davis Block Parcel</b>	115,869	0.0	—	—	—	—	
	<b>Parking Structure Level 1&amp;2</b>		2			170		
	<b>Market Hall-Main Level</b>	12,000	3					48
	Commons				4,700			
	Mkt Stalls (13-18 stalls)				4,775			
	Lobby/Seating				825			
	Service/Stair/Elev./Bathroom				1,700			
	<b>Mezzanine Level</b>	7,750						31
	Visitor Center/Chamber Offices				3650			
	Meeting/Classroom				2900			
	Lobby/Seating				1200			
	<b>Lower Level</b>	12,000						48
	Anchor Restaurant				2200			
	Commons				2225			
	Mkt Stalls(5)				1825			
	Lobby/Seating				1200			
	Meetings				2850			
	Service/Stair/Elev./Bathroom				1700			
					31750			127
P	<b>Soldotna Creek Park</b>	343,000	0.0					
	Existing Parking					55		
	New Parking Lot					50		
	States Avenue Parking						22	
	<b>Subtotal: Park District</b>					<b>344</b>	<b>22</b>	
Q	<b>Existing Development</b>	180,000	0.0	—	—	—		

ASSUMPTIONS

Comm. Parking Ratio	0.0025
Multifamily Parking Ratio	1.00
Townhome Parking Ratio	2.00
Res. Unit (average)	750

\*Does not include Sterling Frontage road parking or on-street parking

\*Does not include Sterling Frontage road parking

\*Does not include Sterling Frontage road parking

# Catalyst Sites- Buildout

**Riverside Hub**  
**Street Segments**  
 River Street (Segment 1)  
 Parking Access Frontage (Segment A)  
 New Street (Segments 1-2)

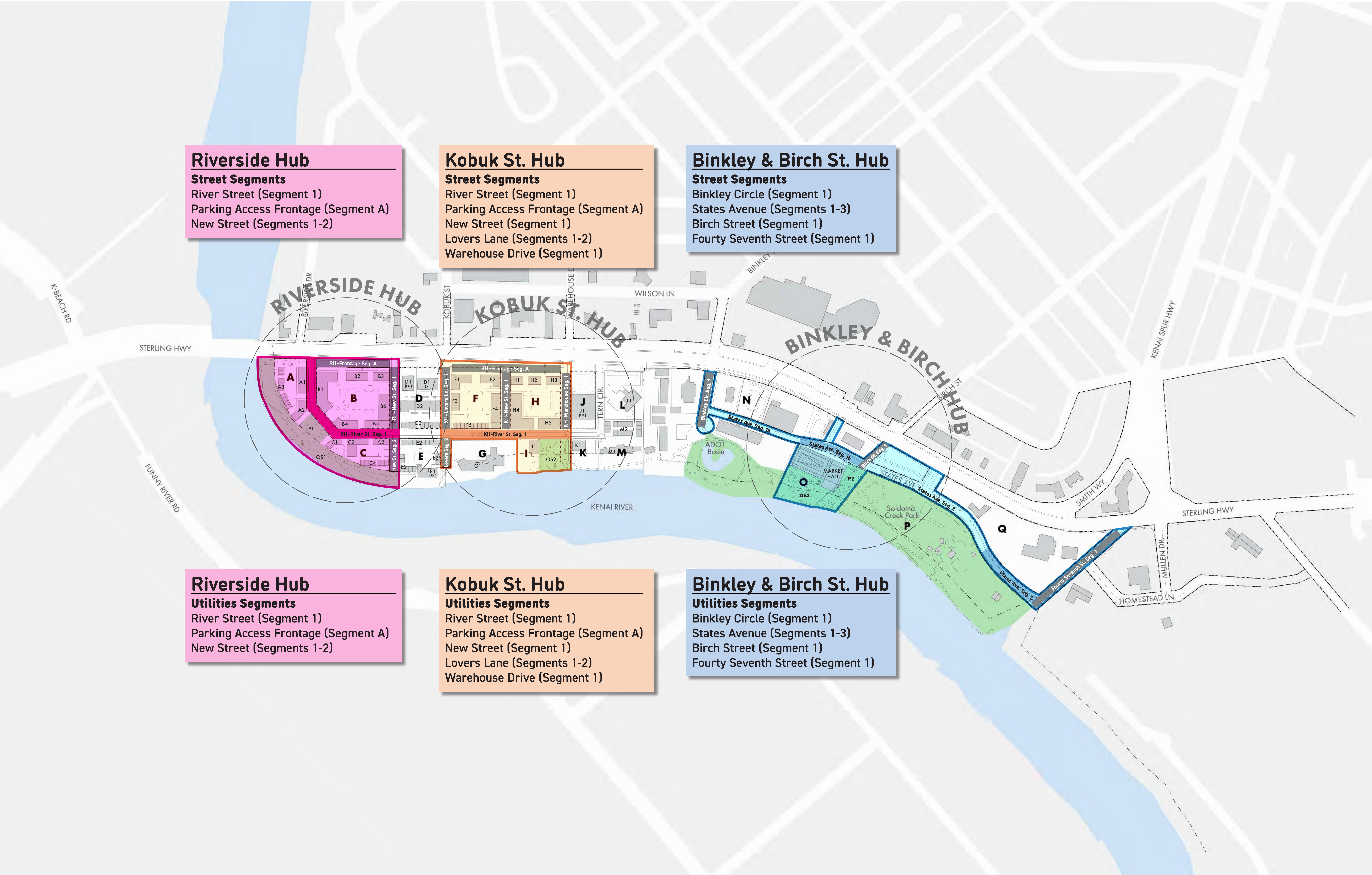
**Kobuk St. Hub**  
**Street Segments**  
 River Street (Segment 1)  
 Parking Access Frontage (Segment A)  
 New Street (Segment 1)  
 Lovers Lane (Segments 1-2)  
 Warehouse Drive (Segment 1)

**Binkley & Birch St. Hub**  
**Street Segments**  
 Binkley Circle (Segment 1)  
 States Avenue (Segments 1-3)  
 Birch Street (Segment 1)  
 Fourty Seventh Street (Segment 1)

**Riverside Hub**  
**Utilities Segments**  
 River Street (Segment 1)  
 Parking Access Frontage (Segment A)  
 New Street (Segments 1-2)

**Kobuk St. Hub**  
**Utilities Segments**  
 River Street (Segment 1)  
 Parking Access Frontage (Segment A)  
 New Street (Segment 1)  
 Lovers Lane (Segments 1-2)  
 Warehouse Drive (Segment 1)

**Binkley & Birch St. Hub**  
**Utilities Segments**  
 Binkley Circle (Segment 1)  
 States Avenue (Segments 1-3)  
 Birch Street (Segment 1)  
 Fourty Seventh Street (Segment 1)





# Catalyst Sites- Phase 1

**Riverside Hub**  
**PHASE ONE**  
**Infrastructure:**  
 River Street (Segment 1)  
 New Street (Segments 1-2)  
 Open Space Trail and Boardwalk

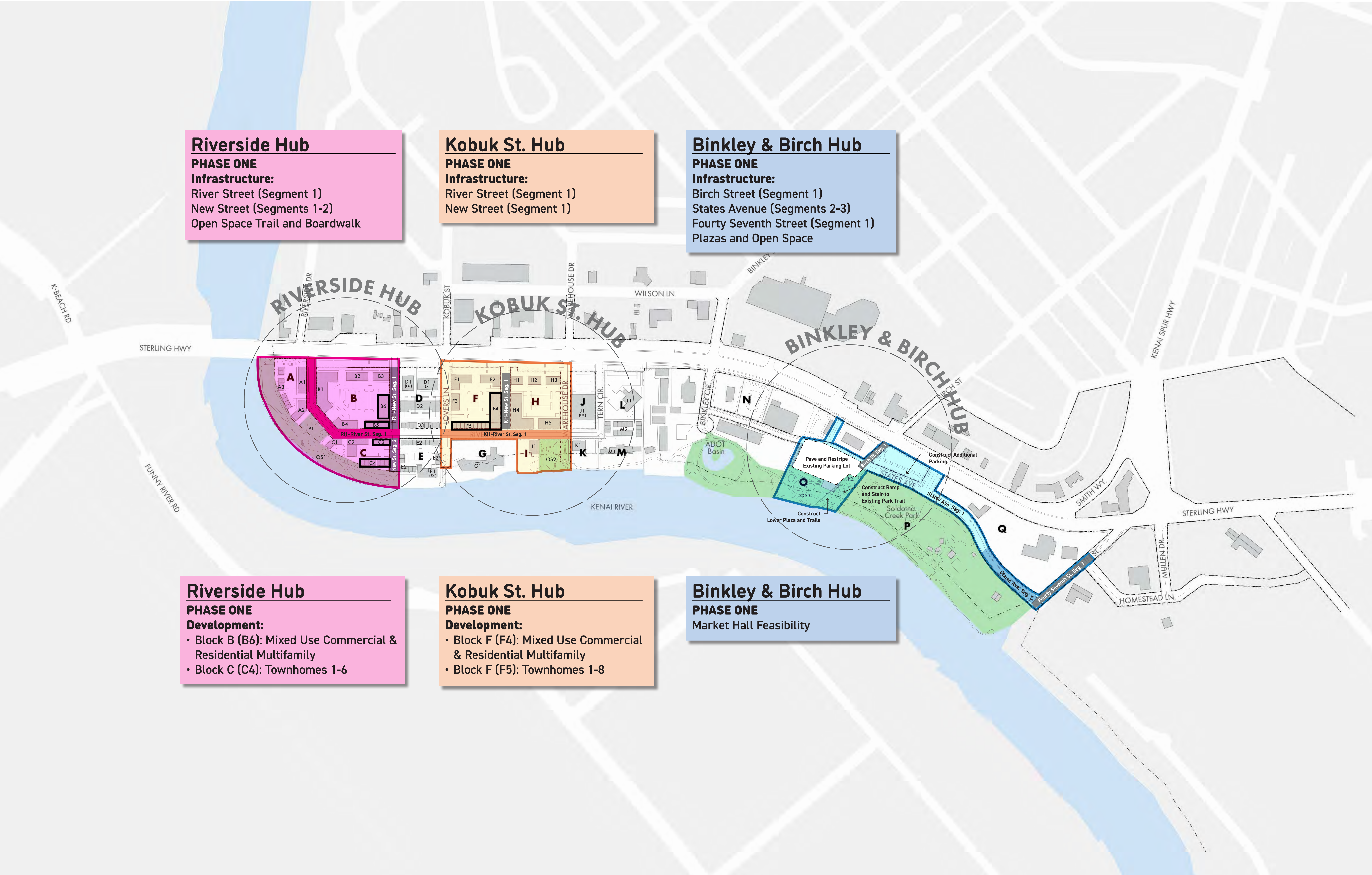
**Kobuk St. Hub**  
**PHASE ONE**  
**Infrastructure:**  
 River Street (Segment 1)  
 New Street (Segment 1)

**Binkley & Birch Hub**  
**PHASE ONE**  
**Infrastructure:**  
 Birch Street (Segment 1)  
 States Avenue (Segments 2-3)  
 Fourty Seventh Street (Segment 1)  
 Plazas and Open Space

**Riverside Hub**  
**PHASE ONE**  
**Development:**  
 • Block B (B6): Mixed Use Commercial & Residential Multifamily  
 • Block C (C4): Townhomes 1-6

**Kobuk St. Hub**  
**PHASE ONE**  
**Development:**  
 • Block F (F4): Mixed Use Commercial & Residential Multifamily  
 • Block F (F5): Townhomes 1-8

**Binkley & Birch Hub**  
**PHASE ONE**  
 Market Hall Feasibility



<b>1 Riverside Hub- Build Out</b>						
Street Improvements		Quantity	Unit	Cost	Unit	Cost
Seg. 1 River Street		760	LF	\$1,465	LF	\$1,113,400
Seg. A Parking Access Frontage		460	LF	\$1,295	LF	\$595,700
Seg. 1 New Street 1-Seg. 1		490	LF	\$1,465	LF	\$717,850
Seg. 2 New Street 1- Seg. 2		78	LF	\$1,465	LF	\$114,270
Total:		1,788				\$2,541,220
Utilities Improvements		Quantity	Unit	Cost	Unit	Cost
Seg. 1 River Street		760	LF	\$1,158	LF	\$880,080
Seg. A Parking Access Frontage		460	LF	\$1,158	LF	\$532,680
Seg. 1 New Street 1- Seg. 1		490	LF	\$1,158	LF	\$567,420
Seg. 2 New Street 1- Seg. 2		78	LF	\$1,158	LF	\$90,324
Total:		1,788				\$2,070,504
Public Amenities Improvements		Quantity	Unit	Cost	Unit	Cost
Boardwalk		1,100	LF	\$1,150	LF	\$1,265,000
Trail Connections		1,260	LF	\$142	LF	\$178,920
Trail Ramp		450	LF	\$425	LF	\$191,250
Plaza		35,553	SF	\$33	LF	\$1,155,473
Sculpture		1	LF		LF	\$365,000
Total:						\$3,155,643
		2,810			TOTAL	\$7,767,367

<b>1 Riverside Hub- Phase 1</b>						
Street Improvements		Quantity	Unit	Cost	Unit	Cost
Seg. 1 River Street		760	LF	\$1,465	LF	\$1,113,400
Seg. A Parking Access Frontage		0	LF	\$1,295	LF	\$0
Seg. 1 New Street 1		490	LF	\$1,465	LF	\$717,850
Seg. 2 New Street 1		78	LF	\$1,465	LF	\$114,270
Total:		1,328				\$1,945,520
Utilities Improvements		Quantity	Unit	Cost	Unit	Cost
Seg. 1 River Street		760	LF	\$1,158	LF	\$880,080
Seg. A Parking Access Frontage		0	LF	\$1,158	LF	\$0
Seg. 1 New Street 1		490	LF	\$1,158	LF	\$567,420
Seg. 2 New Street 1		0	LF	\$1,158	LF	\$0
Total:		1,250				\$1,447,500
Public Amenities Improvements		Quantity	Unit	Cost	Unit	Cost
Boardwalk		1,100	LF	\$1,150	LF	\$1,265,000
Trail Connections		1,475	LF	\$142	LF	\$209,450
Total:		2,575				\$1,474,450
					TOTAL	4,867,470

1		Riverside Hub- Build Out										
Block	Building #	Bridgehead District	Type	Total Area	Total floors	Res area/floor	Res Area Total	Res Units	Non Res SF*	Off-Street Pkg*	On-Street Pkg	Required parking
<b>A</b>		<b>Commercial &amp; Townhome</b>		60,000						41	5	—
	A-1	Comm. Bldg . 1			1.0		—	—	5500	—	—	14
	A-2	Comm. Bldg. 2			1.0		—	—	7500	—	—	19
	A-3	Townhome 1-6			2.0	800	9600	6	—	6	—	12
	TOTAL							6	13000	52	—	45
<b>B</b>		<b>Hotel &amp; Commercial</b>		155,000	3.0					85	127	
	B-1	Hotel - Bldg 1 (Levels 2-3)			2.0	11000	22000.0	62	—	—	—	62
	B-1	Gr. Flr. Lobby-Restaurant			1.0			—	20000	—	—	82
	B-2	Commercial			1.0			—	5000	—	—	13
	B-3	Commercial			1.0			—	5000	—	—	13
	B-4	Commercial			1.0			—	7750	—	—	19
	B-5	Commercial			1.0			—	5500	—	—	14
	B-6	Mixed-Use- Bldg. 6			4.0			—	—	—	—	—
	B-6	Gr flr. Comm.			1.0	—	—	—	3000	—	—	8
	B-6	Residential (Flrs 2-4)			3.0	8775	26325	30	—	30	—	30
	TOTAL							92	46250	242	10	240
<b>C</b>		<b>Commercial &amp; Townhome</b>		60,000						32	10	—
	C-1	Commercial			1.0	—	—	—	5000	—	—	13
	C-2	Commercial			1.0	—	—	—	6750	—	—	17
	C-3	Commercial			1.0	—	—	—	3850	—	—	10
	C-4	Townhome 1-6			2.0	800	9600	6	—	12	—	12
	TOTAL						9600	6	15600	54	—	51
	<b>TOTAL:</b>						<b>45525</b>	<b>42</b>	<b>74850</b>	<b>348</b>		<b>335</b>
							<b>Hotel Rooms</b>	<b>62</b>				

1		Riverside Hub- Phase 1										
Block	Building #	Bridgehead District	Type	Total Area	Total floors	Res area/floor	Res Area Total	Res Units	Non Res SF*	Off-Street Pkg*	On-Street Pkg	Calc - Required parking
	B-6	Mixed-Use- Bldg. 6			4.0			—	—	—	22	—
	B-6	Gr flr. Comm.			1.0	—	—	—	3000	—	—	8
	B-6	Residential (Flrs 2-4)			3.0	8775	26325	30	—	30	—	30
	C-4	Townhome 1-6			2.0	800	9600	6	—	12	—	12
	TOTAL						35925	36	3000	64	—	50
	<b>TOTAL:</b>						<b>35925</b>	<b>36</b>	<b>3000</b>	<b>64</b>		

**Binkley & Birch Street Hub Buildout**

Street Improvements	Quantity	Unit	Cost	Unit	Cost
Seg. 1 Binkley Circle (Enhance)	380	LF	\$1,158	LF	\$440,040
Seg. 1a States Avenue (New)	575	LF	\$1,412	LF	\$811,900
Seg. 1b States Avenue (New)	455	LF	\$1,412	LF	\$642,460
Seg. 1 Birch Street (Enhance)	178	LF	\$1,412	LF	\$251,336
Seg. 2 States Avenue (Enhance)	770	LF	\$1,412	LF	\$1,087,240
Seg. 3 States Avenue (New)	580	LF	\$1,412	LF	\$818,960
Seg. 1 47th Street	680	LF	\$1,412	LF	\$960,160
<b>Total:</b>	<b>3,618</b>				<b>\$5,012,096</b>

**Binkley & Birch Street Hub Buildout**

Utilities Improvements	Quantity	Unit	Cost	Unit	Cost
Seg. 1 Binkley Circle	380	LF	\$749	LF	\$284,620
Seg. 1a States Avenue (New)	575	LF	\$749	LF	\$430,675
Seg. 1b States Avenue (New)	455	LF	\$749	LF	\$340,795
Seg. 1 Birch Street (Enhance)	178	LF	\$749	LF	\$133,322
Seg. 2 States Avenue (Enhance)	770	LF	\$749	LF	\$576,730
Seg. 3 States Avenue (New)	580	LF	\$749	LF	\$434,420
Seg. 1 47th Street (New/Enhance)	680	LF	\$749	LF	\$509,320
<b>Total:</b>	<b>3,618</b>				<b>\$2,709,882</b>

**Binkley & Birch Street Hub Buildout**

Public Amenities Improvements	Quantity	Unit	Cost	Unit	Cost
Trail Connections	780	LF	\$142	LF	\$110,760
Trail Ramp & Stairs	380	LF	\$25	SF	\$9,500
Plaza-Upper	15,075	SF	\$96	SF	\$1,450,969
Plaza-Lower	53,500	SF	\$39	LF	\$2,086,500
<b>Total:</b>					<b>\$3,657,729</b>

68,575

1,160

**TOTAL \$11,379,707****2 Binkley & Birch Street Hub- Phase 1**

Street Improvements	Quantity	Unit	Cost	Unit	Cost
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Seg. 1 Birch Street (Enhance)	178	LF	\$1,412	LF	\$251,336
Seg. 2 States Avenue (Enhance)	770	LF	\$1,412	LF	\$1,087,240
Seg. 3 States Avenue (New)	580	LF	\$1,412	LF	\$818,960
Seg. 1 47th Street (New/Enhance)	680	LF	\$1,412	LF	\$960,160
<b>Total:</b>	<b>2,208</b>				<b>\$3,117,696</b>

**2 Binkley & Birch Street Hub- Phase 1**

Utilities Improvements	Quantity	Unit	Cost	Unit	Cost
------------------------	----------	------	------	------	------

Seg. 1 Birch Street (Enhance)	280	LF	\$749	LF	\$209,720
Seg. 2 States Avenue (Enhance)	770	LF	\$749	LF	\$576,730
Seg. 3 States Avenue (New)	580	LF	\$749	LF	\$434,420
Seg. 1 47th Street (New/Enhance)	680	LF	\$749	LF	\$509,320
<b>Total:</b>	<b>2,310</b>				<b>\$1,730,190</b>

**2 Binkley & Birch Street Hub- Phase 1**

Public Amenities Improvements	Quantity	Unit	Cost	Unit	Cost
Trail Connections	780	LF	\$142	LF	\$110,760
Trail Ramp & Stairs	380	LF	\$25	SF	\$9,500
Plaza-Lower	53,500	SF	\$39	LF	\$2,086,500
<b>Total:</b>					<b>\$2,206,760</b>

**TOTAL \$7,054,646**

Binkley & Birch St. Hub Build Out											
Block	Building #	Park District									
	Type	Total Area	Total floors	Res area/floor	Res Area Total	Res Units	Non Res SF*	Surface		Calc -	
								Parking Area	Off-Street Pkg*	On-Street Pkg	Required parking
N	<b>Public Parking Lot</b>	39,375							69		
O	<b>Davis Block Parcel</b>	115,869	0.0								
	<b>Parking Structure Level 1&amp;2</b>		2					66700	170		
	<b>Market Hall-Main Level</b>	12,000	3								48
	Commons						4,700				
	Mkt Stalls (13-18 stalls)						4,775				
	Lobby/Seating						825				
	Service/Stair/Elev./Bathroom						1,700				
	<b>Mezzanine Level</b>	7,750									31
	Visitor Center/Chamber Offices						3650				
	Meeting/Classroom						2900				
	Lobby/Seating						1200				
	<b>Lower Level</b>	12,000									48
	Anchor Restaurant						2200				
	Commons						2225				
	Mkt Stalls(5)						1825				
	Lobby/Seating						1200				
	Meetings						2850				
	Service/Stair/Elev./Bathroom						1700				
							31750		170		127
P	<b>Soldotna Creek Park</b>	343,000	0.0								
	Existing Parking								138		
	New Parking Lot							19300	40		
	States Avenue Parking									22	
									200		
	<b>TOTAL:</b>						<b>31750</b>		<b>370</b>		

2 Binkley & Birch St. Hub- Phase 1											
Block	Building #	Bridghead District									
	Type	Total Area	Total floors	Res area/floor	Res Area Total	Res Units	Non Res SF*	Surface		Calc -	
								Parking Area	Off-Street Pkg*	On-Street Pkg	Required parking
P	<b>Soldotna Creek Park</b>	343,000	0.0								
	Existing Parking								55		
	New Parking Lot							19300	50		
	States Avenue Parking									22	
	<b>TOTAL:</b>								<b>127</b>		

**Kobuk St. Hub- Buildout**

Street Improvements	Quantity	Unit	Cost	Unit	Cost
Seg. 2b River Street (New-(Block F-H))	740	LF	\$1,465	LF	\$1,084,100
Seg. B Parking Access Frontage (Enhance)	740	LF	\$1,295	LF	\$958,300
Seg. 1 New Street 2 (New)	490	LF	\$1,465	LF	\$717,850
Seg. 1 Lovers Lane (Enhance)	450	LF	\$1,465	LF	\$659,250
Seg. 2 Lovers Lane (Enhance)	140	LF	\$1,465	LF	\$205,100
Seg. 1 Warehouse Drive (New)	490	LF	\$1,465	LF	\$717,850
<b>Total:</b>	<b>3,050</b>				<b>\$4,342,450</b>

**Kobuk St. Hub Buildout**

Utilities Improvements	Quantity	Unit	Cost	Unit	Cost
Seg. 2b River Street (New-(Block F-H))	740	LF	\$1,158	LF	\$856,920
Seg. B Parking Access Frontage (Enhance)	740	LF	\$1,158	LF	\$856,920
Seg. 1 New Street 2 (New-(BlockF-H))	490	LF	\$1,158	LF	\$567,420
Seg. 1 Lovers Lane (Enhance)	450	LF	\$1,158	LF	\$521,100
Seg. 2 Lovers Lane (Enhance)	140	LF	\$1,158	LF	\$162,120
Seg. 1 Warehouse Drive (New)	490	LF	\$1,158	LF	\$567,420
<b>Total:</b>	<b>3,050</b>				<b>\$3,531,900</b>

**Kobuk St. Hub- Buildout**

Public Amenities Improvements	Quantity	Unit	Cost	Unit	Cost
Open Space-2 (Upland)	37,000	SF	\$7.57	SF	\$280,090
<b>Total:</b>	<b>37,000</b>				<b>\$280,090</b>
				<b>Total</b>	<b>\$8,154,440</b>

**Kobuk St. Hub- Phase 1**

Street Improvements	Quantity	Unit	Cost	Unit	Cost
Seg. 2b River Street (New-(Block F))	370	LF	\$1,465	LF	\$542,050
Seg. 1 New Street 2 (New-(BlockF-H))	490	LF	\$1,158	LF	\$567,420
<b>Total:</b>	<b>860</b>				<b>\$1,109,470</b>

**Kobuk St. Hub- Phase 1**

Utilities Improvements	Quantity	Unit	Cost	Unit	Cost
Seg. 2b River Street (New-(Block F))	370	LF	\$1,158	LF	\$428,460
Seg. 1 New Street 2 (New-(BlockF-H))	490	LF	\$1,158	LF	\$567,420
<b>Total:</b>	<b>860</b>				<b>\$995,880</b>

**Kobuk St. Hub- Phase 1**

Public Amenities Improvements	Quantity	Unit	Cost	Unit	Cost
Open Space-2 (Upland)	0	SF	\$0.00	LF	\$0
<b>Total:</b>	<b>0</b>				<b>\$0</b>
				<b>Total</b>	<b>\$2,105,350</b>

Kobuk St. Hub- Build Out		Bridgehead District- Catalyst 3 Buildout										Calc -
Block	Building #	Type	Total Area	Total floors	Res area/floo	Res Area Tota	Res Units	Non Res SF*	Surface Parking Area	Off-Street Pkg*	On-Street Pkg	Required parking
<b>F</b>		<b>Mixed Use Comm./Resid.</b>	110,000							73	82	—
	F-1	Commercial		2.0				14150				35
	F-2	Commercial		2.0				13650				34
	F-3	Mixed Use Comm./Resid		3.0								
		Gr flr. Comm.		1.0				2700				7
		Residential (Flrs 2-3)		2.0	5400	9180	12	—				12
	F-4	Mixed Use Comm./Resid.		5.0								
		Gr flr. Comm.		1.0				6000				15
		Residential (Flrs 2-5)		4.0	12600	36930	50	—				50
	F-5	Townhome		2.0	800	12800	8	—		16		16
		<b>Total</b>				58910	70	36500		171		169
<b>G</b>		<b>Existing Asst Living</b>	95,000									
<b>H</b>		<b>Mixed Use Comm./Resid</b>	105,000							102	87	
	H-1	Commercial		2.0				7600				19
	H-2	Commercial		2.0				7600				19
	H-3	Commercial		2.0				7600				19
	H-4	Mixed Use Comm./Resid		4.0								
		Gr flr. Comm.		1.0				9800				25
		Residential (Flrs 2-4)		3.0	17225	43924	59	—				59
	H-5	Mixed Use Comm./Resid		4.0								
		Gr flr. Comm.		1.0				6500				16
		Residential (Flrs 2-4)		3.0	8450	21548	29	—				29
		<b>Total</b>				65471	87	39100		189		185
<b>I</b>		<b>Commercial</b>	00,000							18		
	I-1	Commercial- Restaurant		1.0	—	—	—	4000				18
		<b>Total</b>						4000		18		18
		<b>TOTAL:</b>					158	79,600		378		372

Kobuk St. Hub- Phase 1		Bridgehead District-Phase 1										Calc -
Block	Building #	Type	Total Area	Total floors	Res area/floo	Res Area Tota	Res Units	Non Res SF*	Surface Parking Area	Off-Street Pkg*	On-Street Pkg	Required parking
<b>F</b>		<b>Mixed Use Comm./Resid</b>										
	F-4	Mixed Use Comm./Resid.		5.0						50	19	
		Gr flr. Comm.		1.0				6000				15
		Residential (Flrs 2-5)		4.0	12600	36930	50	—				50
	F-5	Townhome		2.0	800	12800	8	—		16		16
		<b>Total</b>					58	6000		85		81
		<b>TOTAL:</b>					58	6,000		85		81

# APPENDIX C: MASTER PLAN

## C.1 Development Summary

Document: Illustrative Plan, Catalyst Sites and Catalyst Sites Phasing Exhibits. Development Summary spreadsheets. FIRST FORTY FEET

Description: *Illustrative Plan exhibits and full development summary spreadsheet for Build-out of the project area, Catalyst Sites build-out and development summary spreadsheet and Catalyst Sites Phase 1 projects and development summary spreadsheet.*

## C.2 Business Case- 20-Year Build-out

**Document: Business Case - Soldotna 20-Year Buildout Analysis; ECONorthwest, Economics and Research Consultant**

**Description: Analysis memo of the economic impacts of constructing the infrastructure and buildings outlined in the Development Summary and illustrative Plan.. Identifies the economic and community benefits warranting the City's continued investment and support of the Redevelopment Plan's catalyst sites and projects..**

## C.3 Development Strategy

Document: Downtown Riverfront Redevelopment Plan - Development Strategy Memo; ECONorthwest, Economics and Research Consultant

Description: *Development Strategy delineating initial catalyst projects, actions and strategies that are designed to stimulate immediate development and set in motion a trajectory that aligns with the vision articulated in the Plan. Key focus areas include infrastructure investments, strategic land acquisition, market hall feasibility and mixed-income housing. The strategy offers flexible guidance for the City rather than prescriptive direction, outlining initial actions and investment priorities, along with potential partnerships and funding for catalyst projects,*

## C.4 Streets, Sterling Trail and Utilities Cost Estimate

Document: City of Soldotna Riverfront Plan: Utility & Roadway Improvements Construction Cost Estimates Memo, Kinney Engineering

Description: *Memo updates the preliminary development concepts utilities and roadway construction costs for the preferred plan. Provides additional utilities and roadway construction costs breakdown for the Catalyst Sites.*

## C.5 Plazas and Parks Cost Estimate

Document: Rough Order of Magnitude Costs Estimate for Parks, Trail, Boardwalks and Overlooks, Greenworks Landscape Architecture

Description: *Rough order of magnitude construction costs for the Bridgehead Park, River Street Park and Soldotna Creek Park Plazas. Includes added trails, boardwalks and overlooks.*



DATE: December 12, 2023  
TO: City of Soldotna  
CC: Jason Graff, First Forty Feet  
FROM: ECONorthwest, Nicole Underwood, Ryan Knapp, Michelle Anderson, Cadence Petros  
SUBJECT: Business Case - Soldotna 20-Year Buildout Analysis

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## Executive Summary

The City of Soldotna aims to revitalize an 85-acre downtown area, transforming it into a vibrant mixed-use waterfront to attract both locals and visitors. To support this goal, the City collaborated on a Master Plan serving as a blueprint for future redevelopment.

ECONorthwest analyzed the economic impacts of constructing the infrastructure and buildings outlined in the Plan. Key findings include:

1. **2,068 jobs and \$109.8M in labor income** created collectively across the City of Soldotna and Kenai Peninsula Borough through construction.<sup>1</sup>
2. **\$155M contributed collectively to the City and Borough's Gross Domestic Product (GDP)** over the course of construction.<sup>2</sup>
3. **\$5.1M in additional local and state tax revenues** from construction.<sup>3</sup>
4. **5.3x return on infrastructure investment**, with every \$1 triggering \$5.30 in development (development to infrastructure cost ratio).<sup>4</sup>

These impacts exclude ongoing operations, which will create additional long-term benefits in terms of jobs, income, and tax revenues (such as sales tax and property taxes from ongoing operations). Beyond quantitative effects, the redevelopment provides qualitative community advantages like new housing, business opportunities, greater year-round tourism, and an enhanced sense of place.

Overall, the project offers economic and community benefits warranting the City's continued investment and support. This report outlines the methodology, assumptions, and detailed findings.

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<sup>1</sup> IMPLAN, 2019 Model Data

<sup>2</sup> *Ibid.*

<sup>3</sup> *Ibid.* Note: While there are few state taxes in Alaska this analysis encompasses various state taxes, such as corporate taxes, severance taxes, alcohol taxes, and additional elements such as fishing/hunting licenses.

<sup>4</sup> Note: this is calculated as total development cost for buildings divided by infrastructure and public amenities cost. It is not an IMPLAN output. Infrastructure/public amenity costs totaled 27.3M. Building development costs were estimated at \$144M (2023 dollars).

## Background and Purpose

The City of Soldotna aims to transform its 85-acre downtown into an attractive and vibrant mixed-use waterfront area. To guide this effort, the City collaborated with consultants to create a Master Plan outlining the comprehensive vision and phases for redevelopment.

As part of this work, ECONorthwest was tasked with analyzing the economic impacts associated with constructing the proposed infrastructure, amenities, and buildings. This analysis estimated economic impacts and tax revenues based on development assumptions and high-level cost estimates. Rather than precise projections, the outcomes illustrate proportional allocations and order-of-magnitude gains across jurisdictions. By demonstrating tax stimulus alongside the labor income, job creation, and other impacts, the analysis provides evidence supporting public participation where reasonable. Returns to multiple levels of government help justify involvement and partnerships across local, regional, and state government.

The findings from this analysis will assist the City in making the case for additional funding and partnerships to support the project.

## Methodology

To estimate the economic effects, we used the IMPLAN Input-Output modeling framework. IMPLAN traces how spending associated with an industry flows through the local economy, generating direct, indirect (supply-chain), and induced (household spending) impacts.

We focused exclusively on quantifying the impacts of construction activity. We did not model long-term operations and maintenance jobs and impact. This decision stems from the Master Plan's current lack of specificity regarding the types of businesses that will locate in the project area and their associated operating costs and labor. Modeling these long-term operational and maintenance costs would require a level of detail that is presently unavailable for this project. As such, the impact analysis should be considered conservative because on-going operations and maintenance will inevitably generate longer-lasting economic effects into the future through supporting jobs, labor income, and generating taxes in the local economy. To capture these considerations and other community benefits, we've included narrative descriptions of the qualitative impacts of redevelopment.

### Key Inputs and Assumptions

- **Construction costs**
  - Street and utility cost estimates from Kinney Engineering.
  - Public amenity (trails, parks, plazas, etc.) cost estimates from Urbsworks.
  - Total square feet of development estimates from First Forty Feet (FFF).

- Building cost estimates from EConorthwest. EConorthwest multiplied FFF’s square footage estimates by an assumed unit cost to scale up to total construction costs.<sup>5</sup>
- Hotel *pro forma* completed by EConorthwest
- **Phasing: 20-year buildout period**
  - Phase 1: 2024-2028 (first five years of buildout)
  - Remaining Buildout: 2029-2043 (last fifteen years of buildout)
- **IMPLAN data** – We assumed all dollars to be in 2023 denominations. Once the IMPLAN model processed the direct effects, we inflated the impacts to the appropriate year by using IMPLAN’s built-in inflation calculator.<sup>6</sup> We used IMPLAN’s 2019 economic data to generate both the economic and fiscal impacts reported below. At the time of analysis, 2021 economic data were readily available; however, the lingering effects of the COVID-19 pandemic—by way of PPP loans—rendered IMPLAN’s tax impacts difficult to interpret.

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<sup>5</sup> EConorthwest based building costs off the *pro forma* modeling from the Feasibility Analysis memorandum. This translated into \$350,000 per townhome and \$200,000 per apartment unit; these per unit costs were assumed to be split as 65 percent labor income, 35 percent materials (hard costs), and an additional 20 percent for soft costs. For the building types we did not model in the Feasibility Analysis (commercial retail and market hall), we used an assumption of \$300 per square foot—the total costs were distributed using the same percentage split as townhomes and apartments. This estimate is based on various data from the Craftsman cost manual and EConorthwest’s understanding of the design at the time of this study.

<sup>6</sup> IMPLAN uses the Bureau of Economic Analysis’ industry deflator forecast to adjust for inflation.

## What is IMPLAN?

IMPLAN is an Input-Output (I-O) modeling framework that allows policy makers to measure the change in regional economic activity resulting from new economic stimulus (e.g., constructing an apartment complex). The IMPLAN model works by tracing how spending associated with an industry circulates through an economy using backwards-looking supply- and demand-chain linkages. It summarizes the total economic effects resulting from the new economic activity in terms of output, jobs, and income.

IMPLAN estimates economic effects in three distinct impact measures:

- The **direct effects** are the output, jobs, and income associated with the immediate effects of the final demand changes. These are the primary data inputs we supply to the model (i.e., the known dollar value of the stimulus we're estimating).
- The **indirect effects** are the production changes in backward-linked industries caused by the changing input needs of directly affected industries. These are often referred to as supply-chain impacts.
- The **induced effects** are the changes in regional household spending patterns caused by changes in household income—generated from the direct and indirect effects. These are often referred to as consumption-driven impacts.
- The *total economic effects* are the sum of the direct, indirect, and induced effects.

A couple other key IMPLAN terms used throughout this analysis are defined as follows:

- **Value added** means contribution to Gross Regional Domestic Product (GRDP). It is defined as the sum of labor income, taxes on production and imports (property taxes, sales and excise taxes, etc.) net of subsidies, and other property income (corporate profits, consumption of fixed capital, etc.).
- **Output** is the broadest measure of total economic activity. It is defined as **Value Added** plus all **Intermediate Inputs**, which are all the goods and services purchased to produce the economic activity being modeled (e.g., a construction company purchasing lumber, steel, and concrete to erect a new building).

# Construction Impact Results

Redeveloping Soldotna's waterfront will generate economic effects through new construction.

## Phase 1 (2024-2028)

Phase 1 includes public improvements to two catalyst sites (Riverside Hub and Binkley and Birch Hub)<sup>7</sup>, 6 townhomes, 30 affordable apartments, and a 32,000 SF market hall. The buildout is estimated to cost about \$53.7M (see the Output column in Exhibit 1), when accounting for inflation.<sup>8</sup> IMPLAN estimates the total economic effect of the Phase 1 investment to be \$77.5M. This means that for every dollar invested in construction in Soldotna, an additional \$0.44 is supported elsewhere in the City's and Borough's collective economy.<sup>9</sup> This initial development is projected to support:

- **572 full-time jobs during the construction period**
- **\$28.6M in total labor income**
- **\$40.5M in total contributions to the City's and Borough's collective GDP**

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PHASE 1
<u>Riverside Hub improvements</u>
Infrastructure and utility improvements to River Street (segment 1) and New Street (segments 1 and 2), open space trail and boardwalk, six townhomes, and 30 affordable apartments
<u>Binkley and Birch Hub improvements</u>
Infrastructure and utility improvements to Birch Street (segment 1) and States Avenue (segment 1b), upper and lower plaza, and market hall (32,000 square feet)

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Additionally, each **\$1 in infrastructure yields \$3.60 in development** - a 3.6x return on investment.<sup>10</sup> Note that while infrastructure is necessary for development, it does not guarantee buildout.

### Exhibit 1. Economic Impacts of Phase 1 Development, 2024–2028

Source: IMPLAN, 2019 Model Data; input data and assumptions from Kinney Engineering, Urbsworks, First Forty Feet, and ECONorthwest.

Impact	FTEs	Wage & Salaries	Value Added	Output
Direct Effect	430	\$23,060,000	\$27,870,000	\$53,720,000
Indirect Effect (Supply-Chain Impact)	42	\$1,770,000	\$4,108,000	\$8,349,000
Induced Effect (Household Consumption Impact)	100	\$3,790,000	\$8,559,000	\$15,444,000
Total Economic Effect	572	\$28,620,000	\$40,537,000	\$77,513,000

Notes: FTE = Full Time Employee

<sup>7</sup> It is important to note that these improvements were for modeling purposes only. Actual Phase 1 development could take place on any one of the catalyst sites depending on how property owners and the city choose to proceed.

<sup>8</sup> This cost is inclusive of infrastructure, trails, other public improvements, and building development. This number varies from that seen in the Development Strategy which only includes infrastructure and public improvement costs.

<sup>9</sup> While the construction impacts being modeled occur in the City of Soldotna, the resulting IMPLAN economic model outputs are for the Kenai Peninsula Borough which was the most granular level available for outputs given data limitations.

<sup>10</sup> Note this is the development to infrastructure cost ratio. It is calculated as total development cost of buildings (\$39.2) divided by infrastructure and public amenities cost (\$11M). It is not an IMPLAN output. Note: these costs combined differ from the \$53M in the output column since they are not inflation adjusted.

IMPLAN estimates the Phase 1 construction investments to generate approximately **\$1.4M in total taxes over five years**.<sup>11</sup> Of the \$1.4M total, about \$289,000 will be generated as a direct result of the construction investment. The remaining \$1.1M in tax generation will result from taxes paid by businesses and households in the Borough because of the new economic activity created by the investment.

The City of Soldotna is expected to generate \$202,000 in taxes, the Borough is expected to generate \$495,000 and the state \$723,000. It is important to reiterate that this is for construction impacts only and the City will see additional tax revenues from ongoing operations. A breakdown of taxes, along with their definitions, are included in Appendix A.

**Exhibit 2. Tax Impacts of Phase 1 Development, 2024–2028**

Source: IMPLAN, 2019 Model data; input data and assumptions from Kinney Engineering, Urbsworks, First Forty Feet, and ECONorthwest.

Impact	City	Borough	State	Total State &
				Local
Direct Effect	\$32,000	\$81,000	\$176,000	\$289,000
Indirect Effect	\$66,000	\$161,000	\$205,000	\$432,000
Induced Effect	\$104,000	\$253,000	\$342,000	\$699,000
<b>Total Economic Effect</b>	<b>\$202,000</b>	<b>\$495,000</b>	<b>\$723,000</b>	<b>\$1,420,000</b>

Note: While there are fewer state taxes in Alaska than many other states, this analysis encompasses various state taxes, such as corporate taxes, severance taxes, alcohol taxes, and additional elements such as fishing/hunting licenses.

**Remaining Buildout (2029-2043)**

Remaining buildout includes public improvements, 14 townhomes, a new hotel, 5 mixed-use buildings, and 15 commercial retail properties. The buildout over the 15-year period is estimated to cost \$145.7M, when adjusted for inflation. IMPLAN estimates the total economic effect of this construction investment to be \$214.3M. This means that for every dollar invested in construction in the City, an additional \$0.47 is supported elsewhere in the City’s and Borough’s collective economy. The remaining Master Plan buildout is estimated to support:

- **1,496 full-time jobs during the construction period**
- **\$81.2M in labor income**
- **\$114.3M in total contributions to the City’s and Borough’s collective GDP**

Additionally, each **\$1 in infrastructure yields \$6.40 in development** - a 6.4x return on investment.<sup>12</sup> Note that while infrastructure is necessary for development, it does not guarantee buildout.

<sup>11</sup> Note that reported tax impacts are based on 2019 model data. The tax impacts are likely an underestimate of the local and state taxes generated by the construction activity due to the age of the data. These tax estimates should be interpreted as a conservative (lower bound) estimate of actual tax impacts.

<sup>12</sup> Note this is the development to infrastructure cost ratio. It is calculated as total development cost of buildings totaled \$16.3M. Building development costs were estimated at \$104.9M (2023 dollars). These costs combined differ from what is in the output column since it is not inflation adjusted.

### Exhibit 3. Economic Impacts of Remaining Buildout, 2029–2043

Source: IMPLAN, 2019 Model Data; input data and assumptions from Kinney Engineering, Urbsworks, First Forty Feet, and ECONorthwest.

Impact	FTEs	Wage & Salaries	Value Added	Output
Direct Effect	1,116	\$64,780,000	\$77,470,000	\$145,670,000
Indirect Effect (Supply-Chain Impact)	127	\$5,690,000	\$12,517,000	\$24,947,000
Induced Effect (Household Consumption Impact)	253	\$10,730,000	\$24,308,000	\$43,732,000
<b>Total</b>	<b>1,496</b>	<b>\$81,190,000</b>	<b>\$114,295,000</b>	<b>\$214,349,000</b>

Notes: FTE = Full Time Employee

Construction investments are estimated to generate approximately **\$3.7M in total state and local taxes over fifteen years**. Of the \$3.7M total, about \$432,000 will be generated as a direct result of the construction investment. The remaining \$3.3M in tax generation will result from taxes paid by businesses and households in the Borough because of the new economic activity created by the investment.

The City of Soldotna is expected to generate \$522,000 in taxes, the Borough is expected to generate \$1.28M and the state \$1.9M. It is important to reiterate that this is for construction impacts only and the City will see additional tax revenues from ongoing operations. A breakdown of taxes, along with their definitions, are included in Appendix A.

### Exhibit 4. Tax Impacts of Remaining Buildout, 2029–2043

Source: IMPLAN, 2019 Model Data; input data and assumptions from Kinney Engineering, Urbsworks, First Forty Feet, and ECONorthwest.

Impact	City	Borough	State	Total State & Local
Direct	\$28,000	\$77,000	\$327,000	\$432,000
Indirect	\$198,000	\$479,000	\$609,000	\$1,285,000
Induced	\$297,000	\$722,000	\$976,000	\$1,995,000
<b>Total Economic Effect</b>	<b>\$522,000</b>	<b>\$1,279,000</b>	<b>\$1,912,000</b>	<b>\$3,713,000</b>

Note: While there are fewer state taxes in Alaska than other states this analysis encompasses various state taxes, such as corporate taxes, severance taxes, alcohol taxes, and additional elements such as fishing/hunting licenses.

### Total Impacts (2024-2043)

The full buildout over the 20-year period is estimated to cost \$199.4M, when adjusted for inflation. IMPLAN estimates the total economic effect of this construction investment to be \$291.9M. This means that for every dollar invested in construction in the City, an additional \$0.46 is supported elsewhere in the City’s and Borough’s collective economy. At full buildout, the total impact of redevelopment is projected to support:

- **2,068 full-time jobs over the full buildout period**
- **\$109.8M in labor income**
- **\$154.8M in total contributions to the City’s and Borough’s collective GDP**

In total, each **\$1 in infrastructure yields \$5.30 in development** - a 5.3x return on investment.<sup>13</sup> This demonstrates the powerful economic stimulus and leverage that can be created by the City's infrastructure investments. However, it is important to note that while infrastructure is necessary for development, it does not guarantee buildout.

**Exhibit 5. Total Economic Impacts of Full Buildout, 2024–2043**

Source: IMPLAN, 2019 Model Data; input data and assumptions from Kinney Engineering, Urbsworks, First Forty Feet, and ECONorthwest.

Impact	FTEs	Wage & Salaries	Value Added	Output
Direct Effect	1,546	\$87,840,000	\$105,340,000	\$199,390,000
Indirect Effect (Supply-Chain Impact)	169	\$7,460,000	\$16,625,000	\$33,296,000
Induced Effect (Household Consumption Impact)	353	\$14,520,000	\$32,867,000	\$59,176,000
<b>Total</b>	<b>2,068</b>	<b>\$109,810,000</b>	<b>\$154,832,000</b>	<b>\$291,862,000</b>

Notes: FTE = Full Time Employee

In total the full buildout investments are estimated to generate **approximately \$5.1M in total state and local taxes over twenty years**. Of the \$5.1M total, about \$720,000 will be generated as a direct result of the construction investment. The remaining \$4.4M in tax generation will result from taxes paid by businesses and households in the Borough because of the new economic activity created by the investment.

In total the City of Soldotna is expected to generate \$724,000 in taxes, the Borough is expected to generate \$1.77M and the state \$2.63M. It is important to reiterate that this is for construction impacts only and the City will see additional tax revenues from ongoing operations. A breakdown of taxes, along with their definitions, are included in Appendix A.

**Exhibit 6. Total Tax Impacts of Full Buildout, 2024–2043**

Source: IMPLAN, 2019 Model Data; input data and assumptions from Kinney Engineering, Urbsworks, First Forty Feet, and ECONorthwest.

Impact				Total State & Local
	City	Borough	State	
Direct	\$60,000	\$158,000	\$503,000	\$720,000
Indirect	\$264,000	\$640,000	\$814,000	\$1,717,000
Induced	\$401,000	\$975,000	\$1,318,000	\$2,694,000
<b>Total</b>	<b>\$724,000</b>	<b>\$1,773,000</b>	<b>\$2,634,000</b>	<b>\$5,132,000</b>

Note: While there are fewer state taxes in Alaska than other states, this analysis encompasses various state taxes, such as corporate taxes, severance taxes, alcohol taxes, and additional elements such as fishing/hunting licenses.

<sup>13</sup> Note this is the development to infrastructure cost ratio. It is calculated as total development cost of buildings (\$144) divided by infrastructure and public amenities cost (\$27.3M). It is not an IMPLAN output. Note: these costs differ from the \$199.4M in the output column since they are not inflation adjusted.



## Broader Economic and Community Benefits

The construction impacts detailed in the previous section exclude ongoing operations. Ongoing operations will undoubtedly create additional long-term benefits in terms of jobs, income, and tax revenues which we were unable to measure given data limitations. Modeling these long-term operational and maintenance costs would require a level of detail that is presently unavailable for this project, but the City could measure these impacts once they have additional details on the businesses that will locate in the area.

In addition to the quantitative construction impacts, the redevelopment offers advantages for both the local economy and community over the long term.

### Economic Upside

- New commercial spaces allow business expansion and new startups, creating permanent jobs and tax revenue.
- A new market hall incubates local businesses in affordable spaces, enabling them to graduate into retail spaces.
- More housing addresses shortages, while supporting the customer base for businesses.
- Increased tourism due to having a more inviting and iconic downtown captures a greater share of Kenai Peninsula tourism.

### Community Perks

- Greater year-round activity from added tourism and amenities meets residents' desires.
- Housing at varied income levels fills critical needs for workforce and may provide affordable options.
- An enhanced sense of place fosters community pride and livability.

Together, these benefits demonstrate Soldotna's investment in the riverfront area will benefit current and future residents.

## Conclusion

In conclusion, the analysis presents a compelling case for the City's continued support and leadership in bringing the Master Plan vision to life. The quantitative construction impacts, and qualitative benefits offer advantages both in the short and long term for Soldotna's economy and people. The City stands to gain by playing an active role in catalyzing the downtown waterfront's transformation. This report provides key data and insights to aid the City in pursuing the partnerships and resources needed to make the project a reality.

## Appendix A. IMPLAN Tax Estimates

IMPLAN's tax impact estimates are derived from two primary sources. The first source is the Bureau of Economic Analysis's National Income and Product Accounts data (NIPA), which is used for federal government tax estimates. The second source of tax impact data comes from three U.S. Census Bureau survey instruments. They are:

- **The Census of State and Local Government Finances.** This source provides county-level data and "is conducted every 5 years (for years ending in '2' and '7')." <sup>14</sup> In the years between each census, the sample of selected state and local governments are used to form the basis of the dataset. A new sample of governments "is selected every 5 years (for years ending in '4' and '9')." <sup>15</sup>
- **The Annual Survey of State and Local Government Finances.** This source provides county-level data and typically lags 1 to 2 years behind present day.
- **The Annual Survey of State Government Tax Collections.** This source provides up-to-date state-level data . The tax data for each state is distributed to counties based on proxy information that IMPLAN does not publicly disclose.

The IMPLAN tax impact reports aim to provide industry and geographically specific tax information for the businesses and institutions affected by an economic event. However, the raw data has limitations. For example, while taxes are broken down by industry and geography, the breakdown by tax category (e.g. sales tax, property tax) does not have industry-specific detail due to source data constraints.

Despite data limitations, ECONorthwest used IMPLAN's underlying calculations for the high-level construction tax estimates since more precise tax assumptions were unavailable given the lack of detail on exact development that will take place. Rather than precise projections, the tax impacts illustrate proportional allocations and order-of-magnitude revenue gains across jurisdictions. The intent is to validate the scale and proportionality of overall gains rather than provide specific forecasts prone to variability based on limited data and unknown private development details.

Once more project-specific details are available, the City could choose to update this analysis with detailed Direct tax information which would lead to more accurate Indirect and Induced tax impacts.

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<sup>14</sup> U.S. Census Bureau, Annual Survey of State and Local Government Finances. Information retrieved from: <https://www.census.gov/programs-surveys/gov-finances/about.html>

<sup>15</sup> *Ibid.*

Below is a breakdown of how IMPLAN allocated taxes to the City, Borough, and State for this high-level analysis. Definitions of the tax categories follow the tables.

**Exhibit 7. Phase 1 (2024-2028) Tax Impacts by Category**

Source: IMPLAN, 2019 Model Data; input data and assumptions from Kinney Engineering, Urbsworks, First Forty Feet, and ECOnorthwest.

Impact				Total State &
	City	Borough	State	Local
Social Insurance Tax	\$0	\$0	\$381,000	\$381,000
TOPI: Sales Tax	\$147,000	\$164,000	\$113,000	\$424,000
TOPI: Property Tax	\$41,000	\$321,000	\$38,000	\$400,000
TOPI: Motor Vehicle License	\$0	\$2,000	\$4,000	\$7,000
TOPI: Severance Tax	\$0	\$0	\$336,000	\$336,000
TOPI: Other Taxes	\$1,000	\$0	\$28,000	\$29,000
TOPI: Special Assessments	\$12,000	\$0	\$0	\$12,000
OPI: Corporate Profits Tax	\$0	\$0	\$92,000	\$92,000
Personal Tax: Motor Vehicle License	\$0	\$5,000	\$13,000	\$19,000
Personal Tax: Property Taxes	\$0	\$1,000	\$0	\$2,000
Personal Tax: Other Tax (Fish/Hunt)	\$0	\$0	\$94,000	\$94,000
<b>TOTAL</b>	<b>\$202,000</b>	<b>\$494,000</b>	<b>\$722,000</b>	<b>\$1,419,000</b>

**Exhibit 8. Remaining Buildout (2029-2043) Tax Impacts by Category**

Source: IMPLAN, 2019 Model Data; input data and assumptions from Kinney Engineering, Urbsworks, First Forty Feet, and ECOnorthwest.

Impact				Total State &
	City	Borough	State	Local
Social Insurance Tax	\$0	\$0	\$10,000	\$10,000
TOPI: Sales Tax	\$380,000	\$425,000	\$292,000	\$1,097,000
TOPI: Property Tax	\$106,000	\$830,000	\$98,000	\$1,033,000
TOPI: Motor Vehicle License	\$0	\$6,000	\$12,000	\$18,000
TOPI: Severance Tax	\$0	\$0	\$868,000	\$868,000
TOPI: Other Taxes	\$4,000	\$0	\$72,000	\$76,000
TOPI: Special Assessments	\$31,000	\$1,000	\$0	\$32,000
OPI: Corporate Profits Tax	\$0	\$0	\$257,000	\$257,000
Personal Tax: Motor Vehicle License	\$1,000	\$14,000	\$38,000	\$52,000
Personal Tax: Property Taxes	\$0	\$4,000	\$0	\$5,000
Personal Tax: Other Tax (Fish/Hunt)	\$0	\$0	\$265,000	\$265,000
<b>TOTAL</b>	<b>\$522,000</b>	<b>\$1,279,000</b>	<b>\$1,912,000</b>	<b>\$3,713,000</b>

**Exhibit 9. Full Buildout (2024-2043) Tax Impacts by Category**

Source: IMPLAN, 2019 Model Data; input data and assumptions from Kinney Engineering, Urbsworks, First Forty Feet, and ECOnorthwest.

Impact				Total State &
	City	Borough	State	Local
Social Insurance Tax	\$0	\$0	\$13,000	\$5,000
TOPI: Sales Tax	\$527,000	\$589,000	\$405,000	\$1,521,000
TOPI: Property Tax	\$147,000	\$1,151,000	\$136,000	\$1,433,000
TOPI: Motor Vehicle License	\$0	\$8,000	\$16,000	\$25,000
TOPI: Severance Tax	\$0	\$0	\$1,204,000	\$1,204,000
TOPI: Other Taxes	\$5,000	\$0	\$100,000	\$105,000
TOPI: Special Assessments	\$43,000	\$1,000	\$0	\$44,000
OPI: Corporate Profits Tax	\$0	\$0	\$349,000	\$349,000
Personal Tax: Motor Vehicle License	\$1,000	\$19,000	\$51,000	\$71,000
Personal Tax: Property Taxes	\$0	\$5,000	\$0	\$7,000
Personal Tax: Other Tax (Fish/Hunt)	\$0	\$0	\$359,000	\$359,000
<b>TOTAL</b>	<b>\$724,000</b>	<b>\$1,773,000</b>	<b>\$2,634,000</b>	<b>\$5,132,000</b>

Below is a summary of several specific taxes that comprise the broad tax impact measurement groupings shown in Exhibits 7 through 9. Please note that Exhibit 10 is not a comprehensive list of every tax that IMPLAN estimates. The full list can be found on IMPLAN's [website](#).

**Exhibit 10. Sample of Specific Taxes Included in IMPLAN's Tax Impact Summaries<sup>16</sup>**

Source: IMPLAN, 2019 model data.

<b>Tax Type</b>	<b>Taxes Included</b>	<b>Where the Tax is Levied</b>
Social Insurance Tax	Medicare, Medicaid, Social Security, Children's Health Insurance Program (CHIP)	Federal, state, and county
Sales Tax	Alcohol, gross receipts, occupancy, fuel, public utilities	State, county, sub-county general, sub-county special
Property Tax <sup>17</sup>	Property, real estate, machinery and equipment, intangible property,	State, county, sub-county general, sub-county special
Motor Vehicle License	License fees for businesses, license plates, registration fees for businesses	State, county, sub-county general, sub-county special
Severance Tax	Carbon dioxide, natural gas, crude oil, timber	State, county, sub-county general
Other Taxes	Business license, business registration renewal, fishing license, hunting license Nonemployee Compensation	State, sub-county general, sub-county special
Special Assessments	Fee, fine, toll	State, sub-county general, sub-county special
Other Property Income (OPI) Corporate Profits Tax	Corporate profits tax, corporate income tax, private enterprise tax	Federal, state, county, sub-county general

<sup>16</sup> IMPLAN, January 2020. "Taxes: Where's the Tax?" Information retrieved from: <https://support.implan.com/hc/en-us/articles/360041584233-Taxes-Where-s-the-Tax->

<sup>17</sup> Property Taxes on construction impacts are not property taxes on the built structure itself – just on the construction companies' properties and then associated indirect and induced impacts. To get the building's property taxes would require modeling the operating phase. While not captured in the IMPLAN data the City and Borough would benefit from property taxes on the new development.

# APPENDIX C: MASTER PLAN

## C.1 Development Summary

Document: Illustrative Plan, Catalyst Sites and Catalyst Sites Phasing Exhibits. Development Summary spreadsheets. FIRST FORTY FEET

Description: *Illustrative Plan exhibits and full development summary spreadsheet for Build-out of the project area, Catalyst Sites build-out and development summary spreadsheet and Catalyst Sites Phase 1 projects and development summary spreadsheet.*

## C.2 Business Case- 20-Year Build-out

Document: Business Case - Soldotna 20-Year Buildout Analysis; ECONorthwest, Economics and Research Consultant

Description: *Analysis memo of the economic impacts of constructing the infrastructure and buildings outlined in the Development Summary and illustrative Plan.. Identifies the economic and community benefits warranting the City's continued investment and support of the Redevelopment Plan's catalyst sites and projects..*

## C.3 Development Strategy

**Document: Downtown Riverfront Redevelopment Plan - Development Strategy Memo; ECONorthwest, Economics and Research Consultant**

**Description: Development Strategy delineating initial catalyst projects, actions and strategies that are designed to stimulate immediate development and set in motion a trajectory that aligns with the vision articulated in the Plan. Key focus areas include infrastructure investments, strategic land acquisition, market hall feasibility and mixed-income housing. The strategy offers flexible guidance for the City rather than prescriptive direction, outlining initial actions and investment priorities, along with potential partnerships and funding for catalyst projects,**

## C.4 Streets, Sterling Trail and Utilities Cost Estimate

Document: City of Soldotna Riverfront Plan: Utility & Roadway Improvements Construction Cost Estimates Memo, Kinney Engineering

Description: *Memo updates the preliminary development concepts utilities and roadway construction costs for the preferred plan. Provides additional utilities and roadway construction costs breakdown for the Catalyst Sites.*

## C.5 Plazas and Parks Cost Estimate

Document: Rough Order of Magnitude Costs Estimate for Parks, Trail, Boardwalks and Overlooks, Greenworks Landscape Architecture

Description: *Rough order of magnitude construction costs for the Bridgehead Park, River Street Park and Soldotna Creek Park Plazas. Includes added trails, boardwalks and overlooks.*

DATE: December 19, 2023  
TO: City of Soldotna  
CC: First Forty Feet  
FROM: ECONorthwest  
SUBJECT: Downtown Riverfront Redevelopment Plan - Development Strategy

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## Purpose and Context

The City of Soldotna is working to revitalize an 85-acre downtown area along its waterfront, envisioning a vibrant, mixed-use community that captures the essence of Soldotna's identity. Developed in partnership with consultants and robust community input, the Downtown Riverfront Redevelopment Plan outlines the long-term vision for this ambitious undertaking. The Plan envisions densifying the area into a walkable district that enhances quality of life for current residents, preserves the natural environment, and stimulates economic growth. Additionally, the reinvented waterfront intends to position Soldotna as an appealing destination for residents and tourists alike through its unique sense of place.

However, realizing this vision presents its set of challenges. Financial viability currently constrains desired mixed-use and multifamily development. To overcome this hurdle and catalyze development in the near term, the city recognizes the need for strategic interventions, investments, and public private partnerships. Furthermore, the City aims to invest in critical infrastructure improvements, including streets, sidewalks, trails, and open spaces, to lay the foundation for a thriving and connected community.

The timing of both public and private investments is crucial to the success of this endeavor. As such, this Implementation Plan delineates initial projects and strategies that are designed to not only stimulate immediate development but also to set in motion a trajectory that aligns with the vision articulated in the Plan. Key focus areas include infrastructure investments, strategic land acquisition, market hall feasibility and mixed-income housing.

Prioritizing public realm improvements like roads and utilities facilitates site readiness for other investments. Acquiring key parcels early takes advantage of lower costs, securing well-positioned properties for the City to direct toward Plan goals. Partnering to develop a market hall would provide affordable retail space to help launch local businesses, which could then transition to market-rate rents as they grow. Adding housing across affordable and market-rate options promotes Plan densities, proves concept viability, and fulfills community need.

This Implementation Plan offers flexible guidance for the City rather than prescriptive direction, outlining potential initial moves, partnerships, and investment priorities. It channels the Plan's ambitions into strategic starting points. However, the City will need to remain adaptable. As opportunities emerge, the City can choose where to focus investment and may choose to pivot as needed. As the City plans for implementation, building City staffing capacity and pursuing funding sources early will be foundational for success.

# Evaluation and Implementation Framework

Implementing the actions in this plan will take a coordinated effort by the City of Soldotna and community partners. The purpose of this evaluation and implementation framework is to help guide the City of Soldotna's decisions about which strategies to pursue to support the redevelopment of the riverfront and how to phase the implementation of projects, focusing on the how City investments can catalyze future development along the waterfront. It also provides a structure for the City and its partners as they implement the recommended actions.

This Implementation Plan is meant to provide flexible guidance rather than prescriptive direction, outlining initial moves, partnerships, and priorities. As opportunities emerge, the City can pivot across locations and priorities while advancing broader community goals.

## WHY: Vision and Goals for the Redevelopment Area

Drawing from community engagement and multiple discussions with stakeholders, the City developed the following vision and goals for the riverfront Plan.

**Vision:** The project envisions the Kenai River corridor as a woven blend of nature, wildlife, recreation & gathering.

Soldotna, rooted in a history of gathering dating back to Native Alaskan Athabaskan peoples, emerged as a city in the late 1940s through homesteading. Today, Soldotna continues its legacy by preserving its natural environment. The City transformed a former Alaska Department of Transportation maintenance facility into Soldotna Creek Park in 2012, now a community space with green areas, river boardwalks, pavilions, an amphitheater, and year-round public restrooms. Soldotna Creek Park is home to the Kenai Watershed Forum, a non-profit organization dedicated to promoting healthy habitats on the Kenai Peninsula. Soldotna's identity is shaped by its commitment to stewardship and community gathering. This project presents an opportunity to explore how downtown development and community activities can coexist with, expand, and enhance the natural habitats in the project area.

**Objectives:** The City identified objectives for the project area include:

- Create a one-of-a-kind riverfront experience with shopping, dining, entertainment, and lodging in a walkable destination.
- Support the growth and expansion of local businesses and attract new entrepreneurs.
- Highlight the Kenai River and incorporate the natural landscape into the Downtown.
- Provide housing options to meet local needs.
- Identify opportunities for public and private partnerships.
- Identify critical infrastructure to support redevelopment.
- Explore options and strategies for funding and implementation.

## WHO: City of Soldotna and Partners

Successful implementation of the Plan will require time and energy from a variety of partners, but the City will be the champion of the plan. To stimulate desired development in the near term, it is likely the City will need to facilitate redevelopment through participating in public private partnerships (e.g., market hall, subsidized land costs for private development, etc.), constructing infrastructure improvements (e.g., streets and sidewalks, trails, and open space), and carefully considering the timing and location of both public and private investment. The City's role may include land acquisition, site remediation, soliciting developers, coordinating partners, pursuing funding, and implementing actions where possible.

Additional considerations around the City's role are included in the action sheets. Potential partners are listed below. This list is not exhaustive; other potential partnerships might emerge throughout the course of the Plan's implementation.

### Possible Partner Roles

- **Kenai Peninsula Economic Development District (KPEDD):** Partner in economic development activities and provides support to small businesses. KPEDD offers microloans that could support businesses with tenant improvements which could be leveraged by business owners in the market hall or other new retail spaces.
- **Cook Inlet Keeper:** Partner in the market hall development. Cook Inletkeeper currently operates incubator space with a DEC approved kitchen and could share experience and expertise in managing these spaces. May be willing to provide grant writing support.
- **Soldotna Wednesday Market:** Market operator could serve as a resource for market hall operations. Wednesday Market businesses may be interested in market hall space.
- **Soldotna Chamber of Commerce:** Partner for economic development activities and market hall development.
- **Small Business Development Center:** Provide support to small businesses and refer tenants to new commercial space opportunities (including a market hall).
- **Kenai Peninsula Borough:** Partner on redevelopment and establishing local funding sources.
- **Alaska Housing Finance Corporation (AHFC):** Potential partner to develop and manage affordable housing. AHFC provides loans and grants to support affordable housing development.
- **Kenai Peninsula Housing Initiatives (KPHI):** Potential partner to develop and manage affordable housing.
- **Cook Inlet Housing Authority (CIHA):** Potential partner to develop and manage affordable housing. They develop housing for rent and ownership from single-family, plexes, multi-family and mixed-use buildings. CIHA is also a community development financial institution (CDFI).

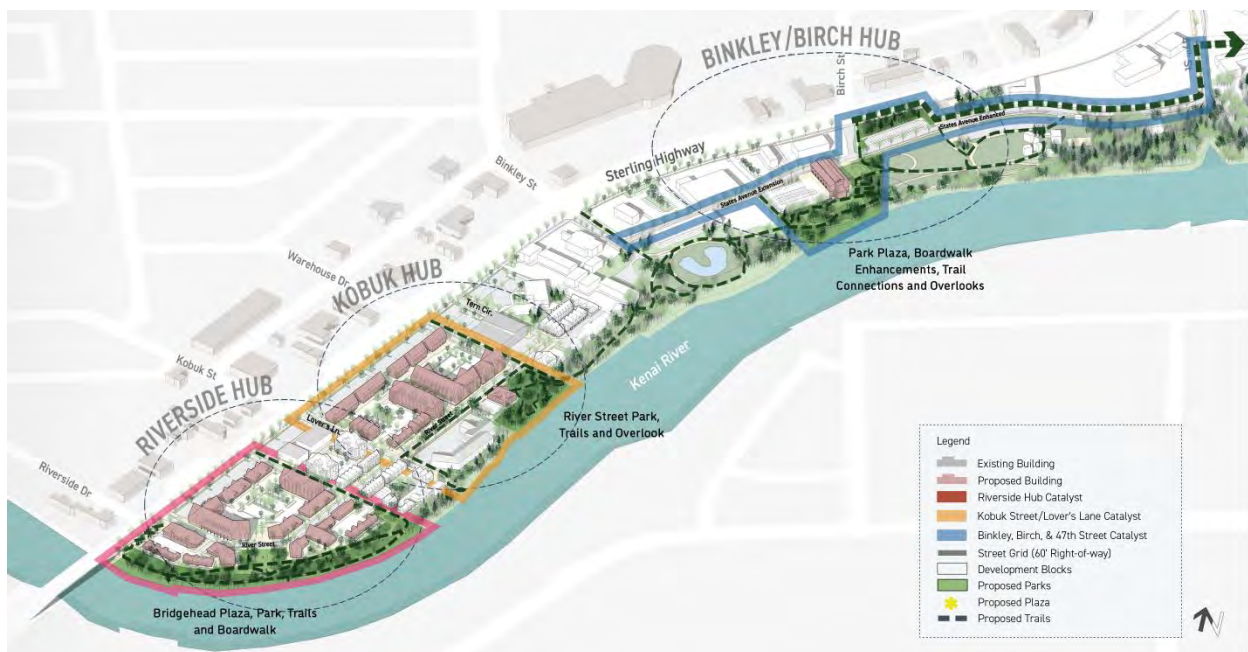


- **Cook Inlet Region, Inc. (CIRI):** Potential partner on community investments. CIRI is committed to preserving and perpetuating Alaskan Native heritage and, through a family of Designated Tribal Organizations, foundation and community nonprofits, provides educational opportunities, housing, health care and social services to shareholders, descendants and other Alaska Native and American Indian people residing in the Cook Inlet region.
- **Kenaitze Indian Tribe:** Potential partner on community investments. The Kenaitze Indian Tribe includes about 1,800 Tribal Members who live across the Kenai Peninsula and beyond. The Tribe delivers a variety of programs and services that promote the wellness of their members and community.
- **Alaska Department of Transportation and Public Utilities (ADOT):** Could provide funding for transportation investments and planning, design, engineering, and permitting assistance.
- **Economic Development Agency (EDA):** Could provide funding for projects that promote economic development including infrastructure. The Plan likely has the strongest alignment with EDA's equity and sustainable development priorities.
- **Other federal agencies:** the US Department of Agriculture (USDA), Department of Housing and Urban Development (HUD), Environmental Protection Agency (EPA) and other federal agencies could provide funding.
- **Other state agencies:** The Department of Commerce, Community, and Economic Development, the Department of Natural Resources, and others could provide funding. The Department of Environmental Conservation could provide planning and funding assistance for infrastructure development and site clean-up activities.
- **Other funding organizations:** Could include the Rasmuson Foundation and Kenai Peninsula Foundation which provide grants for community development.
- **Property owners:** Property owners will be instrumental in the redevelopment of the area. They may serve as direct developers, participate with the City in infrastructure investments, or intentionally convey their property to developers interested in delivering the outcomes of the Plan.
- **Community members:** Some community members may be willing to donate money, time, or expertise to support the Plan's vision.

## WHAT/WHERE: Catalyst Sites and Phasing to Stimulate Development

To make the Plan's vision a reality, the City identified four catalyst sites with near-term and long-term projects for implementation as shown in Exhibit 1. The City's initial investment into these catalyst sites will demonstrate the City's commitment to the plan's vision and create attractive activity hubs for private development. Exhibits 2 through 4 identify the anticipated build-out and long-term potential for development that meets the Plan's objectives and reflects what is desired by the community. To achieve the long-term potential there will need to be time-sensitive actions and initial projects to incentivize early development wins that set the stage for build-out. These early actions and initial projects are discussed in the next section.

**Exhibit 1. Downtown Riverfront Redevelopment Plan Catalyst Sites (Hubs)**



## Exhibit 2. Riverside Hub Development Summary at Full Buildout



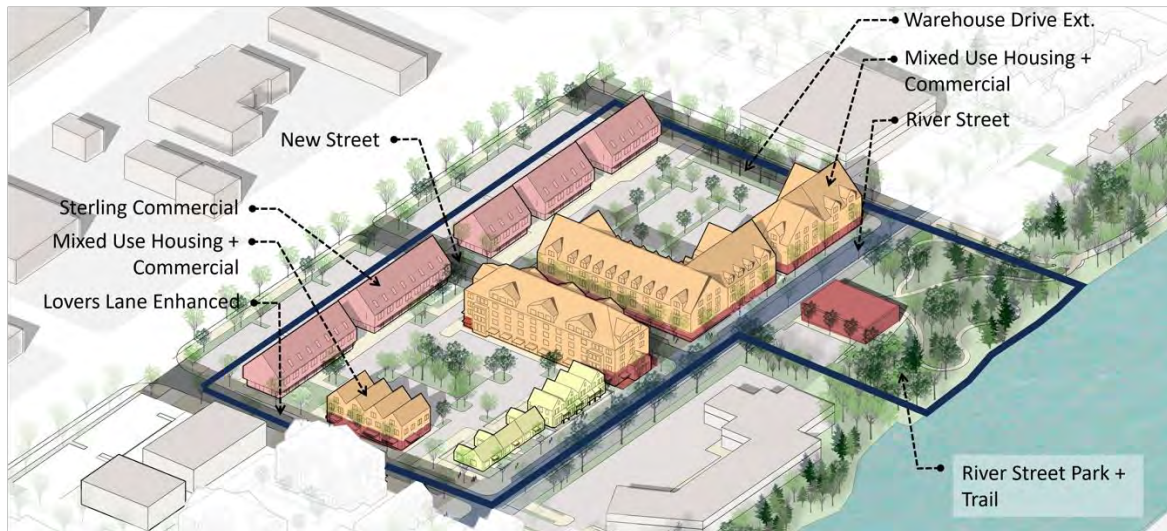
### DESCRIPTION

The centerpiece of development and creation of a shopping, dining, entertainment, and lodging district in a walkable destination.

### DEVELOPMENT SUMMARY FOR FULL BUILDOUT

Retail + Commercial	74,850 SF
Housing	42 Units
Hotel	62 Rooms
Street Improvements	1,788 LF
Utilities Infrastructure	1,788 LF
Bridgehead Plaza	35,553 SF
Trails + Boardwalks	2,810 LF

## Exhibit 3. Kobuk Street Hub Development Summary at Full Buildout



### DESCRIPTION

A mix of highway and riverfront oriented commercial uses and concentration of residential units.

### DEVELOPMENT SUMMARY FOR FULL BUILDOUT

Retail + Commercial	79,600 SF
Housing	158 Units
Street Improvements	3,050 LF
Utilities Infrastructure	3,050 LF
Park + Trails	37,000 SF

## Exhibit 4. Binkley and Birch Street Hub Development Summary at Full Buildout



### DESCRIPTION

Expands the use and function of Soldotna Creek Park with added park amenities, parking and a year-round market hall.

### DEVELOPMENT SUMMARY FOR FULL BUILDOUT

Market Hall	31,750 SF
Parking Structure	170 SP
Street Improvements	3,618 LF
Utilities Infrastructure	3,618 LF
Park Plaza	68,575 SF
Trails + Boardwalks	1,160 LF

## WHEN: Phasing Plan with a Focus on Near-Term, Catalytic Projects

The Plan presents a long-term vision for the riverfront requiring phased implementation over many years. Prioritizing near-term investments is crucial to catalyze change. Early projects should meet current needs while establishing foundations to attract future private development.

The feasibility study, completed as a part of the Plan process, provided guidance in determining the phases and the specific land uses in this document. The feasibility study showed that three-story mixed-use and three-story multifamily developments are not currently feasible. These dense housing and mixed-use types are fundamental to the Plan vision but unlikely to be developed by the private market in the first phase. Townhomes have more potential especially with favorable land costs. A hotel is likely feasible in later phases if amenities i.e., new streets, riverfront plaza and trails, are provided.

The following phased approach is designed to meet community needs and establish essential infrastructure to support future buildout.

## Time- Sensitive Projects: Getting Ready for Phase 1 Development

Time-sensitive projects are those that directly or indirectly impact Plan implementation and Phase 1 initiatives. These projects include ensuring City staffing capacity can meet the demands of overseeing Plan implementation, initiating regulatory amendments to ensure alignment with the Plan, and conducting additional studies to inform future spending and capital projects tied to the Plan. A summary of these time-sensitive projects is included below with more detail included in the Action Plan section of this document.

- **Establish staffing to manage implementation.** Effective implementation will require coordination and leadership by the City of Soldotna. It is recommended that the City establish a single point-of-contact staff position to coordinate and manage plan implementation for at least the first three years.

To build stewardship beyond the City staff position it is recommended that the City Council appoint an Implementation Oversight Committee. The purpose and role of the committee would be to provide recommendations to the City Council for any expenditure of public resources throughout the life of the implementation plan and be a community conduit to their respective networks for identifying redevelopment partners and public advocacy for the Plan.

- **Initiate regulatory amendments, studies, and plans that are necessary to ensure future development is compatible with the Plan.** Additional studies, plans and analysis will need to occur to direct decision-making with respect to a future market hall, management and access along the Sterling Highway, determining City capacity to purchase land and acquire easements or rights-of-way, and prioritizing housing needs that support the local community.

## Phase 1 Development

Phase 1 development focuses on infrastructure investments, strategic land acquisition, market hall development and mixed-income housing. Prioritizing public realm improvements like roads and utilities facilitates site readiness for other investments. Acquiring key parcels early likewise takes advantage of lower costs, securing well-positioned properties for the City to direct toward Plan goals. Partnering to develop a market hall (pending a feasibility analysis) would provide affordable retail space to help launch local businesses, which could then transition to market-rate rents as they grow. Adding housing across affordable and market-rate options promotes Plan densities, proves concept viability, and fulfills community need.

Phase 1 development is summarized below with more detail included in the Action Plan section of this document.

▪ **Identify which sites, if any, the city will purchase; focus Phase 1 redevelopment around City-owned property.** Limited time and resources mean that the City will want to

prioritize investment in the areas that will stimulate future private development. The City may have the opportunity to purchase property, obtain easements, or dedicate rights-of-way in the first phase on Riverside Hub or Kobuk Street Hub or the City may choose to work with the property owners to stimulate first phase development. The Riverside Hub includes property that is contaminated and is undergoing active clean-up and remediation. If this site is selected for initial investment, the City may benefit by leading any continued or future remediation efforts. Any other sites the City may consider purchasing should be evaluated for potential contamination early in the due diligence process, including a Level One Environmental assessment (and Level Two if indicated in the preliminary assessment).<sup>1</sup>

Phase 1 Summary
<ul style="list-style-type: none"><li>• Site Ownership and Remediation<ul style="list-style-type: none"><li>○ Purchase site or partner with site owner for redevelopment</li><li>○ Conduct site remediation, if necessary (on own or in coordination with property owner if not city-owned). The Riverside Hub includes property that is contaminated</li></ul></li><li>• Infrastructure Improvements (Action Sheet A)</li><li>• Trail and Public Space Improvements (Action Sheet B)</li><li>• Redevelopment (Action Sheets C-F)</li></ul>

▪ **Improve streets, utilities, trails, and public space associated with Phase 1 development.** Trail, street, and public space enhancements will make first phase development possible and serve as foundational elements for subsequent stages of development by creating developable parcels near public amenities.

▪ **Establish a market hall, pending additional feasibility analysis.**<sup>2</sup> Creating a market hall would meet the community's need for affordable retail/restaurant space, addressing gaps in private market support. This strategic move lays the foundation for future private development phases by cultivating a pipeline of retail businesses to tenant new development and establishing a vibrant focal point to stimulate later development. If the City's desired design and/or location for a market hall proves to be too expensive for Phase 1, the City could develop a temporary structure in Phase 1 and expand on it in the future. This would give the City time to prove the concept, build funding capacity and refine design.

▪ **Support housing development.** Private, three-story multifamily or mixed-use development is unlikely to develop in the near term in the current market. The City could instead pursue an affordable multifamily project, which does not rely on market debt and equity like market rate developments. This approach accelerates progress

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<sup>1</sup> Environmental contamination is one of many aspects of a property that should be investigated prior to purchase.

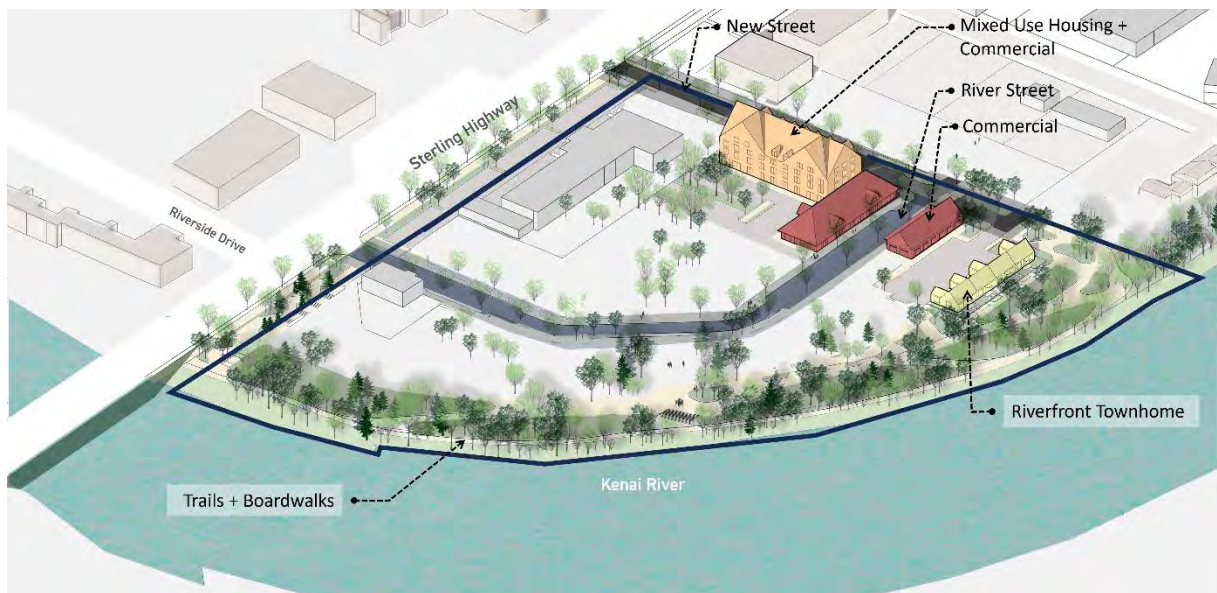
<sup>2</sup> A market hall feasibility analysis, completed in a single or multiple studies, would identify a preferred site, desired building program, preliminary cost estimate, initial funding assessment, preferred operations model, and funding implications.

toward the Plan’s density goals, while also providing needed affordable housing for residents. It can also help provide proof of concept for denser development types.

The City could also encourage the development of townhomes in the first phase. Townhomes were the most feasible residential type found in the feasibility study that still meet the desired density of the Plan. Including townhomes in first phase development offers a promising means to reinvigorate the area through private investment.<sup>3</sup>

While the Plan suggests initial improvements for infrastructure and other development activities in multiple hubs, the City may choose which hubs to focus on in Phase 1. This choice will depend on partnerships, landowner willingness, funding availability, and other city priorities. Exhibits 5-7 show the catalyst sites (Hubs) with potential Phase 1 projects.

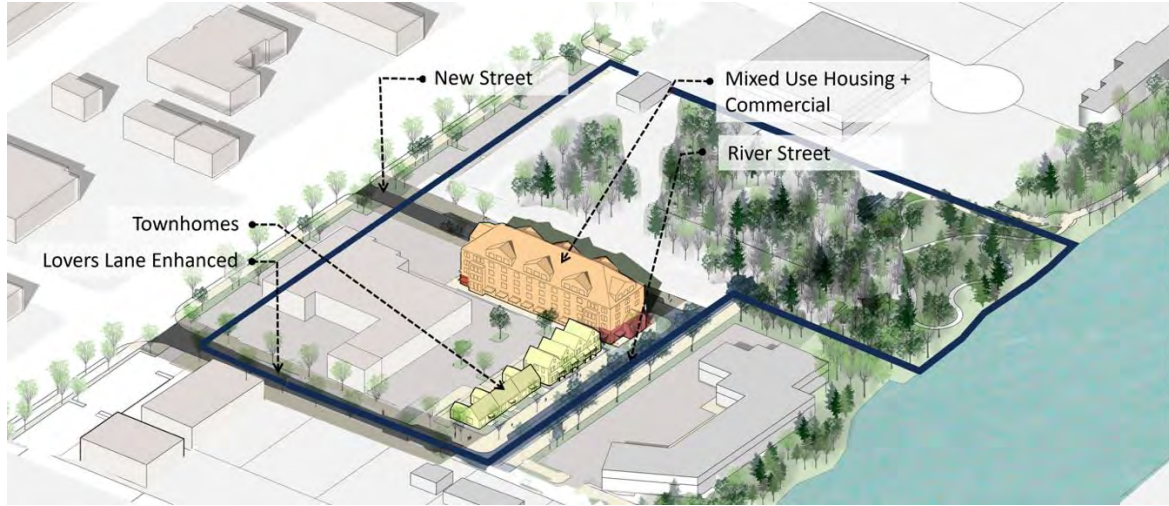
**Exhibit 5. Riverside Hub with Phase 1 Buildout**



DESCRIPTION	DEVELOPMENT SUMMARY FOR PHASE 1	
The centerpiece of development and creation of a shopping, dining, entertainment, and lodging district in a walkable destination.	Workforce Housing	30 Units
	Townhomes	6 Units
	Street Improvements	1,328 LF
	Utilities Infrastructure	1,250 LF
	Trails + Boardwalks	2,575 LF

<sup>3</sup> If the City chooses not to focus on affordable housing or townhomes, the City could talk to developers to gauge interest in other types of dense market rate housing or mixed use in the near term. While feasibility findings showed three story multifamily and mixed use is unlikely in the first phase, some developers may be willing to invest earlier if the City demonstrates its commitment to the Plan, such as through infrastructure investments.

### Exhibit 6. Kobuk Street Hub with Phase 1 Buildout



#### DESCRIPTION

A mix of highway and riverfront oriented commercial uses and concentration of residential units.

#### DEVELOPMENT SUMMARY FOR PHASE 1

Retail + Commercial	6,000 SF
Housing	58 Units
Street Improvements	860 LF
Utilities Infrastructure	860 LF
Park + Trails	37,000 SF

### Exhibit 7. Binkley and Birch Street Hub with Phase 1 Buildout



#### DESCRIPTION

Expands the use and function of Soldotna Creek Park with added park amenities and improved parking lot.

#### DEVELOPMENT SUMMARY

Parking Lot Paved	120 SP
Street Improvements	2,208 LF
Utilities Infrastructure	2,310 LF
Park Plaza (Lower)	53,500 SF
Trails + Boardwalks	1,160 LF



## Considerations for Future Buildout

As the City makes initial investments, the intent is for future development to become more privately driven. Given the many potential directions the City could pursue, providing detailed long-term guidance is difficult at this early stage. However, some additional considerations for future buildout are included below.

- **Continued street, utilities, trails and public space improvements to support buildout.** Not all infrastructure improvements will be accomplished in Phase 1 and will need to be continued into future.
- **Recruit a hotel.** As area improvements take shape, a hotel becomes a logical progression. These enhancements assure upscale hotel developers that the necessary amenities for long-term success are in place.

The Plan shows a hotel locating at the Riverside Hub. If this is the case, it is possible that just starting infrastructure improvements may be enough to gain hotelier interest. Or a hotelier may be more interested after Bridgehead Plaza and riverfront improvements are complete. Regardless, the City will want to start talking with potential hoteliers in Phase 1 even if the hotel is not built right away. This will alert potential hoteliers of the City's plans as well as give the City insight into different hotels' needs and preferences. Note: while the Plan shows the Riverside Hub as a location for a hotel, hoteliers have their own criteria for site selection. The City, in collaboration with a developer/hotelier, may want to conduct a location analysis to identify a preferred location.<sup>4</sup>

- **Market hall continued (if applicable).** If the City's desired design and/or location for a market hall proves to be too expensive for Phase 1, the City may choose to only develop the States Avenue and Birch Street and utilities improvements, Soldotna Creek Plaza (lower and stair/ramp) and trail connections in Phase 1. The market hall could be developed after these improvements, in later phases.
- **Adaptive reuse.** The City and property owners may consider ways to enhance buildings that already exist. It is likely that larger scale development may not be feasible right away. Adaptive reuse could be one way to continue the momentum of redevelopment in a more cost-effective way. Adaptive reuse could also take place in Phase 1 if existing property owners are interested. Or property owners may wait to see how City improvements progress first. Property owners may pursue financial support such as façade improvement grants offered by the City.
- **Larger scale mixed-use development.** Initial investments in Phase 1 are designed to make private development more feasible in future phases by enabling developers to command higher rents. Balancing affordability with redevelopment remains a crucial consideration.

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<sup>4</sup> The City's role in hotelier recruitment and location analysis is up to the City and should be determined as a part of answering the critical questions in Action Sheet F.

## Prioritizing Actions within a Project

The projects outlined in the phasing plan are interconnected, with some actions needing to occur first to enable subsequent steps. The “Do First, Do Second, Do If” sequencing framework detailed in Exhibit 8 allows Soldotna to quickly understand the critical pathway and next steps for each project. Implementation steps for each proposed Phase 1 project is organized according to this framework.

**Exhibit 8. “Do First, Do If, Do When” Sequencing Framework for Actions and Projects**

Do First	Do Second	Do If
<p><b>Actions to pursue immediately</b></p> <p>These actions are foundational to achieving Soldotna’s goal of encouraging and stimulating development. They occur first and influence the how and where projects happen. They lay the groundwork for creating a “place” for current and future residents and tourists.</p>	<p><b>Actions to pursue later</b></p> <p>Soldotna should pursue when necessary foundational actions are complete. This could be foundational actions from the same or other projects.</p>	<p><b>Actions that require additional consideration; not guaranteed</b></p> <p>The City should only pursue these actions after analysis is completed as a part of the “Do First” actions. External partners and/or funding sources will be required.</p>

## HOW MUCH: Costs and Funding Sources

To implement the plan and catalyze redevelopment, Soldotna will need to leverage diverse funding sources. Pursuing a mix of funding will allow the City to incrementally take steps toward achieving the Plan vision as resources permit. Understanding high-level costs will help Soldotna prioritize actions when funding and resources become available. Specific infrastructure projects include planning estimates, but other projects lack detailed cost estimates. Resource considerations include financial needs along with staff and partner capacity. Potential sources and funding tools are listed in this section and project sheets where applicable. Funding tools are broken into three categories:

- Local, Public Revenue Sources
- Grants and Loans
- Philanthropic Sources

It is important to note that City investments are meant to stimulate future privately funded development. As such private developers will also be sources of funding. However, this section focuses on revenue sources for the City to pursue to support publicly funded improvements. The City may also choose to pursue public-private partnerships as a way to spread cost across public and private entities.

## Local, Public Revenue Sources

Some of the actions in this plan could be implemented using the City's existing General Fund. However, General Funds are limited and already support many City priorities. Given the limited existing revenue sources, the City may want to consider establishing the following locally controlled tools to generate additional revenue for improvements.

- **Urban Renewal** is a locally controlled program, authorized under state law, to improve specific areas of a city that are not achieving local land use and development objectives. Urban renewal diverts property tax revenues from growth in assessed value inside an urban renewal area for investment in capital projects within the area to alleviate blight. To fund long-term projects along the waterfront, the City may be able to establish an Urban Renewal District. However, to make this happen the City would first need to establish that urban renewal is appropriate and then collaborate with the Borough and other taxing districts to ensure that all extra tax revenue goes toward urban renewal, not just the City's share. While funds generated through urban renewal can be substantial, it can take many years before enough revenue is generated for significant investment.
- **Special Assessment Districts** are a way to finance the construction of public capital improvements which primarily benefit property owners in a limited geographical area. This distinguishes them from improvements which benefit the entire community and are generally paid for with City funds or grants. The City may want to consider establishing a Special Assessment District for Plan areas where infrastructure will strongly benefit property owners.
- **Transient Occupancy Taxes** are fees charged to customers for overnight lodging, generally for periods of less than 30 consecutive days. The fee is generally a percentage of lodging charges incurred by the customer. These taxes are widely used throughout Alaska. Design and implementation of the program is up to the individual boroughs and cities, but many cities use the revenues to support the tourism industry and other community priorities. Soldotna could implement the Transient Occupancy Tax and use revenues to support a variety of projects in the Plan which in turn support tourism. A Transient Occupancy Tax is currently under consideration with the City Council. While it could be used to support Plan priorities, revenue may be limited given competing priorities.
- **General Obligation (GO) Bonds** are used for capital improvement projects, such as roads, schools, public buildings, parks, etc. and are paid back through taxes or other sources of general fund revenue. GO bond levies must be approved by a public vote. Soldotna recently established GO bond for the construction of the Field House at Soldotna Regional Sports Complex. Additional bond measures may be challenging to enact at this time but could be used to support infrastructure projects in the Plan. The public may be more willing to support a GO Bond for riverfront improvements like trails and parks.

- **Revenue Bonds** allow a public body to issue debt to fund public projects. Revenue bonds are used for projects that can generate revenue that can be used to pay back the debt. Examples would be electric utilities, water and sewer utilities, or a parking structure that generates revenue through user fees. Revenue bonds could support utility and parking improvements in the Plan.
- **Development Driven Sources** such as Construction Excise Tax (CET) or System Development Charges (SDC) could help fund some of the necessary infrastructure in the Plan. However, given that the scale of development envisioned in the Plan is currently infeasible without City support, adding additional taxes and charges on developers is likely to discourage development. The City may want to consider CETs and SDCs at a future date when development feasibility improves.
- **User Fees** such as parking fees (raised from both operations and fines) and/or park-user fees could provide another funding option. However, these fees would be minimal and most likely be used to support ongoing maintenance of facilities than support large-scale redevelopment. Adding fees for parking and park use where it was previously free may be more likely to meet with public resistance.

While not a local funding source, the City could consider advocating for funding to support the Plan with state representatives and senators. Congressional appropriations (also known as Congressionally Directed Spending Requests) are highly competitive but could provide significant support for Plan priorities, if granted.

The City may also want to consider increasing existing local revenue sources if appropriate. Currently the City generates most of its revenues from sales taxes and a smaller portion from property taxes. The City could consider raising rates, pending additional discussion with community members and stakeholders.

## Grants and Loans

Because currently available funding sources are limited, grants are likely to play an important role in project implementation. Grant funds are not typically included in funding forecasts because they are too project-specific and uncertain to predict. However, if the City is successful in receiving grant money, it could use local revenue as matching funds to leverage additional grant dollars.

ECONorthwest researched regional, state, federal, and foundation-based grant programs that the City of Soldotna could consider pursuing for eligible projects in the project area. A summary of these sources is listed below and are included in the Action Sheets when applicable.

Appendix A provides additional details on the grants available from these agencies. It is important to note that the grants in Appendix A provide the City with an initial list of grants to consider but actual eligibility will vary based on specific grant objectives and requirements.

- **US Economic Development Administration (EDA)** has a variety of grants and loan programs, including the Public Works and Economic Adjustment Assistant Program, to support economic development in communities, including funds to support critical

infrastructure that will allow businesses to locate or expand operations. The Plan aims to promote economic development in an equitable and sustainable way and may be eligible for EDA funds if the City focuses on projects that align with EDA's investment priorities. The Plan likely has the strongest alignment with EDA's equity and sustainable development priorities.

- **Alaska Department of Transportation and Public Facilities (ADOT)** manages programs that provide funding and technical assistance for transportation planning and improvements, including the Community Transportation Program and Transportation Alternatives Program, which support a variety of transportation improvement projects.
- **US Department of Transportation (USDOT)** manages programs that provide funding and technical assistance for transportation planning and improvements, including the RAISE and Reconnecting Communities and Neighborhoods Programs.
- **Alaska Department of Environmental Conservation** administers water/wastewater financing programs that fund the design and construction of public infrastructure needed to ensure compliance with the Safe Drinking Water Act or the Clean Water Act.
- **Alaska Department of Natural Resources - Division of Parks and Outdoor Recreation (DPOR)** administers Alaska's Federal Highway Administration (FHWA) Recreational Trails Program grant. The DPOR offers this competitive, reimbursable, matching trail grant for maintaining public recreational trails and related facilities, and for safety and educational projects.
- **Alaska Department of Commerce, Community and Development** manages the Community Assistance Program (CAP) and competitive Community Development Block Grants (CDBG). CAP provides Alaska's boroughs, cities, and unincorporated communities with funds vital to the delivery of basic public services. CAP funds can be used for any public purpose that have been determined as a priority of the funding recipient. CDBG competitive grants (funded by HUD, distributed by the Department of Commerce, Community, and Development) are single-purpose project grants that can support community development, planning and special economic development.
- **Environmental Protection Agency (EPA)** administers Brownfields Program which provides several types of nationally competitive grants for brownfield assessment and cleanup.
- **USDA Rural Development** is focused on communities with populations of less than 10,000 and offers funding for infrastructure, economic development, housing, and other community priorities.
- **US Department of Housing and Urban Development (HUD)** administers a variety of programs to support housing development including the PRO Housing Pathways to Removing Obstacles grant. This is a competitive grant to identify and remove barriers for affordable housing. This could apply to both implementation as well as planning should the City decide to pursue a Housing Needs Analysis.

- **Foundations.** The Kenai Peninsula Foundation, Rasmuson Foundation, and AARP all offer grants to support community development projects.

## Philanthropic Sources

Many residents and organizations in Soldotna are passionate about investing in the community. Some have the financial means to support projects they believe in or are excited to see come to fruition. To gauge the community's willingness to support projects in the study area, the City could consider asking for financial support to implement key projects which resonate with the community. Fundraising options include:

- **Traditional capital fundraising campaign:** A coordinated effort to raise a substantial pool of funds for a specific project or effort. While a campaign deadline is typically established, the fundraising period can span many years. Campaigns require increasing public awareness through various channels (phone calls, emails, mailers, events) and may require volunteer support or heightened staff capacity.
- **Crowdfunding campaign:** An online fundraising campaign aimed at gathering small contributions from many individuals or groups.
- **Business or corporate sponsorship program:** An arrangement where a business pays to support a project in exchange for recognition. The sponsoring entity gains visibility through its name/logo being displayed on the project. Sponsorship programs can vary, such as sponsoring an entire project or participating in a tiered donation system.
- **Naming rights and legacy gift program:** Similar to a business or corporate sponsorship program, a naming rights/legacy gift program can be established to generate funds from a wider range of people and groups.
- **In-kind donations requests:** A request for non-monetary donations which may include volunteer support, goods or material, and/or services.

## HOW: Determining Strategies, Catalytic Projects, and Actions for Implementation

The project team developed the Plan as part of a planning process which took place in late 2022 through 2023. To ensure that the Plan reflected the community's goals, the project team held various community engagement events throughout the project to develop the vision, goals and preferred concept for the project area.

This implementation plan draws from previous work products including a market analysis, development feasibility study, infrastructure cost analysis, economic impacts analysis as well as extensive engagement. The project team met with City Council three times to share analysis and engagement findings and establish the preferred concept. The projects and strategies outlined in this plan are meant to guide Soldotna's efforts in implementing the Plan.

## Evaluation Criteria

In alignment with the Plan's vision and as a basis for including projects in the first phase of development, each project and strategy was vetted with the City staff and evaluated by the following criteria:

- **Community Support.** How does this project or action align with what the community has identified as a priority? How much value does it add to the community?
- **Equity Impact.** How will this strategy advance equity in the Plan area? What are the consequences of pursuing / not pursuing this strategy?
- **Required Resources and Return on Investment.** How much public investment will this project require? If leveraging City funds, how does this generate a return on investment to the City in terms of public benefit, additional private sector development, employment growth, and tax revenues?
- **Available Funding Sources.** Is there a funding source available to implement this strategy? How difficult will it be to acquire funds to implement the strategy?
- **Timing.** Is this a foundational project that will stimulate private development and immediate redevelopment momentum? Given resource considerations, should this strategy be a focus in the next five years?
- **Location.** Is this strategically located to induce nearby private sector development?

## Action Plan: Plan Adoption and Phase 1 Projects

This section provides details for the City on immediate next steps as well as detailed action sheets for Phase 1 projects. Given the many potential directions the City could pursue, the action sheets focus on near-term (Phase 1) opportunities, since providing detailed long-term guidance is difficult at this early stage. As the City makes initial public investments, the intent is for future development to become more privately driven.

As Phase 1 projects progress, the City should consider appropriate next steps based on progress. This adaptive approach allows plans to evolve based on how earlier investments shape private market interest and feasibility.

### Time Sensitive Projects and Immediate Next Steps

Time-sensitive projects are those that directly or indirectly impact Plan implementation and Phase 1 initiatives. The time-sensitive projects include:

- **Establish staffing to manage implementation.**
  - *City Implementation Manager.* Effective implementation will require coordination and leadership by the City of Soldotna. It is recommended that the City establish a single point-of-contact staff position to coordinate and manage plan implementation for at least the first three years. The Implementation Manager would lead implementation efforts, coordinating and holding periodic meetings with City department leadership and sharing periodic updates to City Council.
  - *Implementation Oversight Committee.* To build stewardship beyond the City staff position it is recommended that the City Council appoint an Implementation Oversight Committee. The City might consider reconvening willing members of the Downtown Riverfront Redevelopment Plan project advisory committee, key technical advisory City staff, and representative downtown interests. The purpose and role of the committee would be to provide recommendations to the City Council for any expenditure of public resources throughout the life of the implementation plan and be a community conduit to their respective networks for identifying redevelopment partners and public advocacy for the Plan.

The Implementation Oversight Committee would be formally appointed by the City Council and would receive support from City staff. This support would include providing necessary data and information, scheduling support for regular meetings, and support preparing an annual report and briefing materials. The Committee would meet at regular intervals to review and provide recommendations to the City Council on implementation progress and provide an annual report and briefing to City Council.

Exhibit 9 shows the fundamental characteristics of the Implementation Oversight Committee including members, purpose, and annual report.



### Exhibit 9. Implementation Oversight Committee Fundamental Characteristics

Committee Members	Committee Purpose	Committee Annual Report
<p>The Implementation Oversight Committee should have diverse representation such as property and business owners, representatives of downtown business associations, advocacy groups, City departments and commissions.</p>	<p>The Implementation Oversight Committee should meet regularly to review implementation progress and identify opportunities for advancing implementation efforts. Tasks of the Oversight Committee may include:</p> <ul style="list-style-type: none"> <li>• Meeting Monthly</li> <li>• Keeping the Plan ‘Alive and Breathing’</li> <li>• Tackling topics and components of the Plan, setting goals, finding community members to engage in goals, advocating for goals, and creating committees to achieve goals</li> <li>• Seeing the plan through</li> <li>• Recognizing that City support is essential for plan success</li> <li>• Recognizing that accomplishments of the Plan are the result of a community-wide effort</li> </ul>	<p>The Implementation Oversight Committee should prepare an annual report. An annual report and briefing to City Council identifies implementation progress and provides a basis for establishing partnerships and prioritizing City funds for implementation projects. The annual report should include updates on:</p> <ul style="list-style-type: none"> <li>• Accomplishments for the year</li> <li>• List of Plan accomplishments since the start of the plan</li> <li>• Committee’s immediate goals for the near future</li> </ul>

- **Initiate regulatory amendments.**

- *Downtown Riverfront Redevelopment Plan Adoption (Plan).* Plan adoption is crucial to proceed with the implementation of the development strategy (this document). The initial step involves the Planning Commission providing recommendations for adoption to City Council, and City Council adopting the Plan through a resolution. Subsequently, the Kenai Peninsula Borough adopts the Plan via a similar process. Through resolution, the Plan is deemed a binding document, serving as a tool for implementing the Comprehensive Plan. It will guide capital facilities, and transportation improvements, direct economic development initiatives, and direct amendments to the Title 17 zoning ordinance to encourage development aligned with the Plan.
- *Potential Comprehensive Plan Amendments.* The Downtown Riverfront Redevelopment Plan's land use, mobility and utilities frameworks and development strategy are consistent with the Comprehensive Plan goals. To maintain consistency between this Plan and the Comprehensive Plan the City should consider amending the map of General Future Land Use and the Proposed Land Use Concept map as indicated in the Downtown Riverfront Redevelopment Plan.
- *Mixed-Use District Zone.* Adopting zoning updates is a time-sensitive task necessary to guide alignment with the Plan. Specifically, establishing the proposed Mixed-Use District Zone included within the Plan will help ensure quality development and provide certainty to private developers and the community.

- **Conduct additional studies.**

- *Market Hall Feasibility Study.* As a part of Action Sheet F, the City should fund and manage a market hall feasibility study to determine the appropriate site, building program, and funding needed to construct and operate the market hall as well as evaluate operator options.
- *Sterling Highway Access Management Plan and Trail Feasibility Study.* The City should initiate and manage a Sterling Highway Access Management Plan and Trail Feasibility Study with ADOT. The study would identify the design of pedestrian, bicycle and landscape improvements, consolidation of driveways, pedestrian and signal enhancements, and improvements to the parking access frontage between the Kenai River Bridge Crossing and Birch Street.
- *Kenai Peninsula Housing Needs Analysis.* In partnership with the Kenai Peninsula Borough and surrounding cities, Soldotna could conduct a Housing Needs Analysis. Rising housing costs affect not only Soldotna but the broader Kenai Peninsula region. Rather than a localized challenge, unaffordable home prices and rents reflect regional economic shifts and housing undersupply.

Conducting a housing needs analysis that encompasses the entire region could illuminate the scale and drivers of the supply-demand imbalances over recent years. Collaboration with the Kenai Peninsula Borough and neighboring cities offers more policy tools and resources to address shared housing challenges. Regional coordination also prevents fragmented approaches from simply displacing problems between communities. Soldotna and partners may consider pursuing grant funding such as the PRO Housing: Pathways to Removing Obstacles grant from HUD to support this work (outlined in Appendix A).

- **Consider local funding sources and incentives to support Plan implementation** (see Action Sheet G for more details on developing local funding sources).
- **Identify where the City will focus Phase 1 investments.** Before acting on specific projects or partnerships within the Hubs, the City needs to identify if it will focus efforts on the Riverside Hub or the Kobuk Street Hub. It is assumed that the City will pursue development of the Binkley, Birch and “Y” Hubs as it owns the former Davis Block currently used for parking at the riverfront. However, the City may decide differently.

For development at the Riverside and Kobuk Street Hubs, the City needs to answer the following questions:

- Is the City purchasing the land or partnering with the owner? Is the owner willing to sell or support redevelopment of their property?

The answer to these questions will impact the location of Phase 1 focus. If the City pursues a development on the Riverside Hub which contains contaminated property, the City will need to conduct site remediation on its own or in coordination with the property owner. The City could pursue grants such as the EDA’s Public Works and

Economic Adjustment Assistance Program or the EPA’s Brownfield Program to fund cleanup.

- **Initiate discussions with riverfront property owners to acquire trail easements or acquisitions of rights-of-way.** As contiguous segments with easements and/or acquired right-of-way are assembled the City should fund the trail design and construct the segments. Pursuing this as an immediate next step will build community excitement and fuel early wins for the Plan.

### Phase 1 Projects

When the City is ready to pursue specific projects, the City can use Action Sheets A – F to outline the necessary steps. Exhibit 3 shows a summary of Phase 1 projects and the actions that will come *after* the City establishes staffing to manage overall Plan implementation and finalizes Phase 1 site selection.

**Exhibit 10. Phase 1 Timeline of Actions**


Phase 1 Projects	Phase 1 Actions	
	Do First	Do Second
A. Construct street and utility improvements	<ul style="list-style-type: none"> <li>● Identify the City’s capacity to invest in infrastructure directly and in full or through partnerships with willing owners/developers.</li> <li>● Conduct outreach with property owners and potential developers to identify willing partners and possible City contribution to specific street and utility improvements.</li> <li>● Secure easements or right-of-way, as necessary</li> <li>● Secure funding through grants or CIP for 30% construction design documentation of City committed projects</li> <li>● Complete 30% construction documentation of City committed projects</li> </ul>	<ul style="list-style-type: none"> <li>● Secure funding through grants or CIP for 100% construction</li> <li>● Complete 100% construction documentation and prepare bid package for contractor solicitation</li> <li>● Select contractor and complete permitting and construction</li> </ul>
B. Construct trail and public space improvements	<p>ANSWER CRITICAL QUESTIONS</p> <ul style="list-style-type: none"> <li>● Agree on the purpose, objectives, and benefit of trail/public space improvements.</li> <li>● Evaluate the City’s capacity and interest in pursuing trail and public space improvements in full or through partnerships with willing owners/developers.</li> <li>● Conduct outreach with property owners and potential developers to identify willing partners and possible City contribution to specific trail and public space improvements.</li> </ul> <p>IF THE CITY IS INTERESTED IN MOVING FORWARD</p> <ul style="list-style-type: none"> <li>● Assign a City Project Manager and/or coordinate efforts with the Parks and Recreation Department</li> <li>● Conduct design and programming for trail and public space improvements</li> <li>● Secure easements or right-of-way</li> </ul>	<ul style="list-style-type: none"> <li>● Form stakeholder “Blue Ribbon” committee</li> <li>● Refine programming and conduct preliminary design</li> <li>● Prepare cost estimate and phasing plan</li> <li>● Determine City funding capacity (and other federal and state sources the City can leverage)</li> <li>● Develop fundraising plan</li> <li>● Select contractor and complete permitting and construction</li> </ul>

	<ul style="list-style-type: none"> <li>● Conduct a preliminary fundraising analysis.</li> <li>● Seek or provide next phase project funding (or stop here)</li> <li>● Evaluate management options (organizations and/or groups)</li> </ul>	
C. Partner to develop affordable multifamily housing	<p>ANSWER CRITICAL QUESTIONS</p> <ul style="list-style-type: none"> <li>● Agree that affordable housing is a priority</li> <li>● Consider the City’s preferred role (initially and ongoing) as well as the City’s stretch role</li> <li>● Evaluate the City’s capacity and interest</li> </ul> <p>IF THE CITY IS INTERESTED IN CONTINUING</p> <ul style="list-style-type: none"> <li>● Assign a City Project Manager. This could be a new staff position or an expansion of a staff member’s duties.</li> <li>● Spread the word to potential partners and funders</li> </ul> <p>IF THE CITY IS NOT INTERESTED IN CONTINUING</p> <p>If the City chooses not to focus on affordable housing the City could talk to developers to gauge interest in other types of dense market rate housing in the near term. While feasibility findings showed three story multifamily is unlikely in the first phase, some developers may be willing to invest earlier if the City demonstrates its commitment to the Plan. However, market rate rents of new development may be higher than many residents can afford.</p>	<ul style="list-style-type: none"> <li>● Conduct site analysis (including infrastructure needs)</li> <li>● Assign site(s)</li> <li>● Determine City funding capacity (and other federal and state sources the City can leverage)</li> <li>● Conduct solicitation for affordable housing project (if on City-held site)</li> <li>● Build needed infrastructure, if any (note: potential CDBG usage if Consolidated Plan allows for it and affordable housing is a designated use for the site)</li> </ul>
D. Encourage townhome development	<p>ANSWER CRITICAL QUESTIONS</p> <ul style="list-style-type: none"> <li>● Agree that townhomes are a priority for Phase 1</li> <li>● Consider the City’s preferred role and stretch role</li> <li>● Evaluate the City’s capacity and interest</li> </ul> <p>IF THE CITY IS INTERESTED IN CONTINUING</p> <ul style="list-style-type: none"> <li>● Assign a City Project Manager. This could be a new staff position or an expansion of a staff member’s duties.</li> <li>● Continue conversations with property owners to understand needs and goals</li> <li>● Evaluate site assemblage and/or redevelopment opportunities (including infrastructure needs, if any)</li> <li>● Meet with potential developers</li> </ul> <p>IF THE CITY IS NOT INTERESTED IN CONTINUING</p> <p>If the City chooses not to focus on townhomes, the City could talk to developers to gauge interest in other types of dense market rate housing in the near term. Some developers may be willing to invest in other housing types in Phase 1 if the City demonstrates its commitment to the Plan.</p>	<p>IF CITY PROPERTY:</p> <ul style="list-style-type: none"> <li>● Conduct any site remediation needed</li> <li>● Evaluate infrastructure needs, if any, and determine phasing</li> <li>● Conduct developer solicitation</li> </ul> <p>IF PRIVATE PROPERTY</p> <ul style="list-style-type: none"> <li>● Evaluate infrastructure needs if any</li> <li>● Determine City role, if any, in matchmaking with developers, infrastructure investment, etc.</li> </ul>
E. Pursue development of	ANSWER CRITICAL QUESTIONS	<ul style="list-style-type: none"> <li>● Form stakeholder “Blue Ribbon” committee</li> </ul>

<p>a market hall</p> <p><i>Market hall development may happen in Phases 1 or later phases, but these actions should start in Phase 1.</i></p>	<ul style="list-style-type: none"> <li>● Agree on the purpose and objectives of market hall</li> <li>● Consider the City's preferred role in development and ongoing operations</li> <li>● Evaluate the City's capacity and interest in pursuing a market hall (move forward or stop here)</li> </ul> <p>IF THE CITY IS INTERESTED IN CONTINUING</p> <ul style="list-style-type: none"> <li>● Assign a City Project Manager. This could be a new staff position or an expansion of a staff member's duties.</li> <li>● Conduct a programming exercise and location analysis</li> <li>● Conduct a preliminary fundraising analysis</li> <li>● Seek or provide next phase project funding (or stop here)</li> <li>● Evaluate potential operator options (organizations and/or individuals)</li> </ul>	<ul style="list-style-type: none"> <li>● Determine preferred site</li> <li>● Identify operator (organization or individual)</li> <li>● Refine programming and conduct preliminary design</li> <li>● Obtain cost estimate</li> <li>● Develop fundraising plan</li> </ul>
<p>F. Recruit a hotel</p> <p><i>Hotel is likely to be developed in after Phase 1, however these actions could be completed in the Phase 1.</i></p>	<p>ANSWER CRITICAL QUESTIONS</p> <ul style="list-style-type: none"> <li>● Agree that a hotel is a priority in the area</li> <li>● Consider the City's preferred and stretch roles (initially and ongoing)</li> <li>● Evaluate the City's capacity and interest (move forward or stop here)</li> </ul> <p>IF THE CITY IS INTERESTED IN CONTINUING</p> <ul style="list-style-type: none"> <li>● Assign a City Project Manager. This could be a new staff position or an expansion of a staff member's duties.</li> <li>● Spread the word: go meet developers, potential hotel operators, etc. to let them know of the City's plans and desires and to find out what they need</li> <li>● Conduct location analysis (where would a hotel make the most sense given property owners' and City's plans re: acquisition/redevelopment)</li> </ul>	<p>IF CITY PROPERTY:</p> <ul style="list-style-type: none"> <li>● Conduct any site remediation needed</li> <li>● Evaluate infrastructure needs, if any, and determine phasing</li> <li>● Determine City investment role, if any (land write-down, gap funding through occupancy tax, etc.)</li> <li>● Conduct developer/hotelier solicitation</li> </ul> <p>IF PRIVATE PROPERTY</p> <ul style="list-style-type: none"> <li>● Evaluate infrastructure needs if any</li> <li>● Determine City role, if any, in matchmaking with developers, infrastructure investment, etc.</li> </ul>
<p>G. Establish local funding sources and incentives for City priorities</p>	<ul style="list-style-type: none"> <li>● Identify top funding priorities for Plan implementation in the short and mid-term</li> <li>● Evaluate local funding opportunities, soliciting community feedback</li> <li>● Discuss funding opportunities with sister jurisdictions (e.g., Kenai Borough, State of Alaska)</li> </ul>	<ul style="list-style-type: none"> <li>● Select one local funding opportunity to pursue in the near term and identify specific incentives/subsidies that could be offered with that funding source.</li> </ul>

## Phase 1: Detailed Action Sheets

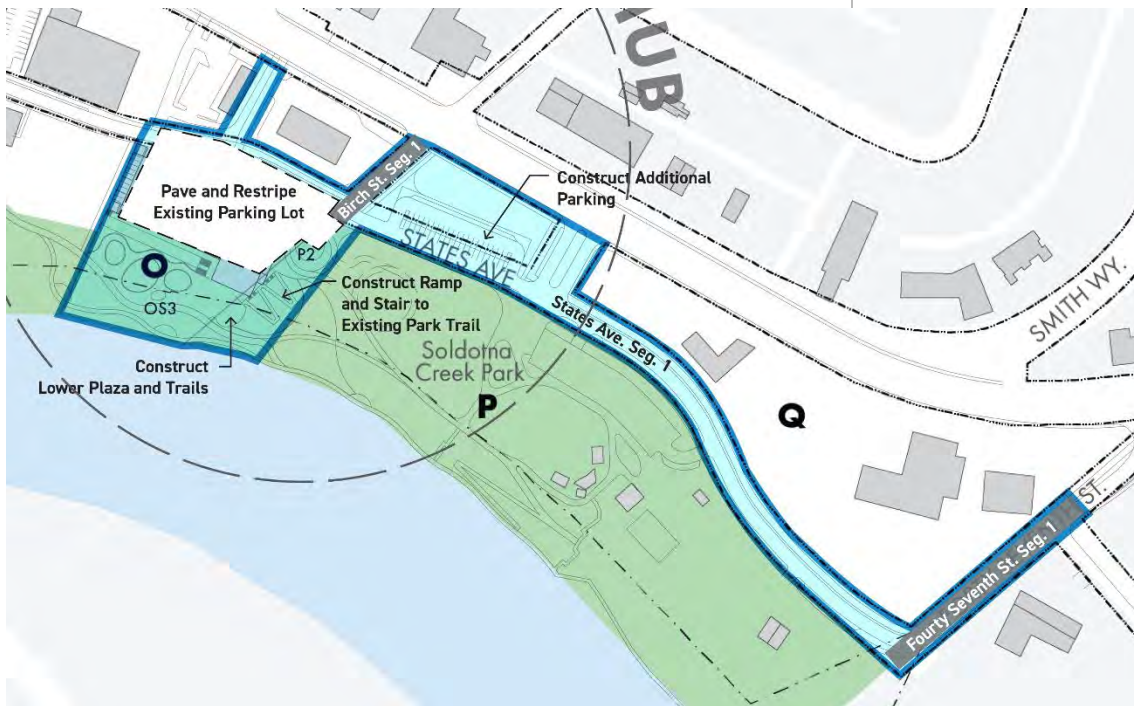
### A Construct street and utility improvements for Phase 1

Strategy Description	Soldotna's Role and Partners
<p>The City will consider investing or partnering where feasible in street and utility improvements throughout the project area to stimulate desired development and improve accessibility for multimodal traffic.</p> <ul style="list-style-type: none"> <li> <b>Riverside Hub Catalyst Site (Exhibit 11):</b> Acquire Public Right-of-way/Design/Construct River Street (Segment 1), and New Street (Segments 1-2)           </li> </ul> <p>River Street and new street improvements would provide direct and convenient local access between the Sterling Highway and the Kenai River, include necessary utilities, and support an interconnected street grid for existing/future development. These investments can stimulate new development opportunities along the Kenai River and the Sterling Highway and establish a parallel road network connecting developments between them. The design of these streets will promote walking and biking, include on-street parking and stormwater management.</p> <p><b>Exhibit 11. Phase 1 Streets and Utilities Improvements, Riverside and Kobuk Street Hubs</b></p> 	<p><b>Soldotna:</b> Partner with private developer to acquire right-of-way and or easements /design/construct infrastructure and utilities and maintain as public right-of-way</p> <p><b>Potential Partners:</b> Developers may construct and dedicate ownership and maintenance as a public right-of-way to the City</p>
<ul style="list-style-type: none"> <li> <b>Kobuk Street Hub Catalyst Site (Exhibit 11):</b> Acquire Public Right-of-way or Easement/Design/Construct River Street (Segment 1), and New Street (Segments 1-2) and utilities improvements. Enhance Lover's Lane (widen sidewalks, add street trees and lighting).           </li> </ul> <p>River Street, new street and enhanced Lover's Lane improvements would provide direct and convenient local access between the Sterling Highway and the Kenai River, include necessary utilities, and support</p>	

an interconnected street grid for existing/future development. These investments can lead to new development opportunities along the Kenai River and the Sterling Highway and establish a parallel road network connecting developments between them. The design of these streets will promote walking and biking, include on-street parking and stormwater management.

- Binkley, and Birch Street Hub Catalyst Site (Exhibit 12):**  
 Design/Construct States Street extension (Segment 1), 47<sup>th</sup> Street (Segment 1) and enhance Birch Street (Segment 1). States Avenue extension and utilities improvements would provide direct and convenient local access between Soldotna Creek Park, 47<sup>th</sup> Street and Homestead Drive, and support an interconnected street grid for existing/future development. The States Avenue investments between Birch Street and 47<sup>th</sup> Street can connect existing and new development with the park. The design of these streets will promote walking and biking, include on-street parking and stormwater management.

**Exhibit 12. Phase 1 Streets and Utilities Improvements, Binkley and Birch Street Hub**



Rationale and Potential Impacts	Considerations and Risks
<p>The City is interested in establishing a complete street network to enhance access to businesses (new and existing) and river amenities. Investing in an interconnected street network and upgrading or installing new utilities can play a significant role in promoting and supporting the redevelopment of vacant and underutilized properties and enhancing existing business access to the Sterling Highway.</p>	<p>Developing new infrastructure is expensive and will require coordination with existing businesses. The City will need to consider if there are opportunities for cost sharing</p>

Complete streets investments ensure safe, accessible connections for all, especially vulnerable populations, to reach daily needs without a car. Community feedback showed that walking/biking downtown and along the waterfront is important.

such as through a Special Assessment District.

Developing infrastructure is necessary for new development, but developing infrastructure is not a *guarantee* of future private development.

<p><b>Timeline and Implementation Steps</b></p>	<p><b><u>Do First</u></b></p> <ul style="list-style-type: none"> <li>• Identify the City’s capacity to invest in infrastructure directly and in full or through partnerships with willing owners/developers.</li> <li>• Conduct outreach with property owners and potential developers to identify willing partners and possible City contribution to specific street and utility improvements.</li> <li>• Secure easements or right-of-way, as necessary</li> <li>• Secure funding through grants or CIP for 30% construction design documentation of City committed projects</li> <li>• Complete 30% construction documentation of City committed projects</li> </ul> <p><b><u>Do Second</u></b></p> <ul style="list-style-type: none"> <li>• Secure funding through grants or CIP for 100% construction</li> <li>• Complete 100% construction documentation and prepare bid package for contractor solicitation</li> <li>• Select contractor and complete permitting and construction</li> </ul>
<p><b>Project Costs J</b></p> <p><b>Riverside Hub</b> (streets and utilities)</p> <ul style="list-style-type: none"> <li>• Full Buildout: \$4.6 million <ul style="list-style-type: none"> <li>○ Phase 1 only: \$3.4 million</li> </ul> </li> </ul> <p><b>Kobuk Street Hub</b> (streets and utilities)</p> <ul style="list-style-type: none"> <li>• Full Buildout: \$7.9 million <ul style="list-style-type: none"> <li>○ Phase 1 only: \$2.1 million</li> </ul> </li> </ul> <p><b>Binkley, Birch and 47<sup>th</sup> Street Hubs</b> (streets and utilities)</p> <ul style="list-style-type: none"> <li>• Full Buildout: \$7.7 million <ul style="list-style-type: none"> <li>○ Phase 1 only: \$4.8 million</li> </ul> </li> </ul>	<p><b>Funding Sources and Considerations</b></p> <p>LOCAL SOURCES: The City of Soldotna may choose to make some of these improvements with General Funds as allocated as a part of its Capital Improvement Plan (CIP). Projects already included in the CIP:</p> <ul style="list-style-type: none"> <li>• Portion of the States Avenue improvements that consist of a trail between the park and 47<sup>th</sup> Street and new sidewalks on Homestead Drive between 47<sup>th</sup> Street and Mullen Drive.</li> </ul> <p>The City may also choose to establish a local funding source such as Urban Renewal, bonds, or a Special Assessment District to fund infrastructure improvements as outlined in Action Sheet G.</p> <p>GRANTS: Infrastructure costs will be substantial, and the City will likely also want to pursue grants and/or loans to fund improvements. Grants and loans available to support infrastructure development may include:</p> <ul style="list-style-type: none"> <li>• ADOT’s Community Transportation Program or Transportation Alternatives Program</li> <li>• Alaska Department of Commerce’s CAP program or competitive CDBG grants</li> <li>• USDOT’s RAISE or Reconnecting Communities and Neighborhoods Programs</li> <li>• EDA’s Economic Assistance program</li> <li>• USDA’s Community Facilities Direct Loan and Grant</li> </ul> <p>These grants and others are described in greater detail in Appendix A.</p> <p><i>*To support overall Plan priorities, the City could consider pursuing state capital funds or Congressionally Directed Spending Requests by advocating for the Plan with state representatives and senators.</i></p>



## B Construct trail and public space improvements for Phase 1

Strategy Description	Soldotna's Role and Partners
<p>The City will consider investing or partnering where feasible in trail and public space improvements throughout the project area. These improvements will provide more public gathering spaces and improve pedestrian access to businesses and riverfront amenities.</p> <ul style="list-style-type: none"> <li>● <b>Riverside Hub Catalyst Site:</b> Acquire Public Right-of-way or Easement/Design/Construct riverfront trail and boardwalk enhancements. Riverfront trail and boardwalk provides public access and serves as an amenity for the community and new development.</li> <li>● <b>Kobuk Street Hub Catalyst Site:</b> No trail and public space improvements.</li> <li>● <b>Binkley, Birch and "Y" Hubs Catalyst Site:</b> Design/Construct upper and lower plazas, stairs and ramp, and trail and boardwalk connections. Plaza, trails and boardwalk connections expand the use and function of Soldotna Creek Park as the community's central public gathering space.</li> </ul>	<p><b>Soldotna:</b> Design/Construct plazas, trails and boardwalk connections.</p> <p><b>Potential Partners:</b> Philanthropy and voter approved capital investment program</p>
Rationale and Potential Impacts	Considerations and Risks
<p>The construction of Soldotna Creek Park was a city-wide effort to transform the former ADOT maintenance facility into Downtown's central gathering space on the riverfront. The park's trails and boardwalks provide visual and fishing access to the Kenai River and is a significant attraction to the community and visitors alike. Amenities such as parks, plazas, trails, and boardwalks can play a significant role in promoting and supporting the redevelopment of vacant and underutilized properties, strengthening existing uses and attracting high quality development.</p> <p>Plazas provide hardscape and water features to support a range of events, programs, and active play. Trails and boardwalks investments ensure safe, accessible connections for all, especially vulnerable populations. Community feedback showed that walking/biking downtown and along the waterfront is important. The City's Recreation and Trails Master Plan and Comprehensive Plan identifies the importance of trail connections in future public improvements.</p>	<p>Developing trails, parks, plazas and open space is expensive and will require coordination with existing businesses and local community support. The City will need to consider if there are opportunities for cost sharing such as through a Special Assessment District.</p> <p>Developing amenities and trail infrastructure is necessary to promote downtown as a unique destination, but developing infrastructure is not a <i>guarantee</i> of future private development.</p>
Timeline and Implementation Steps	<p><b><u>Do First</u></b></p> <p>ANSWER CRITICAL QUESTIONS</p> <ul style="list-style-type: none"> <li>● Agree on the purpose, objectives, and benefit of trail/public space improvements.</li> <li>● Consider the City's preferred role in development and ongoing operations.</li> <li>● Evaluate the City's capacity and interest in pursuing trail and public space improvements (move forward or stop here)</li> </ul> <p>IF THE CITY IS INTERESTED IN MOVING FORWARD</p> <ul style="list-style-type: none"> <li>● Assign a City Project Manager and / or coordinate efforts with the Parks and Recreation Department</li> <li>● Conduct design and programming for trail and public space improvements</li> <li>● Conduct a preliminary fundraising analysis.</li> <li>● Seek or provide next phase project funding (or stop here)</li> <li>● Evaluate management options (organizations and/or groups)</li> </ul> <p><b><u>Do Second</u></b></p> <ul style="list-style-type: none"> <li>● Form stakeholder "Blue Ribbon" committee</li> </ul>

	<ul style="list-style-type: none"> <li>● Refine programming and conduct preliminary design.</li> <li>● Prepare cost estimate and phasing plan.</li> <li>● Determine City funding capacity (and other federal and state sources the City can leverage)</li> <li>● Develop fundraising plan</li> <li>● Select contractor and complete permitting and construction</li> </ul>
Project Costs	Funding Sources and Considerations
<p><b>Riverside Hub</b> (trails/public improvements)</p> <ul style="list-style-type: none"> <li>● Full Buildout: \$3.2 million <ul style="list-style-type: none"> <li>○ Phase 1 only: \$1.5 million</li> </ul> </li> </ul> <p><b>Kobuk Street Hub</b> (trails/public improvements)</p> <ul style="list-style-type: none"> <li>● Full Buildout: \$280,000 <ul style="list-style-type: none"> <li>○ Phase 1 only: \$0</li> </ul> </li> </ul> <p><b>Binkley, and Birch Street Hub</b> (trails/public improvements)</p> <ul style="list-style-type: none"> <li>● Full Buildout: \$3.7 million <ul style="list-style-type: none"> <li>○ Phase 1 only: \$2.2 million</li> </ul> </li> </ul>	<p>LOCAL SOURCES: The City of Soldotna may choose to make some of these improvements with the General Fund, or the City may also choose to establish a local funding source such as Urban Renewal, Transient Occupancy Taxes, or user fees as outlined in Action Sheet G.</p> <p>GRANTS: The City could also pursue grants such as:</p> <ul style="list-style-type: none"> <li>● The Recreational Trails Program from Alaska Division of Parks and Outdoor Recreation</li> <li>● ADOT's Community Transportation Program or Transportation Alternatives Program</li> <li>● Alaska Department of Commerce's CAP program or competitive CDBG grants</li> <li>● Foundation grants from the Kenai Peninsula Foundation, T-Mobile, AARP, or the Rasmuson Foundation</li> </ul> <p>These grants are described in greater detail in Appendix A.</p> <p>PHILANTHROPY: The City may want to pursue a fundraising campaign for certain trail and public space improvements.</p> <p><i>* To support overall Plan priorities, the City could consider pursuing Congressionally Directed Spending Requests by advocating for the Plan with state representatives and senators.</i></p>

## C Partner to develop affordable multifamily housing

Strategy Description	Soldotna's Role and Partners
<p>The City of Soldotna supports housing in the district. Affordability to residents and workforce is an important priority. The City could include affordable housing as a part of its Plan. To do this, the City could identify/acquire a site and prepare a Request for Proposals soliciting affordable housing developers. The City could donate the land to support the development.</p> <p>The City could also establish local funding sources or incentives to encourage future affordable housing development in the Plan area (Action Sheet G).</p>	<p><b>Soldotna:</b> Varies but could include: Land acquisition (then transfer to a nonprofit or other affordable housing developer), deal facilitator (find partners, help find other funders, etc.), build adjacent infrastructure (help provide a developable site), gap funder</p> <p><b>Potential Partners:</b> Affordable housing developers such as Kenai Peninsula Housing Initiatives, Cook Inlet Housing Authority, or Alaska Housing Finance Corporation</p>

Rationale and Potential Impacts	Considerations and Risks
<p>The cost of housing has increased substantially over the past few years both in Soldotna and across the nation. Community engagement revealed concern with housing affordability. Including affordable housing as a part of the Plan helps ensure that Soldotna remains affordable and accessible to existing lower income residents as well as ensuring that future residents with a variety of income levels can call Soldotna home. It can directly or indirectly ameliorate displacement issues caused by redevelopment.</p> <p>Developing affordable housing in the first phase can also provide the density called for in the Plan that the private market cannot provide on its own in the early phases of redevelopment.</p> <p>Attaining housing affordability is also vital to attracting and retaining workers in lower-wage industries like retail and restaurants, which are key parts of the Plan vision. Employees in these sectors typically earn lower wages and require affordable housing options within their means.</p>	<p>Developing affordable housing will require City effort and potentially City funding (either through land purchase or gap funding). Affordable housing projects can be difficult to fund and often require multiple funding partners</p>

<p><b>Timeline and Implementation Steps</b></p>	<p><b>Do First</b> ANSWER CRITICAL QUESTIONS</p> <ul style="list-style-type: none"> <li>• Agree that affordable housing is a priority</li> <li>• Consider the City’s preferred role (initially and ongoing) as well as the City’s stretch role</li> <li>• Evaluate the City’s capacity and interest (move forward or stop here)</li> </ul> <p>IF THE CITY IS INTERESTED IN MOVING FORWARD</p> <ul style="list-style-type: none"> <li>• Assign a City Project Manager. This could be a new staff position or an expansion of a staff member’s duties.</li> <li>• Spread the word to potential partners and funders</li> </ul> <p><b>Do Second</b></p> <ul style="list-style-type: none"> <li>• Conduct site analysis (including infrastructure needs)</li> <li>• Assign site(s)</li> <li>• Determine City funding capacity (and other federal and state sources the City can leverage)</li> <li>• Conduct solicitation for affordable housing project (if on City-held site)</li> <li>• Build needed infrastructure, if any (note: potential CDBG usage if Consolidated Plan allows for it and affordable housing is a designated use for the site)</li> </ul> <p>*IF THE CITY IS NOT INTERESTED IN AFFORDABLE HOUSING</p> <p>If the City chooses not to focus on affordable housing the City could talk to developers to gauge interest in other types of dense market rate housing in the near term. While feasibility findings showed three story multifamily and mixed-use development is unlikely in the first phase, some developers may be willing to invest earlier if the City demonstrates its commitment to the Plan. However, rents may be higher than many residents can afford.</p>
<p><b>Funding Source(s)</b></p> <p>City of Soldotna</p> <p>LIHTC, CDBG funds, grant programs</p>	<p><b>Funding and Resource Considerations</b></p> <p>LOCAL SOURCES: The City could donate publicly owned land to reduce costs for affordable housing development. The City could also use the general fund for affordable housing programs (through ordinances) and/or support infrastructure development needed to support affordable housing development</p>

*\* To support overall Plan priorities, the City could consider pursuing Congressionally Directed Spending Requests by advocating for the Plan with state representatives and senators.*

STATE and GRANTS: The City could use CDBG funds if the Consolidated Plan allows for it and affordable housing is a designated use for the site. The City could also directly pursue grant opportunities to support gap financing and infrastructure development such as the Pro Housing Pathways to Removing Obstacles grant from HUD. This grant along with other grant opportunities the city could pursue to support infrastructure development are described in Appendix A.

DEVELOPER RESOURCES: It is likely that the City would work with a nonprofit who would then develop affordable housing. A nonprofit like Cook Inlet Housing Authority or Kenai Peninsula Housing Initiatives has expertise in pursuing funding for affordable housing projects. However, funding sources for new affordable housing construction could include:

- **Low Income Housing Tax Credits (LIHTC)** – the Alaska Housing Finance Authority (AHFC) awards LIHTC to developers through a competitive process.
- **Other federal sources** such as HOME Investment Partnership Program (awarded through the AHFC), Community Development Block Grant (CDBG), Indian Housing Block Grant (IHBG), Project Based Rental Assistance (PBRA), Housing Choice Vouchers (HCV), and Federal Home Loan Bank (FHLBank) Affordable Housing Program (AHP), and Multifamily Housing Direct Loan program from USDA
- **Other state sources** such as Housing Alaskans, a state housing trust established in 2022, and the Supplemental Housing Development Grants Program through AHFC.

The City may want to consider establishing additional local funding sources or incentives to encourage more affordable housing development in the future. This could include establishing an Urban Renewal District and/or establishing tax credits, density bonuses, or fee waivers for affordable housing and multifamily development. This would provide the city with more options for supporting affordable housing in the future. These options are discussed in more detail in Action Sheet G.

D Encourage townhome development	
Strategy Description	Soldotna’s Role and Partners
Townhomes are the most feasible residential type currently, offering a promising means to reinvigorate the area through private investment.	<p><b>Soldotna:</b> Varies but could include: discussions with, and technical assistance for, property owners, site acquisition and remediation, conduct infrastructure improvements, developer solicitation, provide development incentives</p> <p><b>Potential Partners:</b> Property owners, developers</p>
Rationale and Potential Impacts	Considerations and Risks
Encouraging private development of townhomes can help to “prove out” the area as a developable neighborhood which lays the groundwork for more dense development moving forward. More people living in the neighborhood will bring activity to the area and patrons for businesses.	<p>Townhomes represent a less dense type of development than is generally desired by the Plan.</p> <p>Attracting a developer may also require some City assistance (land write-down, other incentives etc.) which can reduce funding available for other City priorities.</p>

New townhomes could attract buyers seeking second homes or short-term rental investments rather than primary residences. If the City aims to prioritize year-round occupancy, the City could consider regulating short-term rentals and/or second homes such as by capping the number permitted, as done in other U.S. cities. However, before pursuing any regulation, the City will need to determine legal viability. If the City is concerned with second homes and short-term rentals, as a next step, the City could commission legal guidance to vet policy tools, then craft tailored solutions to fit Soldotna's conditions and objectives.

<p><b>Timeline and Implementation Steps</b></p>	<p><b>Do First</b> ANSWER CRITICAL QUESTIONS</p> <ul style="list-style-type: none"> <li>• Agree that townhomes are a priority for the first phase</li> <li>• Consider the City's preferred role as well as the City's stretch role</li> <li>• Evaluate the City's capacity and interest (move forward or stop here)</li> </ul> <p>IF THE CITY IS INTERESTED IN MOVING FORWARD</p> <ul style="list-style-type: none"> <li>• Assign a City staff member to manage the project. This could be a new staff position or an expansion of a staff member's duties.</li> <li>• Continue conversations with district property owners to understand their short and long-term needs and goals</li> <li>• Evaluate site assemblage and/or redevelopment opportunities (including infrastructure needs, if any)</li> <li>• Meet with potential developers (locally, within Alaska, and the lower 48)</li> <li>• Identify preferred site(s) for townhome development (versus more dense development in later phases)</li> </ul> <p><b>Do Second</b> IF CITY PROPERTY:</p> <ul style="list-style-type: none"> <li>• Conduct any site remediation needed</li> <li>• Evaluate infrastructure needs, if any, and determine phasing</li> <li>• Conduct developer solicitation</li> </ul> <p>IF PRIVATE PROPERTY</p> <ul style="list-style-type: none"> <li>• Evaluate infrastructure needs if any</li> <li>• Determine City role, if any, in matchmaking with developers, infrastructure investment, etc.</li> </ul> <p><b>*IF THE CITY IS NOT INTERESTED IN TOWNHOMES</b> If the City chooses not to focus on townhomes, the City could talk to developers to gauge interest in other types of dense market rate housing in the near term. Some developers may be willing to invest in other housing types in Phase 1 if the City demonstrates its commitment to the Plan.</p>
<p><b>Funding Source(s)</b></p> <p>N/A</p>	<p><b>Funding and Resource Considerations</b></p> <p>The City needs to consider what level of financial involvement it will have in townhome development. City-lead site cleanup and infrastructure investments may be enough to attract development.</p>

## E Pursue development of a market hall

<p><b>What: Strategy Description</b></p> <p>The City of Soldotna is interested in including a market hall as a part of its first phase development of the Plan. To do this, the City would identify/acquire a site and select/establish a nonprofit partner to develop and operate the market hall.</p> <p>The market hall can serve as a community accessible space for small business development through leased stalls, large indoor gathering space for programming events year-round, additional meeting rooms and divisible space for small and larger meetings or conference type uses, and for locating the visitors center, exhibit space and local chamber of commerce offices.</p>	<p><b>Who: Soldotna's Role and Partners</b></p> <p><b>Soldotna:</b> Landowner, facilitator of idea, organizer of new nonprofit, funder/fundraiser, ongoing operating partner</p> <p><b>Potential Partners:</b> Nonprofit developer/operator (this may require establishing a new entity), KPED, SBDC, Cook Inletkeeper, community members (residents and businesses), CIRI, Soldotna Chamber of Commerce</p>
<p><b>Rationale and Potential Impacts</b></p> <p>Creating a market hall would meet the community's need for affordable retail/restaurant space, addressing gaps in private market support. This strategic move lays the foundation for future private development phases by cultivating a pipeline of retail businesses to tenant new development and establishing a vibrant focal point to stimulate later development phases.</p> <p>Public investment in a market hall and adjacent improvements will support the expanded use and function of Soldotna Creek Park which is a key downtown destination. The Market Hall program could:</p> <ul style="list-style-type: none"> <li>• Contribute to small business development which supports a City goal for promoting local economic development.</li> <li>• Support the visitors center and chamber of commerce mission to relocate the facility to better serve the visitor economy and promotion of local businesses.</li> <li>• Provide needed community meeting space to support a fulfill a range of community groups</li> <li>• Promote the visitor and local Soldotna economy with a one-of-a-kind and river adjacent facility for food, beverage and retail sales and programming of events year-round.</li> </ul> <p>Community engagement revealed broad community support for a market hall as well as resident interest in operating, tenanting, and supporting the market hall.</p>	<p><b>Considerations and Risks</b></p> <p>Developing a market hall comes with risks including:</p> <ul style="list-style-type: none"> <li>• Requires extensive time and effort</li> <li>• Potential risk of failure</li> <li>• Reduces capacity to pursue other city priorities for investment</li> </ul>
<p><b>Potential Location</b></p>	<p>The Davis Block is a city owned property adjacent to Soldotna Creek Park with extensive river frontage and easily accessible to Sterling Highway from Birch Street. The site currently provides overflow parking for programmed events. The project area size is such that future redevelopment has the capacity to support a multi-level market hall, structured park, hall and event parking, and additional park plaza and open space to promote the expanded use and function of Soldotna Creek Park as a central community gathering space.</p>
<p><b>Timeline and Implementation Steps</b></p>	<p><b>Do First</b></p> <p>ANSWER CRITICAL QUESTIONS</p> <ul style="list-style-type: none"> <li>• Agree on the purpose and objectives of market hall</li> <li>• Consider the City's preferred role in development and ongoing operations</li> </ul>

	<ul style="list-style-type: none"> <li>• Evaluate the City’s capacity and interest in pursuing a market hall (move forward or stop here)</li> </ul> <p><b>IF THE CITY IS INTERESTED IN MOVING FORWARD</b></p> <ul style="list-style-type: none"> <li>• Assign a City Project Manager. This could be a new staff position or an expansion of a staff member’s duties.</li> <li>• Conduct a programming exercise and location analysis</li> <li>• Conduct a preliminary fundraising analysis</li> <li>• Seek or provide next phase project funding (or stop here)</li> <li>• Evaluate potential operator options (organizations and/or individuals)</li> </ul> <p><b>Do Second</b></p> <ul style="list-style-type: none"> <li>• Form stakeholder “Blue Ribbon” committee</li> <li>• Determine preferred site</li> <li>• Identify operator (organization or individual)</li> <li>• Refine programming and conduct preliminary design</li> <li>• Obtain cost estimate</li> <li>• Develop fundraising plan</li> </ul> <p>*If the City’s desired market hall design/location is too expensive to complete as a part of Phase 1, the City could consider establishing a temporary structure or butler building for the market hall on the preferred location. Then as a part of later phases, the City could expand the market hall, after proof of concept has been established.</p>
Funding Source(s)	Funding Considerations
<p>City of Soldotna, Philanthropy, CDBG funds, Community Assistance Program, grant programs</p> <p><i>* To support overall Plan priorities, the City could consider pursuing Congressionally Directed Spending Requests by advocating for the Plan with state representatives and senators.</i></p>	<p><b>LOCAL SOURCES:</b> The City could provide land for a market hall (donation or land lease). The City may want to use the City’s discretionary general fund for capital and operational dollars through the annual budgeting process. The City may also want to consider additional local funding sources for development and ongoing operations as outlined in Action Sheet G such as establishing a Transient Occupancy Tax.</p> <p><b>STATE:</b> The City may be able to use CDBG funds and Alaska’s Community Assistance Program if the project meets certain criteria</p> <p><b>GRANTS:</b> The City could pursue grant opportunities for both feasibility analysis and construction of the market hall. Developing a market hall may be an eligible project under the following grants (or others) highlighted in Appendix A.</p> <ul style="list-style-type: none"> <li>• USDA Rural Development Grants</li> <li>• Economic Adjustment Assistance Program through EDA, especially if the City highlights the equity aspects of the market hall (affordable business space) and how it can function as an incubator for retail businesses</li> <li>• Tier 1 and 2 grants from the Rasmuson Foundation. The Foundation requires that at least 50% of the total project budget be secured or pending before they make a commitment.</li> </ul> <p><b>PHILANTHROPY:</b> For market hall development, the City may also want to pursue a fundraising campaign.</p>

## F Recruit a hotel

Strategy Description	Soldotna's Role and Partners
<p>The City of Soldotna is interested in including a hotel as a part of its Plan. As area improvements take shape, a hotel becomes a logical progression. These enhancements assure upscale hotel developers that the necessary amenities for long-term success are in place.</p>	<p><b>Soldotna:</b> Varies but could include: Site acquisition and remediation, conduct infrastructure improvements, hotelier solicitation, provide development incentives.</p> <p><b>Potential Partners:</b> Property owners, developers, hotelier (such as Alyeska Resort)</p>
Rationale and Potential Impacts	Considerations and Risks
<p>A hotel can help activate the area. It can build excitement and increases the likelihood of future mixed-use development. A hotel would also have favorable liquor licensing and would be able to serve beer, wine and spirits. A restaurant, if included as a part of the hotel, would benefit from this liquor license, creating an opportunity for an attractive food/beverage location.</p>	<p>To attract a hotel, the area would likely need to install preliminary amenities like the park/trail extension and/or a market hall. Attracting a hotel may also require some City assistance (land write-down, other incentives etc.) which can reduce funding available for other City priorities.</p>
Timeline and Implementation Steps	<p><b><u>Do First</u></b></p> <p>ANSWER CRITICAL QUESTIONS</p> <ul style="list-style-type: none"> <li>• Agree that a hotel is a priority in the area</li> <li>• Consider the City's preferred and stretch roles (initially and ongoing)</li> <li>• Evaluate the City's capacity and interest (move forward or stop here)</li> </ul> <p>IF THE CITY IS INTERESTED IN MOVING FORWARD</p> <ul style="list-style-type: none"> <li>• Assign a City Project Manager. This could be a new staff position or an expansion of a staff member's duties.</li> <li>• Spread the word: go meet developers, potential hotel operators, etc. to let them know of the City's plans and desires and to find out what they need</li> <li>• Conduct location analysis (where would a hotel make the most sense given property owners' and City's plans re: acquisition/redevelopment)</li> </ul> <p><b><u>Do Second</u></b></p> <p>IF CITY PROPERTY:</p> <ul style="list-style-type: none"> <li>• Conduct site remediation if on Riverside Hub</li> <li>• Evaluate infrastructure needs, if any, and determine phasing</li> <li>• Determine City investment role, if any (land write-down, gap funding through occupancy tax, etc.)</li> <li>• Conduct developer/hotelier solicitation</li> </ul> <p>IF PRIVATE PROPERTY</p> <ul style="list-style-type: none"> <li>• Evaluate infrastructure needs if any</li> <li>• Determine City role, if any, in matchmaking with developers, infrastructure investment, etc.</li> </ul>
Funding Source(s)	Funding and Resource Considerations
<p>City of Soldotna</p> <p>Grant programs</p>	<p>The City needs to consider what level of financial involvement it will have in hotel development. If pursuing site acquisition and remediation the City may want to pursue federal resources for brownfield redevelopment such as:</p> <ul style="list-style-type: none"> <li>• EDA's Public Works and Economic Adjustment Assistance Program</li> <li>• EPA's Brownfield Program</li> </ul>



To attract developers, the City may also want to consider incentives such as fee waivers or accelerated permit review times. The City may also consider land donation or infrastructure investment. Grants available to support infrastructure and amenity development are detailed in Appendix A and Action Sheets A and B.

## G Establish local funding sources and incentives to support City priorities

Strategy Description	Soldotna's Role and Partners
<p>To implement the plan and catalyze redevelopment, Soldotna will need to leverage diverse funding sources. Pursuing a mix of funding will allow the City to incrementally take steps toward achieving the Plan vision as resources permit. Currently, the City has limited local resources available beyond the General Fund to support the Plan's priorities. The City could establish local funding sources or incentives to encourage development in the Plan area. Some local funding sources to consider include:</p> <ul style="list-style-type: none"> <li>• Urban Renewal</li> <li>• Special Assessment Districts</li> <li>• Transient Occupancy Taxes</li> <li>• General Obligation Bonds</li> <li>• Revenue Bonds</li> <li>• Development Driven Sources (CET, SDCs)</li> <li>• User Fees</li> </ul> <p>The City may also want to consider incentives to encourage desired development such as waiving development fees or tax exemptions on certain types of development (affordable housing, multifamily housing).</p>	<p><b>Soldotna:</b> Evaluate potential local funding sources; collaborate with the Borough and other taxing districts</p> <p><b>Potential Partners:</b> Kenai Peninsula Borough, local taxing districts, residents and businesses</p>
Rationale and Potential Impacts	Considerations and Risks
<p>To stimulate desired development in the near term, it is likely the City will need to facilitate redevelopment through participating in public private partnerships (e.g., market hall, subsidized land costs for private development, etc.), constructing infrastructure improvements (e.g., streets and sidewalks, trails, and open space), and carefully considering the timing of both public and private investment.</p> <p>Lack of local resources could hinder redevelopment in the Plan area if the City is unable to raise the funds it needs. Additionally, lack of long-term funding sources dedicated to ensuring that the area remains affordable and accessible to current residents could lead to residents and businesses being displaced in the future if City investment generates desired redevelopment</p>	<p>New funding sources often requires voter approval, which may be politically infeasible. Additionally, certain options such as establishing an urban renewal district requires collaboration from various taxing districts to realize the full potential of the funding structure. Other sources such as new fees on development could prevent development all together if feasibility is already challenging.</p> <p>Incentives, such as waiving development fees, can reduce funding for other City priorities.</p>
Timeline and Implementation Steps	<p><b>Do First</b></p> <ul style="list-style-type: none"> <li>• Identify top funding priorities for Plan implementation in the short and mid-term</li> <li>• Evaluate local funding opportunities, soliciting community feedback</li> <li>• Discuss funding opportunities with sister jurisdictions (e.g., Kenai Borough, State of Alaska)</li> </ul> <p><b>Do Second</b></p>

	<ul style="list-style-type: none"> <li>Select one local funding opportunity to pursue in the near term and identify specific incentives/subsidies that could be offered with that funding source</li> </ul>
<b>Funding Source(s)</b>	<b>Funding and Resource Considerations</b>
N/A	This could require substantial staff time to evaluate options and garner public support

## Appendix A: Grants/Loan Research

This appendix includes a limited number of potential grant opportunities that the City could pursue to support infrastructure, economic development, housing, and trails/recreation. Actual eligibility for these grants will vary. Soldotna should continue to monitor state agency and legislature creation of new funding opportunities

ID	Funding Program	Program Category	Program Description	Eligible Projects	Eligible Applicants	Grant Program Criteria Evaluated	Funding Capacity
1	<b>Recreational Trails Program</b>  Funding Agency: Alaska Division of Parks and Recreation	Trails	Funding to develop and repair recreational trails and trail-related facilities. Also provides funds for trail related environmental protection, safety, and educational projects.	Non-motorized and motorized recreational trail uses.	Nonprofits, educational institutions, local, state, federal, and tribal governments	Quality and adherence to directions; project description, scope of work; detailed timeline of tasks; proposed budget; project funding, sponsor, etc.; public benefit; community support	Motorized = \$300,000 Non-motorized = \$200,000 Grant provides up to 90% of eligible expenses.
2	<b>Community Transportation Program</b>  Funding Agency: Alaska Department of Transportation and Public Facilities	Trails & Roads	Funding from the Statewide Transportation Improvement Program (STIP) to maintain, improve, or make new surface transportation facilities, enhance travel and tourism, reduce wildlife-vehicle collisions, improve air quality, and projects that connect different types of transportation such as roads and trails.	Improve existing surface transportation facilities; make new transportation facilities that provide access to important resources or connect communities; connect different types of transportation; enhance travel and tourism; electric vehicle charging infrastructure; reduction of wildlife-vehicle collisions.	Public entities	Economic benefits; health and quality of life; safety; intermodal, contribution; M&O costs, public support; environmental; corrects deficient roadway; cost effectiveness; deficient bridges; functional class	\$80- \$120 million. Funding is allocated based on project nominations and public support, and is managed by DOT&PF.  9.03% match rate *Awarded projects will be developed and managed by ADOT
3	<b>Transportation Alternatives Program</b>  Funding Agency: Alaska Department of Transportation and Public Facilities	Trails, Active Transportation, Complete Streets	A set aside from the Surface Transportation Block Grant for smaller scale transportation projects.	On-road and off-road facilities for pedestrians and bicyclists; safe routes for non-drivers (formerly Safe Routes to School); create turnouts, scenic overlooks and viewing areas; support historic preservation and rehabilitation; support environmental mitigation related to stormwater and habitat connectivity; and vulnerable road user safety assessments.	Public entities	Economic benefits; health and quality of life; safety; intermodal, contribution; M&O costs, public support; environmental; corrects deficient roadway; cost effectiveness; deficient bridges; functional class	\$5 million  Maintenance responsibility is the only required contribution *Awarded projects will be developed and managed by ADOT

ID	Funding Program	Program Category	Program Description	Eligible Projects	Eligible Applicants	Grant Program Criteria Evaluated	Funding Capacity
4	<b>Reconnecting Communities &amp; Neighborhoods</b>  Funding Agency: USDOT	Active Transportation, Complete Streets	The RCP Program aims to advance and support reconnection of communities divided by transportation infrastructure – with a priority on helping disadvantaged communities improve access to daily needs (jobs, schools, healthcare, grocery stores, and recreation).	The RCN Program provides funding for three types of grants: Community Planning Grants, Capital Construction Grants, and Regional Partnerships Challenge Grants.	Public entities, non-profits	Equity and Environmental Justice; Access; Facility Suitability; Community Engagement, and Community based Stewardship, Management, and Partnerships; Equitable Development; Climate and Environment; and Workforce Development and Economic Opportunity	Planning Min. = \$2 million with 20% match  Construction Min. = \$5 million with 50% match
5	<b>RAISE</b>  Funding Agency: USDOT	Roads	Invests in road, rail, transit and port projects that promise to achieve national objectives. Fund projects that have a significant local or regional impact.	Capital and planning projects.	Public entities	Safety; Environmental sustainability; Quality of life; Mobility and community connectivity; Economic competitiveness and opportunity; State of good repair; innovation; Partnership and collaboration	Planning = no minimum  Capital min. = \$1 million  No match required
6	<b>Community Assistance Fund</b>  Funding Agency: Alaska Department of Commerce, Community, and Development	Infrastructure	CAP funds can be used by boroughs, cities, and unincorporated communities for any public purpose that has been determined as a priority of the funding recipient.	Basic public service areas: road maintenance, water, etc.	Borough, City, Native Village Council, Non-profit, Reserve.	None	\$75,000 annual base payment to cities with additional per capita payments.
7	<b>Revolving Loan Fund Water/Sewer</b>  Funding Agency: Alaska Department of Environmental Conservation	Infrastructure	Offer low interest loans to Alaskan municipalities and other qualified entities for financing water, wastewater and water quality related projects.	Wastewater Treatment Facilities, Sewer Interceptor and Collection Systems, Storm Water Collection and Treatment, Nonpoint, Source Prevention and Restoration Projects, Enhancement Projects, Planning and Design of Facilities, Water Source Rehabilitation, Water Treatment Facilities, Water Storage Facilities, etc.	Public entities	Environmental review and financial capacity assessment	Loan can finance 100% of project's cost for planning, design, and construction. Can serve as local match funds.

ID	Funding Program	Program Category	Program Description	Eligible Projects	Eligible Applicants	Grant Program Criteria Evaluated	Funding Capacity
8	<b>Public Works and Economic Adjustment Assistance Program</b>  Funding Agency: Economic Development Administration	Economic Development	Designed to support the economic development activities most useful to a community based on its needs and circumstances.	Funds community or regionally generated ideas and assists communities to advance to the next level of economic development.	Non-profits, public entities, and higher education	Alignment with the EDA's current investment priorities (as of Oct 2023): equity, recovery & resilience, workforce development, manufacturing, tech-based economic development, sustainable development, exports & FDI) and the region's CEDS	\$100,000 – \$30 million  20% - 50% match depending on matrix of local economic conditions
9	<b>Rural Business Development Grants</b>  Funding Agency: USDA	Business & Economic Development	Grant money to assist with economic development planning and/or the financing or expansion of rural businesses	Capital, programming, and planning projects	Rural public entities	Evidence showing job creation to occur with local businesses; % of nonfederal funding committed to the project; Economic need in the area to be served; Consistency with local economic development priorities; Experience of the grantee with similar efforts	\$10,000 – \$500,000  No cost sharing requirement
10	<b>Competitive Community Development Block Grants</b>  Funding Agency: HUD dispersed through Alaska Department of Commerce, Community, and Development	Community Development	Financial resources for public facilities and planning activities which address issues detrimental to the health and safety of residents and to reduce the costs of essential community services	Property acquisition, relocation, rehabilitation and construction; sewer facilities, streets, neighborhood centers, etc.	Public entities	Benefit low- and moderate-income persons; Prevent or eliminate slums or blight; Address community development needs that pose a serious and immediate threat to the health or welfare of the community for which other funding is not available	\$850,000  25% match

ID	Funding Program	Program Category	Program Description	Eligible Projects	Eligible Applicants	Grant Program Criteria Evaluated	Funding Capacity
11	<b>Community Facilities Direct Loan &amp; Grant</b>  Funding Agency: USDA	Community Economic Development	Provides affordable funding to develop essential community facilities in rural areas	Health care facilities; Public facilities; Community support services; Public safety services; public works vehicles or equipment; Educational; Utility services; Local food systems.	Public entities, non-profit corporations, tribes	Priority point system based on population, median household income (Small communities with a population of 5,500 or less; Low-income communities having a median household income below 80% of the state nonmetropolitan median household income)	Loan terms are dependent upon MHI of service area; grant can cover 75% of the project cost.
12	<b>Tier 2 Grants</b>  Funding Agency: Rasmuson Foundation	Community Development	Funds can support capital projects of demonstrable strategic importance, and innovative solutions to issues of broad community or statewide significance.	Buildings, equipment, furnishings, technology, vehicles, park improvements and similar projects. Does not fund infrastructure.	Tribes, nonprofits and local governments	Must demonstrate long-term benefits or impacts and must be initiated by an established organization with a history of accomplishment	Minimum = \$25,000  No match information.
13	<b>Tier 1 Grants</b>  Funding Agency: Rasmuson Foundation	Community Development	This program primarily supports small capital projects, vehicle purchases and technology upgrades for eligible Alaska organizations	Buildings, equipment, furnishings, technology, vehicles, park improvements and similar projects. Does not fund infrastructure.	Tribes, nonprofits and local governments	Applications are evaluated based on budget, scope of work, and expected outcomes as well as an organization's track record, fiscal and management capacity, an active board and experienced staff, sources of financial support, and the project's benefit to the organization and the community it serves	\$25,000  No match required.
14	<b>Kenai Peninsula Competitive Grant Program</b>  Funding Agency: Kenai Peninsula Foundation	Community Development	Goal is to support projects that enhance the quality of life for central Kenai Peninsula area residents, addressing immediate needs while working toward long-term improvements.	Grants may support a broad range of community needs, including but not limited to health and wellness, education, the great outdoors, arts and culture, and community development.	Non-profits; Faith-based organization providing social services; tribes; City governments or Boroughs	Project description (population served, organizational budget, goals outcomes, start & end date); Project budget and narrative; Organizational background	\$3,000

ID	Funding Program	Program Category	Program Description	Eligible Projects	Eligible Applicants	Grant Program Criteria Evaluated	Funding Capacity
15	<b>T-Mobile Hometown Grants</b>  Funding Agency: T-Mobile	Main streets	The T-Mobile Hometown Grants program funds projects to build, rebuild, or refresh community spaces that help foster local connections in your town.	The project must be in towns with less than 50,000 people and should provide a community benefit where it might otherwise be difficult to secure funding. Projects should be shovel-ready, physical builds or improvements that can be completed within 12 months of receiving Hometown Grants funding.	Elected officials, town managers and employees, tribal leaders, or non-profit organizations	Community need, community impact, community support, feasibility, alignment with T-Mobile's small-town strategy	\$50,000  No match information.
16	<b>Community Challenge Grants</b>  Funding Agency: AARP	Public spaces, mobility, housing options	Provides small grants to fund quick-action projects that can help communities become more livable for people of all ages.	Projects that benefit residents – especially those age 50 and older, such as vibrant public spaces, transportation mobility, housing availability, etc.	Local governments, States, Metropolitan Planning Organizations (MPOs), and multi-jurisdictional entities	Impact, Execution, and Innovation	\$500 - \$50,000  No match information.
17	<b>PRO Housing: Pathways to Removing Obstacles</b>  Funding Agency: HUD	Housing	Competitive grant funding for the identification and removal of barriers to affordable housing production and preservation.	Activities that further develop, evaluate, and implement housing policy plans, improve housing strategies, and facilitate affordable housing production and preservation.	Non-profits and public entities	Priority will be given to demonstrated commitment to overcoming local barriers to affordable housing and that have an acute demand for affordable housing	\$1 million - \$10 million  No match required.
18	<b>EPA Brownfields Program</b>  Funding Agency: EPA	Brownfield development	Provide direct funding or services for brownfields assessment, cleanup, revolving loans, environmental job training, technical assistance, training, and research. There are several types of nationally competitive grants available.	Assessments, technical assistance and training, planning, clean-up activities.	State, local, and federally recognized Tribal governments; non-profits	Dependent upon grant program	0 - 20% match, depending on program.

# APPENDIX C: MASTER PLAN

## C.1 Development Summary

Document: Illustrative Plan, Catalyst Sites and Catalyst Sites Phasing Exhibits. Development Summary spreadsheets. FIRST FORTY FEET

Description: *Illustrative Plan exhibits and full development summary spreadsheet for Build-out of the project area, Catalyst Sites build-out and development summary spreadsheet and Catalyst Sites Phase 1 projects and development summary spreadsheet.*

## C.2 Business Case- 20-Year Build-out

Document: Business Case - Soldotna 20-Year Buildout Analysis; ECONorthwest, Economics and Research Consultant

Description: *Analysis memo of the economic impacts of constructing the infrastructure and buildings outlined in the Development Summary and illustrative Plan.. Identifies the economic and community benefits warranting the City's continued investment and support of the Redevelopment Plan's catalyst sites and projects..*

## C.3 Development Strategy

Document: Downtown Riverfront Redevelopment Plan - Development Strategy Memo; ECONorthwest, Economics and Research Consultant

Description: *Development Strategy delineating initial catalyst projects, actions and strategies that are designed to stimulate immediate development and set in motion a trajectory that aligns with the vision articulated in the Plan. Key focus areas include infrastructure investments, strategic land acquisition, market hall feasibility and mixed-income housing. The strategy offers flexible guidance for the City rather than prescriptive direction, outlining initial actions and investment priorities, along with potential partnerships and funding for catalyst projects,*

## C.4 Streets, Sterling Trail and Utilities Cost Estimate

**Document: City of Soldotna Riverfront Plan: Utility & Roadway Improvements Construction Cost Estimates Memo, Kinney Engineering**

**Description: Memo updates the preliminary development concepts utilities and roadway construction costs for the preferred plan. Provides additional utilities and roadway construction costs breakdown for the Catalyst Sites.**

## C.5 Plazas and Parks Cost Estimate

Document: Rough Order of Magnitude Costs Estimate for Parks, Trail, Boardwalks and Overlooks, Greenworks Landscape Architecture

Description: *Rough order of magnitude construction costs for the Bridgehead Park, River Street Park and Soldotna Creek Park Plazas. Includes added trails, boardwalks and overlooks.*

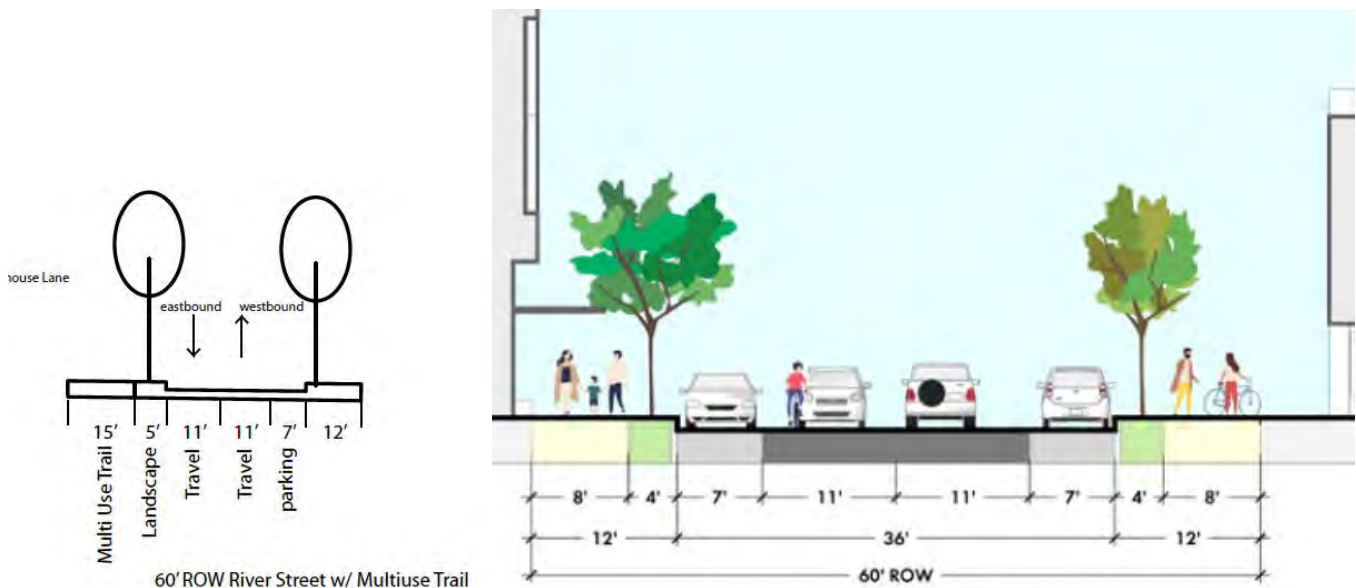


**DATE:** October 20, 2023

**SUBJECT:** City of Soldotna Riverfront Plan: Utility & Roadway Improvements Construction Cost Estimates

### River Street Alternative

The **River Street Alternative** utility improvement costs were completed in an earlier phase and have been revised to include another roughly 500-foot-long new north-south street. Roadway costs are based on the below typical sections. Assumptions include depths of 3' for earthworks, and various lump sum percentage-based items for clearing, obstruction removal, mobilization, surveying, traffic control, SWPPP. Concept estimates also include unknown but representative numbers of driveways, approaches, curb ramps, street signs, traffic markings, and landscaping.



### Utilities Construction Cost

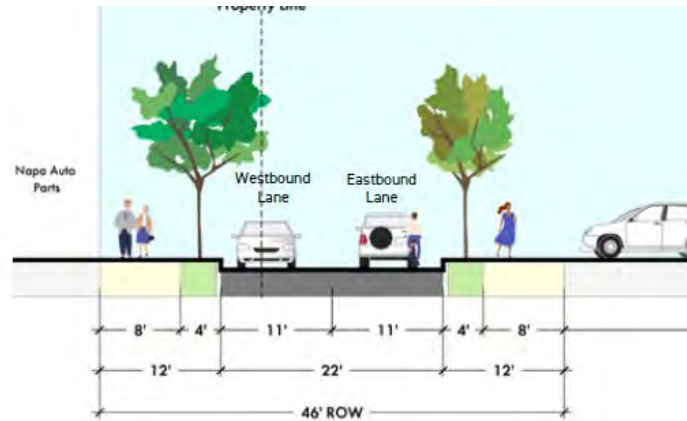
The updated total estimated utilities construction cost is \$5,212,000. Based on the approximately 4,500 feet total lengths of the streets in this area, a **cost per linear foot for the utility improvements is \$1,158.**

### Roadway Construction Cost

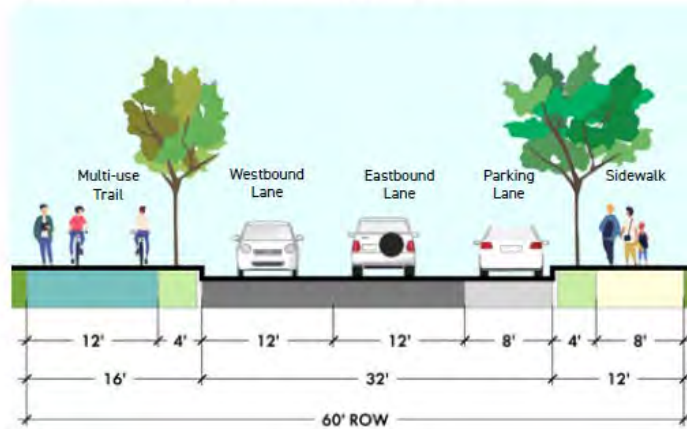
The total estimated roadway construction cost is \$6,592,000. Based on the approximately 4,500 feet total lengths of the streets in this area, a **cost per linear foot for the roadway improvements is \$1,465.**

### States Avenue Alternative

The **States Avenue Alternative** utility improvement costs were completed in an earlier phase. Roadway costs are based on the below typical sections. Assumptions include depths of 3' for earthworks, and various lump sum percentage-based items for clearing, obstruction removal, mobilization, surveying, traffic control, SWPPP. Concept estimates also include unknown but representative numbers of driveways, approaches, curb ramps, street signs, traffic markings, and landscaping.



### Proposed States Avenue- Section BB



### Utilities Construction Cost

The total estimated utilities construction cost is \$2,900,000. Based on the approximately 3,870 feet total lengths of the streets in this area, a **cost per linear foot for the utility improvements is \$749.**

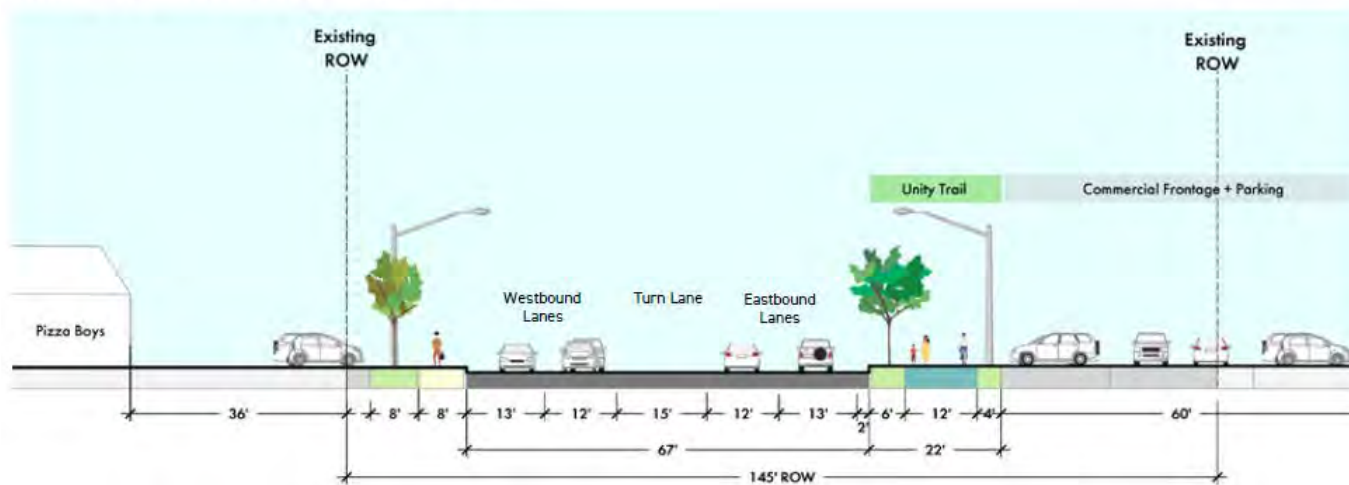
### Roadway Construction Cost

The total estimated roadway construction cost is \$5,463,775. Based on the approximately 3,870 feet total lengths of the streets in this area, a **cost per linear foot for the roadway improvements is \$1,412.**

### Sterling Highway Frontage Lane Alternative

The **Sterling Highway Frontage Lane Alternative** utility improvement costs were completed in an earlier phase. Roadway costs are based on the below typical section. Assumptions include depths of 3' for earthworks, and various lump sum percentage-based items for clearing, obstruction removal, mobilization, surveying, traffic control, SWPPP. Concept estimates also include unknown but representative numbers of driveways, approaches, curb ramps, street signs, traffic markings, and landscaping.

#### Sterling Highway Proposed Section AA



### Utilities Construction Cost

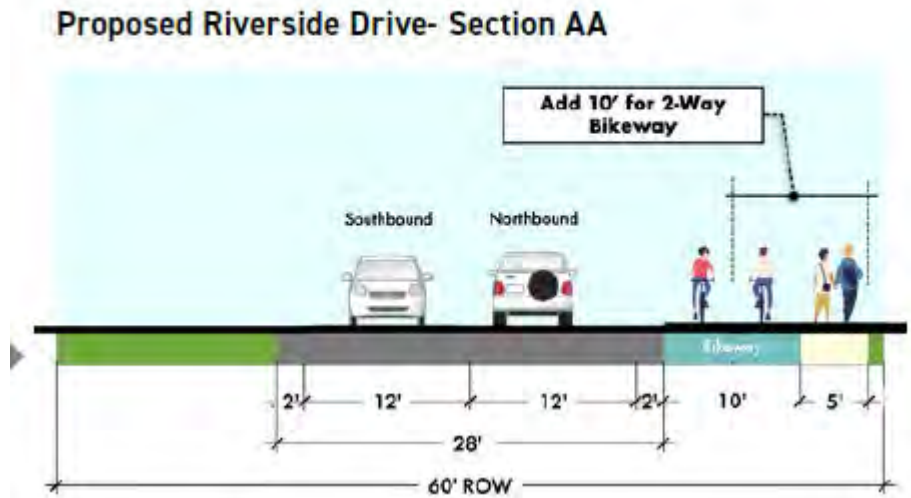
The total estimated utilities construction cost is \$1,200,000. Based on the approximately 2,250 feet total length of the street in this area, a **cost per linear foot for the utility improvements is \$533.**

### Roadway Construction Cost

The total estimated roadway construction cost is \$2,913,825. Based on the approximately 2,250 feet total length of the street in this area, a **cost per linear foot for the roadway improvements is \$1,295.**

### Riverside Drive Alternative

The **Riverside Drive Alternative** roadway costs are based on the below typical section. Assumptions include depths of 2' for earthworks, and various lump sum percentage-based items for clearing, obstruction removal, mobilization, surveying, traffic control, SWPPP. Concept estimates also include unknown but representative numbers of driveways, approaches, curb ramps, street signs, traffic markings, and landscaping.



### Roadway Construction Cost

The total estimated roadway construction cost is \$662,900. Based on the approximately 1,600 feet total length of the street in this area, a **cost per linear foot for the roadway improvements is \$414.**

## Riverside Hub Project

### Riverside Hub

#### Street Segments

River Street (Segment 1)  
 Parking Access Frontage (Segment A)  
 New Street (Segments 1-2)

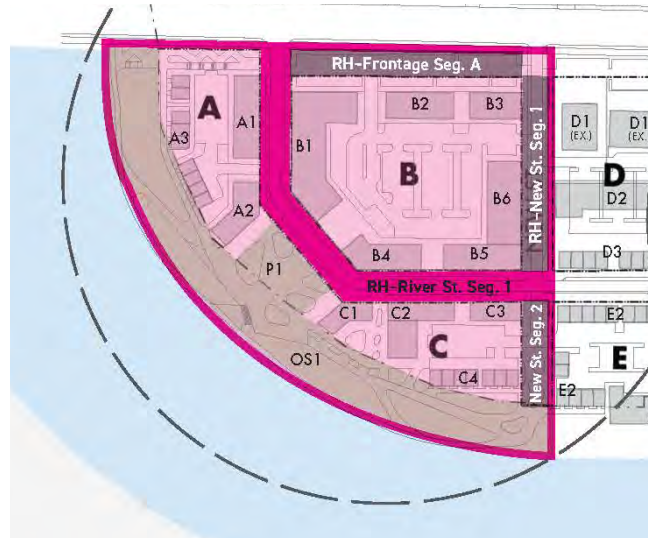
### Riverside Hub

#### Utilities Segments

River Street (Segment 1)  
 Parking Access Frontage (Segment A)  
 New Street (Segments 1-2)

### Total Construction Cost

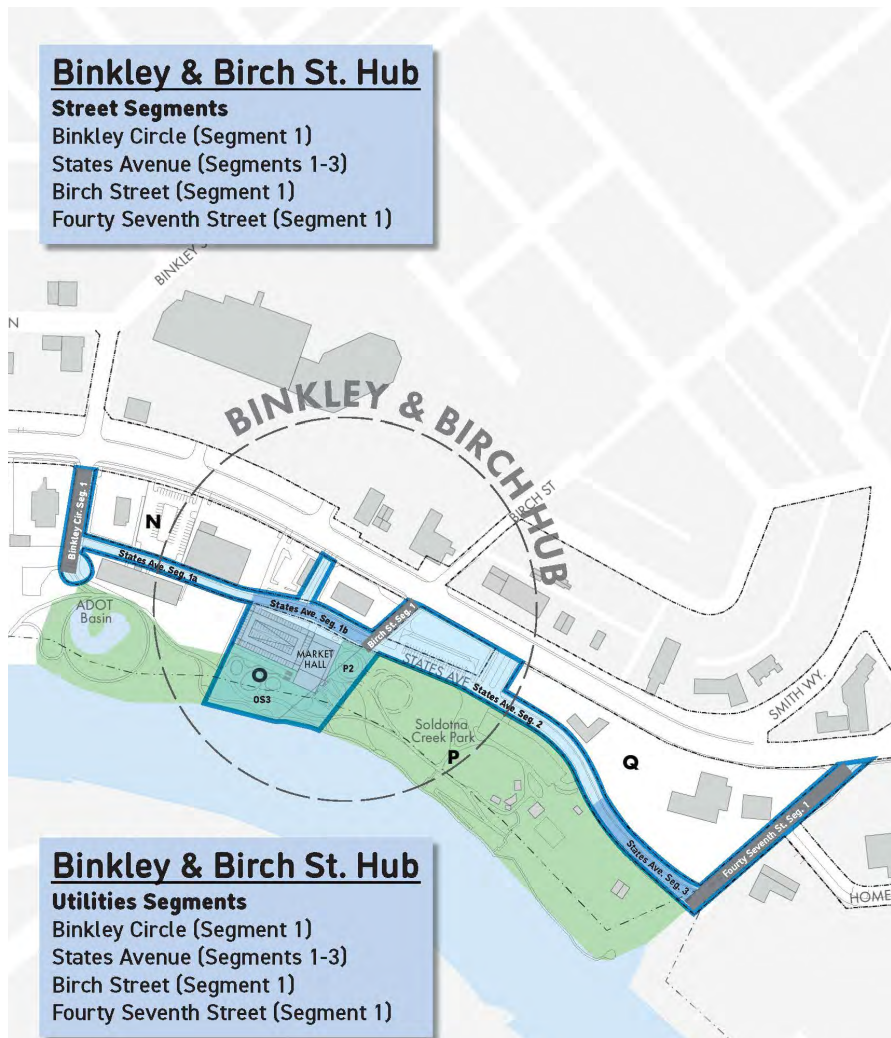
Based on the approximately 1,420 feet length of the River Streets and 500 feet of the Sterling Hwy Frontage in this area, the **total estimated construction cost is \$4,638,660.**



## Binkley and Birch Street Hub

### Total Construction Cost

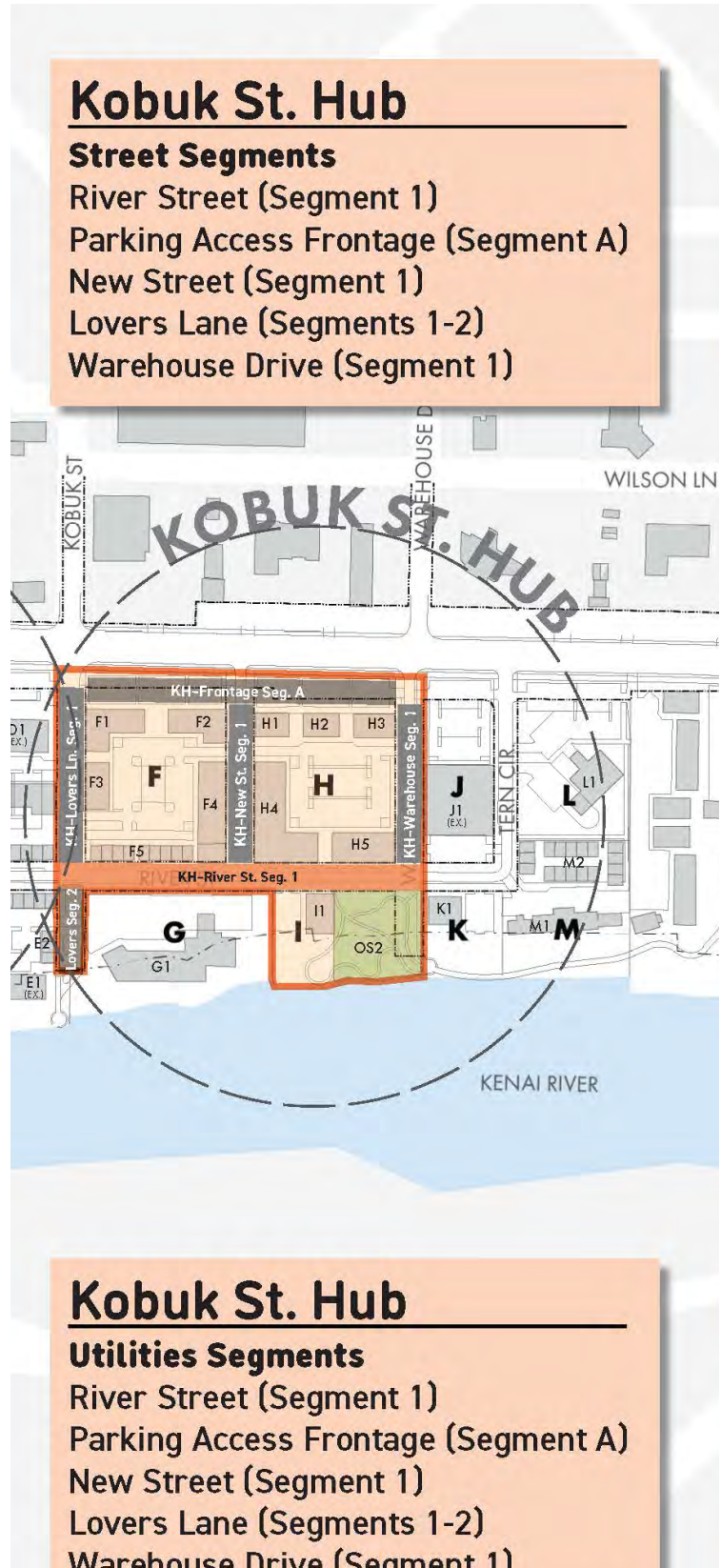
Based on the approximately 2,650 feet length of the States Avenue Streets in this area, the **total estimated construction cost is \$5,726,650.**



## Kobuk Street Hub

### Total Construction Cost

Based on the approximately 2,150 feet length of the River Streets and 730 feet of the Sterling Hwy Frontage in this area, the **total estimated construction cost is \$6,973,890.**



**River Street Alternative  
Concept Design Roadway Improvements Engineers Estimate**

Date Modified: October 6, 2023  
Date Printed: October 6, 2023

**ESTIMATE OF QUANTITIES**

		WORK DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT BID PRICE	TOTAL BID PRICE
		MOBILIZATION AND DEMOBILIZATION	LS	1	\$ 50,000.00	\$ 50,000.00
		CONSTRUCTION SURVEYING	LS	1	\$ 35,000.00	\$ 35,000.00
		TRAFFIC MAINTENANCE	LS	1	\$ 35,000.00	\$ 35,000.00
		CLEARING AND GRUBBING	LS	1	\$ 10,000.00	\$ 10,000.00
		REMOVAL OF OBSTRUCTIONS	LS	1	\$ 25,000.00	\$ 25,000.00
		EXCAVATION	CY	33,000	\$ 18.00	\$ 594,000.00
		TYPE III FILL AND BACKFILL	TON	53,460	\$ 30.00	\$ 1,603,800.00
		LEVELING COURSE	TON	3,326	\$ 50.00	\$ 166,300.00
		REMOVE EXISTING PAVEMENT	SY	3,500	\$ 8.00	\$ 28,000.00
		CONSTRUCT APPROACH	EA	10	\$ 6,500.00	\$ 65,000.00
		CONSTRUCT DRIVEWAY	EA	36	\$ 3,500.00	\$ 126,000.00
		CURB AND GUTTER, ALL TYPES	LF	10,000	\$ 55.00	\$ 550,000.00
		CONCRETE SIDEWALK, 4" THICK	SY	5,000	\$ 150.00	\$ 750,000.00
		P.C.C. CURB RAMP	EA	40	\$ 8,500.00	\$ 340,000.00
		ASPHALT PAVEMENT	TON	2,379	\$ 260.00	\$ 618,540.00
		PAINTED TRAFFIC MARKINGS	LS	1	\$ 27,000.00	\$ 27,000.00
		FURNISH & INSTALL STANDARD SIGN	EA	100	\$ 1,500.00	\$ 150,000.00
		SEEDING AND/OR LANDSCAPING	MSF	20	\$ 2,200.00	\$ 44,000.00
		TOPSOIL (4" DEPTH)	MSF	20	\$ 800.00	\$ 16,000.00

**Concept Design Roadway Improvements Engineers Estimate**

Date Modified: October 6, 2023

Date Printed: October 6, 2023

**ESTIMATE OF QUANTITIES**

		WORK DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT BID PRICE	TOTAL BID PRICE
		STORM WATER POLLUTION PREVENTION PLAN, TYPE 3	LS	1	\$ 40,000.00	\$ 40,000.00

Total Engineers Estimate \$ 5,273,640.00

Total Basic Bid \$ 5,273,640.00

Contingency 25% \$ 1,318,410.00

SUBTOTAL \$ 6,592,050.00

**PROJECT TOTAL \$ 6,592,050.00**



**States Avenue Improvements  
Concept Design Roadway Improvements Engineers Estimate**

Date Modified: October 6, 2023  
Date Printed: October 9, 2023

**ESTIMATE OF QUANTITIES**

		WORK DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT BID PRICE	TOTAL BID PRICE
		MOBILIZATION AND DEMOBILIZATION	LS	1	\$ 45,000.00	\$ 45,000.00
		CONSTRUCTION SURVEYING	LS	1	\$ 30,000.00	\$ 30,000.00
		TRAFFIC MAINTENANCE	LS	1	\$ 30,000.00	\$ 30,000.00
		CLEARING AND GRUBBING	LS	1	\$ 10,000.00	\$ 10,000.00
		REMOVAL OF OBSTRUCTIONS	LS	1	\$ 22,000.00	\$ 22,000.00
		EXCAVATION	CY	26,730	\$ 18.00	\$ 481,140.00
		TYPE III FILL AND BACKFILL	TON	43,204	\$ 30.00	\$ 1,296,120.00
		LEVELING COURSE	TON	2,472	\$ 50.00	\$ 123,600.00
		REMOVE EXISTING PAVEMENT	SY	9,600	\$ 8.00	\$ 76,800.00
		CONSTRUCT APPROACH	EA	11	\$ 6,500.00	\$ 71,500.00
		CONSTRUCT DRIVEWAY	EA	20	\$ 3,500.00	\$ 70,000.00
		CURB AND GUTTER, ALL TYPES	LF	7,740	\$ 55.00	\$ 425,700.00
		CONCRETE SIDEWALK, 4" THICK	SY	4,350	\$ 150.00	\$ 652,500.00
		P.C.C. CURB RAMP	EA	34	\$ 8,500.00	\$ 289,000.00
		ASPHALT PAVEMENT	TON	1,866	\$ 260.00	\$ 485,160.00
		PAINTED TRAFFIC MARKINGS	LS	1	\$ 22,000.00	\$ 22,000.00
		FURNISH & INSTALL STANDARD SIGN	EA	75	\$ 1,500.00	\$ 112,500.00
		SEEDING AND/OR LANDSCAPING	MSF	31	\$ 2,200.00	\$ 68,200.00
		TOPSOIL (4" DEPTH)	MSF	31	\$ 800.00	\$ 24,800.00

**Concept Design Roadway Improvements Engineers Estimate**

Date Modified: October 6, 2023

Date Printed: October 9, 2023

**ESTIMATE OF QUANTITIES**

		WORK DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT BID PRICE	TOTAL BID PRICE
		STORM WATER POLLUTION PREVENTION PLAN, TYPE 3	LS	1	\$ 35,000.00	\$ 35,000.00

Total Engineers Estimate \$ 4,371,020.00

Total Basic Bid \$ 4,371,020.00

Contingency 25% \$ 1,092,755.00

SUBTOTAL \$ 5,463,775.00

**PROJECT TOTAL \$ 5,463,775.00**

**Sterling Hwy Frontage Improvements  
Concept Design Roadway Improvements Engineers Estimate**

Date Modified: October 6, 2023  
Date Printed: October 9, 2023

**ESTIMATE OF QUANTITIES**

		WORK DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT BID PRICE	TOTAL BID PRICE
		MOBILIZATION AND DEMOBILIZATION	LS	1	\$ 40,000.00	\$ 40,000.00
		CONSTRUCTION SURVEYING	LS	1	\$ 26,000.00	\$ 26,000.00
		TRAFFIC MAINTENANCE	LS	1	\$ 26,000.00	\$ 26,000.00
		CLEARING AND GRUBBING	LS	1	\$ 10,000.00	\$ 10,000.00
		REMOVAL OF OBSTRUCTIONS	LS	1	\$ 20,000.00	\$ 20,000.00
		EXCAVATION	CY	16,500	\$ 18.00	\$ 297,000.00
		TYPE III FILL AND BACKFILL	TON	26,730	\$ 30.00	\$ 801,900.00
		LEVELING COURSE	TON	1,485	\$ 50.00	\$ 74,250.00
		REMOVE EXISTING PAVEMENT	SY	2,500	\$ 8.00	\$ 20,000.00
		CONSTRUCT APPROACH	EA	12	\$ 6,500.00	\$ 78,000.00
		CONSTRUCT DRIVEWAY	EA	10	\$ 3,500.00	\$ 35,000.00
		CURB AND GUTTER, ALL TYPES	LF	2,250	\$ 55.00	\$ 123,750.00
		CONCRETE SIDEWALK, 4" THICK	SY	100	\$ 150.00	\$ 15,000.00
		P.C.C. CURB RAMP	EA	24	\$ 8,500.00	\$ 204,000.00
		ASPHALT PAVEMENT	TON	1,416	\$ 260.00	\$ 368,160.00
		PAINTED TRAFFIC MARKINGS	LS	1	\$ 18,000.00	\$ 18,000.00
		FURNISH & INSTALL STANDARD SIGN	EA	50	\$ 1,500.00	\$ 75,000.00
		SEEDING AND/OR LANDSCAPING	MSF	23	\$ 2,200.00	\$ 50,600.00
		TOPSOIL (4" DEPTH)	MSF	23	\$ 800.00	\$ 18,400.00

**Concept Design Roadway Improvements Engineers Estimate**

Date Modified: October 6, 2023

Date Printed: October 9, 2023

**ESTIMATE OF QUANTITIES**

		WORK DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT BID PRICE	TOTAL BID PRICE
		STORM WATER POLLUTION PREVENTION PLAN, TYPE 3	LS	1	\$ 30,000.00	\$ 30,000.00

Total Engineers Estimate \$ 2,331,060.00

Total Basic Bid \$ 2,331,060.00

Contingency 25% \$ 582,765.00

SUBTOTAL \$ 2,913,825.00

**PROJECT TOTAL \$ 2,913,825.00**

**Riverside Drive Improvements  
Concept Design Roadway Improvements Engineers Estimate**

Date Modified: October 6, 2023

Date Printed: October 9, 2023

**ESTIMATE OF QUANTITIES**

		WORK DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT BID PRICE	TOTAL BID PRICE
		MOBILIZATION AND DEMOBILIZATION	LS	1	\$ 20,000.00	\$ 20,000.00
		CONSTRUCTION SURVEYING	LS	1	\$ 12,000.00	\$ 12,000.00
		TRAFFIC MAINTENANCE	LS	1	\$ 12,000.00	\$ 12,000.00
		CLEARING AND GRUBBING	LS	1	\$ 5,000.00	\$ 5,000.00
		REMOVAL OF OBSTRUCTIONS	LS	1	\$ 10,000.00	\$ 10,000.00
		EXCAVATION	CY	1,980	\$ 18.00	\$ 35,640.00
		TYPE III FILL AND BACKFILL	TON	2,852	\$ 30.00	\$ 85,560.00
		LEVELING COURSE	TON	317	\$ 50.00	\$ 15,850.00
		REMOVE EXISTING PAVEMENT	SY	500	\$ 8.00	\$ 4,000.00
		CONSTRUCT APPROACH	EA	3	\$ 6,500.00	\$ 19,500.00
		CONSTRUCT DRIVEWAY	EA	6	\$ 3,500.00	\$ 21,000.00
		CURB AND GUTTER, ALL TYPES	LF	150	\$ 55.00	\$ 8,250.00
		CONCRETE SIDEWALK, 4" THICK	SY	900	\$ 150.00	\$ 135,000.00
		P.C.C. CURB RAMP	EA	6	\$ 8,500.00	\$ 51,000.00
		ASPHALT PAVEMENT	TON	202	\$ 260.00	\$ 52,520.00
		PAINTED TRAFFIC MARKINGS	LS	1	\$ 5,000.00	\$ 5,000.00
		FURNISH & INSTALL STANDARD SIGN	EA	12	\$ 1,500.00	\$ 18,000.00
		SEEDING AND/OR LANDSCAPING	MSF	4	\$ 2,200.00	\$ 8,800.00
		TOPSOIL (4" DEPTH)	MSF	4	\$ 800.00	\$ 3,200.00

**Concept Design Roadway Improvements Engineers Estimate**

Date Modified: October 6, 2023

Date Printed: October 9, 2023

**ESTIMATE OF QUANTITIES**

		WORK DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT BID PRICE	TOTAL BID PRICE
		STORM WATER POLLUTION PREVENTION PLAN, TYPE 3	LS	1	\$ 8,000.00	\$ 8,000.00

Total Engineers Estimate \$ 530,320.00

Total Basic Bid \$ 530,320.00

Contingency 25% \$ 132,580.00

SUBTOTAL \$ 662,900.00

**PROJECT TOTAL \$ 662,900.00**

# APPENDIX C: MASTER PLAN

## C.1 Development Summary

Document: Illustrative Plan, Catalyst Sites and Catalyst Sites Phasing Exhibits. Development Summary spreadsheets. FIRST FORTY FEET

Description: *Illustrative Plan exhibits and full development summary spreadsheet for Build-out of the project area, Catalyst Sites build-out and development summary spreadsheet and Catalyst Sites Phase 1 projects and development summary spreadsheet.*

## C.2 Business Case- 20-Year Build-out

Document: Business Case - Soldotna 20-Year Buildout Analysis; ECONorthwest, Economics and Research Consultant

Description: *Analysis memo of the economic impacts of constructing the infrastructure and buildings outlined in the Development Summary and illustrative Plan.. Identifies the economic and community benefits warranting the City's continued investment and support of the Redevelopment Plan's catalyst sites and projects..*

## C.3 Development Strategy

Document: Downtown Riverfront Redevelopment Plan - Development Strategy Memo; ECONorthwest, Economics and Research Consultant

Description: *Development Strategy delineating initial catalyst projects, actions and strategies that are designed to stimulate immediate development and set in motion a trajectory that aligns with the vision articulated in the Plan. Key focus areas include infrastructure investments, strategic land acquisition, market hall feasibility and mixed-income housing. The strategy offers flexible guidance for the City rather than prescriptive direction, outlining initial actions and investment priorities, along with potential partnerships and funding for catalyst projects,*

## C.4 Streets, Sterling Trail and Utilities Cost Estimate

Document: City of Soldotna Riverfront Plan: Utility & Roadway Improvements Construction Cost Estimates Memo, Kinney Engineering

Description: *Memo updates the preliminary development concepts utilities and roadway construction costs for the preferred plan. Provides additional utilities and roadway construction costs breakdown for the Catalyst Sites.*

## C.5 Plazas and Parks Cost Estimate

**Document: Rough Order of Magnitude Costs Estimate for Parks, Trail, Boardwalks and Overlooks, Greenworks Landscape Architecture**

**Description: Rough order of magnitude construction costs for the Bridgehead Park, River Street Park and Soldotna Creek Park Plazas. Includes added trails, boardwalks and overlooks.**

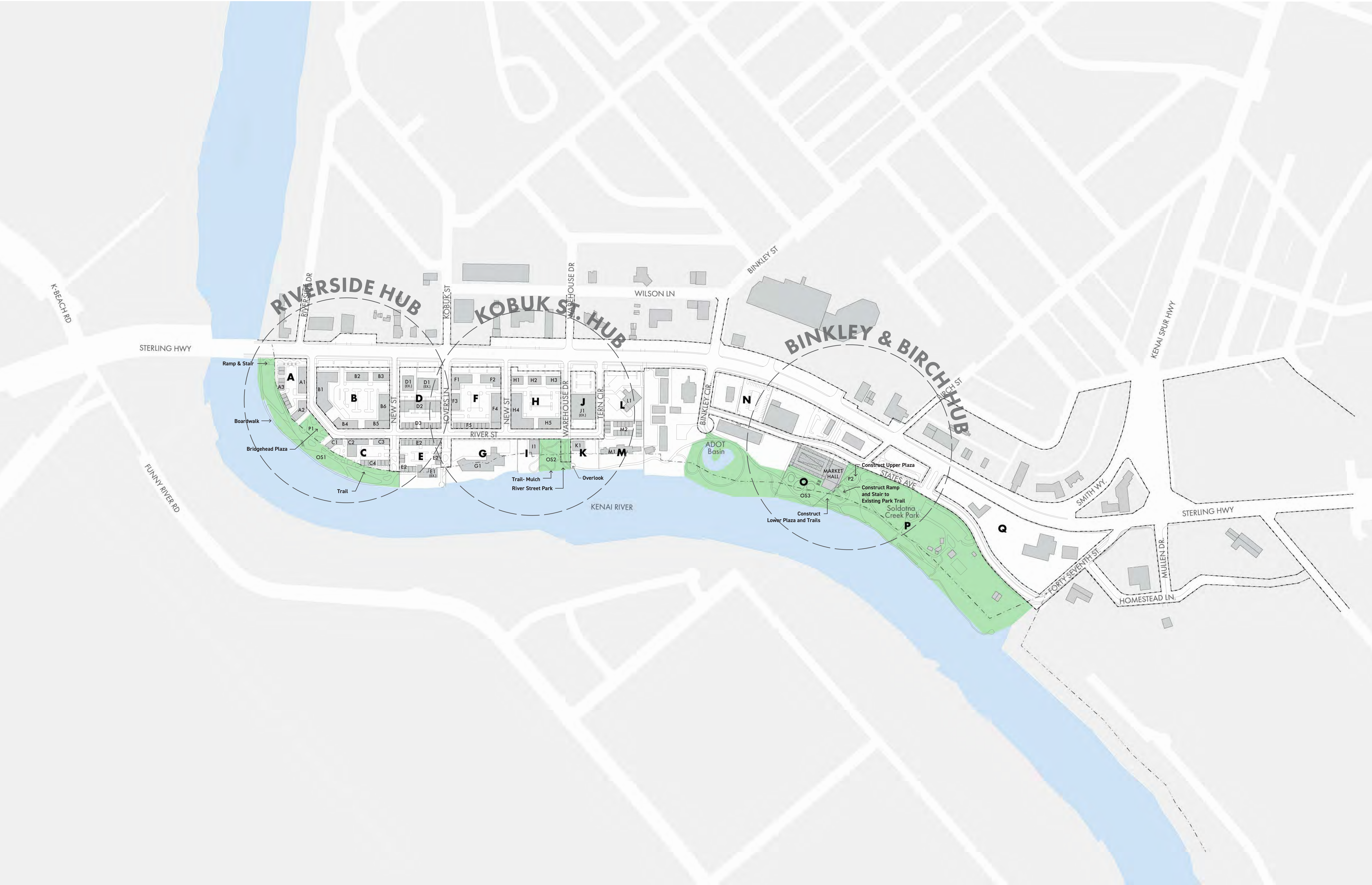
Bridgehead Plaza				
Design Area	Description	Quantity	Unit Price	Item Cost
<b>1 Plaza</b>				
	Demo	35,553 SF	\$ 0.25	\$ 8,888.25
	Erosion Control - Roughly 3% of overall project c	1 LS	\$ 35,000.00	\$ 35,000.00
	Grading	6,500 SF	\$ 20.00	\$ 130,000.00
	Lighting	1 LS	\$ 25,000.00	\$ 25,000.00
	Plaza Paving	12,500 SF	\$ 20.00	\$ 250,000.00
	Retaining walls	275 LF	\$ 150.00	\$ 41,250.00
	Furnishings	1 LS	\$ 50,000.00	\$ 50,000.00
	Trees	35 EA	\$ 350.00	\$ 12,250.00
	Planting & irrigation	30,000 SF	\$ 8.00	\$ 240,000.00
	Soft Costs (design, permitting & inflation)		16%	\$ 126,782.12
	contingency		30%	\$ 237,716.48
	<b>Total</b>			<b>\$ 1,156,886.85</b>
<b>2 Public Art</b>				
	Sculpture	1 LS	\$ 150,000.00	\$ 150,000.00
	Footing / Base	1 LS	\$ 25,000.00	\$ 25,000.00
	Lighting	1 LF	\$ 25,000.00	\$ 25,000.00
	Artist Fee	1 LS	\$ 50,000.00	\$ 50,000.00
	Soft Costs (design, permitting & inflation)		16%	\$ 40,000.00
	contingency		30%	\$ 75,000.00
	<b>Total</b>			<b>\$ 365,000.00</b>
				\$ -
				\$ -
<b>Construction Subtotal</b>				<b>\$ 1,521,886.85</b>





Market Plaza				
Design Area	Description	Quantity	Unit Price	Item Cost
<b>1 Upper Plaza</b>				
	Demo	12,000 SF	\$ 0.25	\$ 3,000.00
	Erosion Control - Roughly 3% of overall project c	1 LS	\$ 50,000.00	\$ 50,000.00
	Grading	1,800 CY	\$ 20.00	\$ 36,000.00
	Utilities	1 LS	\$ 50,000.00	\$ 50,000.00
	Lighting	1 LS	\$ 20,000.00	\$ 20,000.00
	Paving	12,000 SF	\$ 20.00	\$ 240,000.00
	Ice Loop Infrastructure	1 LS	\$ 250,000.00	\$ 250,000.00
	Splash Pad	1 LS	\$ 300,000.00	\$ 300,000.00
	Furnishings	1 LS	\$ 22,000.00	\$ 22,000.00
	Trees	12 EA	\$ 350.00	\$ 4,200.00
	Planting & Irrigation	3,200 SF	\$ 8.00	\$ 25,600.00
	Soft Costs (design, permitting & inflation)		16%	\$ 160,128.00
	Contingency		30%	\$ 300,240.00
	<b>Total</b>			<b>\$ 1,461,168.00</b>
<b>2 Lower Plaza</b>				
	Demo	19,000 SF	\$ 0.25	\$ 4,750.00
	Erosion Control - Roughly 3% of overall project c	1 LS	\$ 50,000.00	\$ 50,000.00
	Grading	2,800 CY	\$ 20.00	\$ 56,000.00
	Boardwalk Connection	170 LF	\$ 700.00	\$ 119,000.00
	Paving	18,600 SF	\$ 20.00	\$ 372,000.00
	Lighting	1 LS	\$ 20,000.00	\$ 20,000.00
	Misc Utilities & Connections	1 LS	\$ 10,000.00	\$ 10,000.00
	Stairs / Ramp / Handrails	380 LF	\$ 25.00	\$ 9,500.00
	Seatwall / Railing	275 LF	\$ 50.00	\$ 13,750.00
	Nature Play Area	1 LS	\$ 400,000.00	\$ 400,000.00
	Trees & grates @ plaza	40 EA	\$ 400.00	\$ 16,000.00
	Riparian revegetation (native trees & shrubs)	15,000 SF	\$ 12.00	\$ 180,000.00
	Planting & Irrigation	20,000 SF	\$ 8.00	\$ 160,000.00
	Furnishings	1 LS	\$ 22,000.00	\$ 22,000.00
	Soft Costs (design, permitting & inflation)		16%	\$ 229,280.00
	Contingency		30%	\$ 429,900.00
	<b>Total</b>			<b>\$ 2,092,180.00</b>
				\$ -
				\$ -
<b>Construction Subtotal</b>				<b>\$ 3,553,348.00</b>

# Plazas, Parks and Trails- Cost Estimate



# STERLING HIGHWAY | HIGHWAY ACCESS MANAGEMENT

## Sterling Highway Trail + Parking Access Lane Framework



Driveway Consolidation Summary

Location	Existing Driveways	Proposed Driveways
Bridge to Kobuk St/ Lover's Ln.	4	2
Kobuk St/Lover's Ln. to Tern Circle	4	1
Tern Circle to Binkley Circle	2	1
Binkley Circle to Birch Place	5	3
<b>Total:</b>	<b>15</b>	<b>7</b>

Excess Alaska DOT right-of-way, between the Kenai River Bridge and Birch Street provides an opportunity to improve walk and bicycle access, address driveway impacts on highway operations and safety and improve vehicular access between businesses.

Exhibit 1 illustrates the general location of the DOT right-of-way along a portion of Sterling Highway in proximity of the Kobuk Street and Lover's Lane intersection and areas where potential improvements may occur.

Exhibit 2 illustrates a conceptual design that incorporates elements that include a multi-use trail and landscape buffers, an improved parking access lane and driveway consolidations (See summary above and specific driveway consolidations on the following page).

The design concept would be implemented between the existing curblines and the edge of the existing right-of-way. No changes to the existing curb-to-curb (5-lane roadway) are suggested.

Exhibit 1- Existing Corridor and Improvement Areas

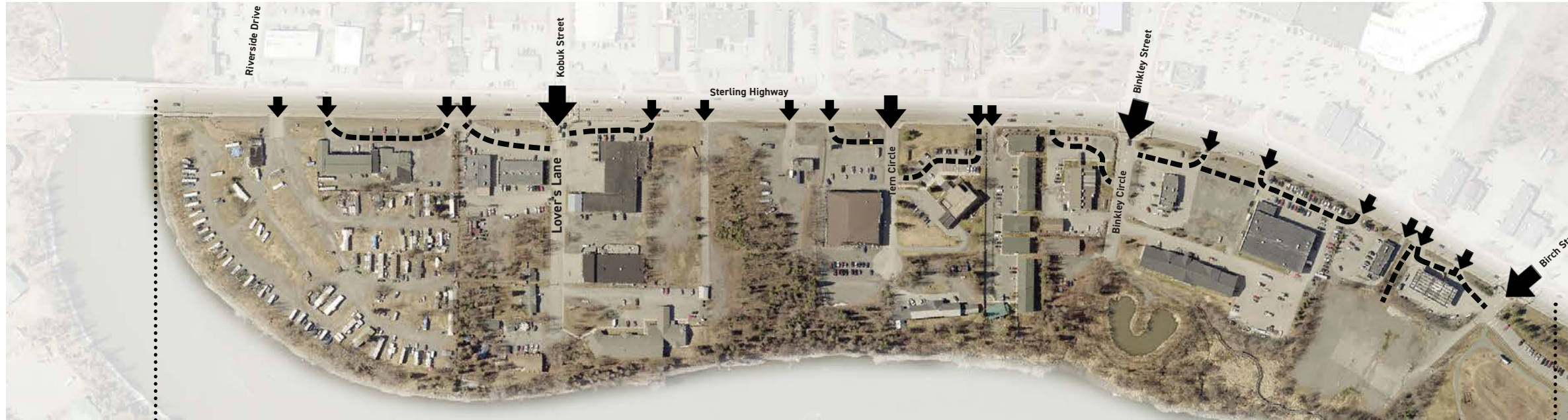


Exhibit 2- Conceptual Improvements



# STERLING HIGHWAY | HIGHWAY ACCESS MANAGEMENT

## Exhibit 3- Existing Driveways



### Driveway Consolidation Summary

Location	Existing Driveways	Proposed Driveways
Bridge to Kobuk St/ Lover's Ln.	4	2
Kobuk St/Lover's Ln. to Tern Circle	4	2
Tern Circle to Binkley Circle	2	1
Binkley Circle to Birch Place	6	4
<b>Total:</b>	<b>16</b>	<b>9</b>




Bridgehead to Lover's Lane  
 Consolidate 4 driveways to 2

Lover's Lane to Tern Circle  
 Consolidate 4 driveways to 2

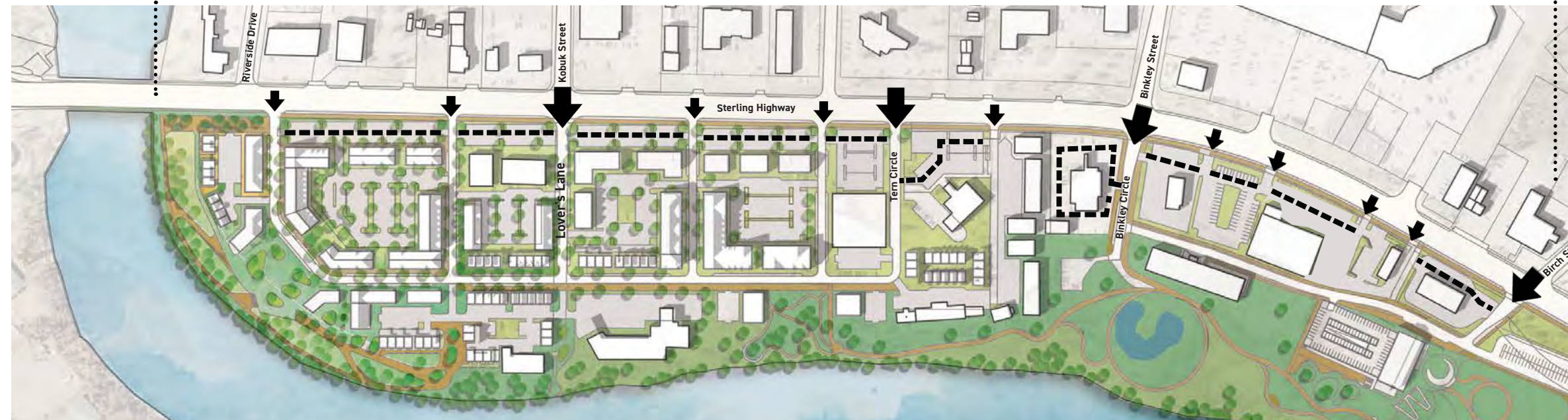
Tern Circle to Binkley Court  
 Consolidate 2 driveways to 1

Binkley Court to Birch Street  
 Consolidate 6 driveways to 4

### Legend

-  Intersection
-  Curb-cut
-  Parking Access Lane

## Exhibit 4- Consolidated Driveways



# STERLING HIGHWAY | STERLING TRAIL AND PARKING ACCESS LANE

## Sterling Highway Trail + Parking Access Lane Framework

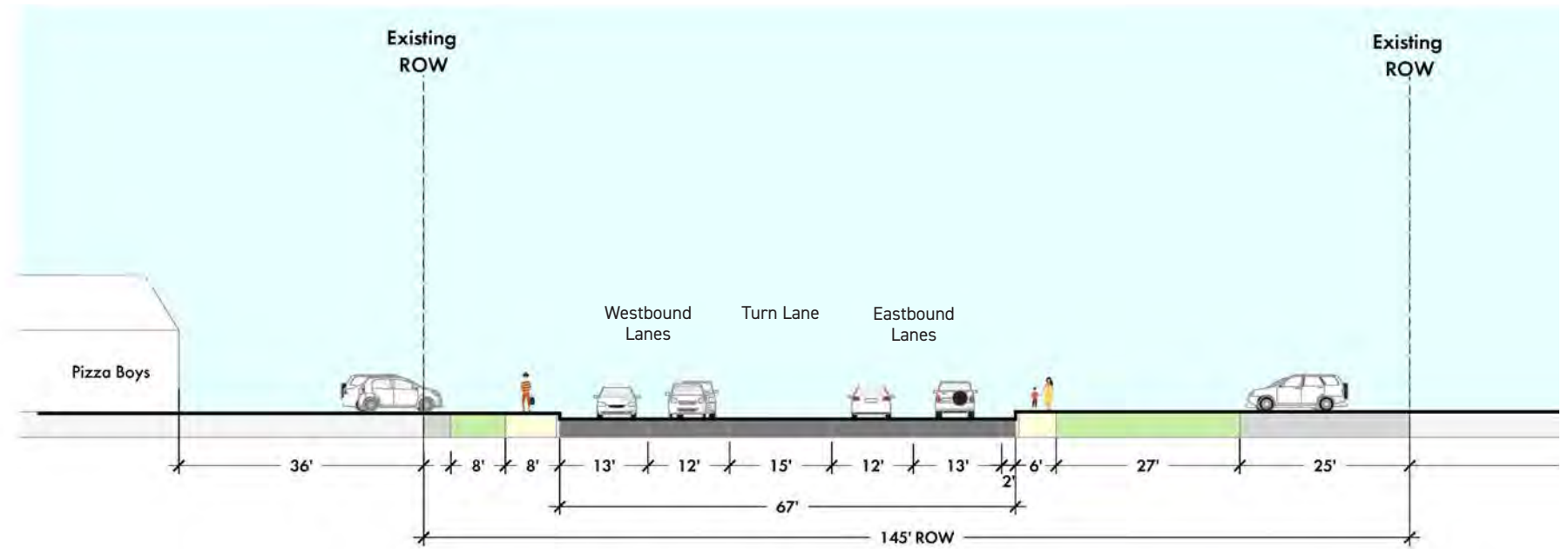


The existing and proposed Sterling Highway street sections provide an indication of how the multi-use trail and parking frontage improvements could fit within the existing DOT right-of-way.

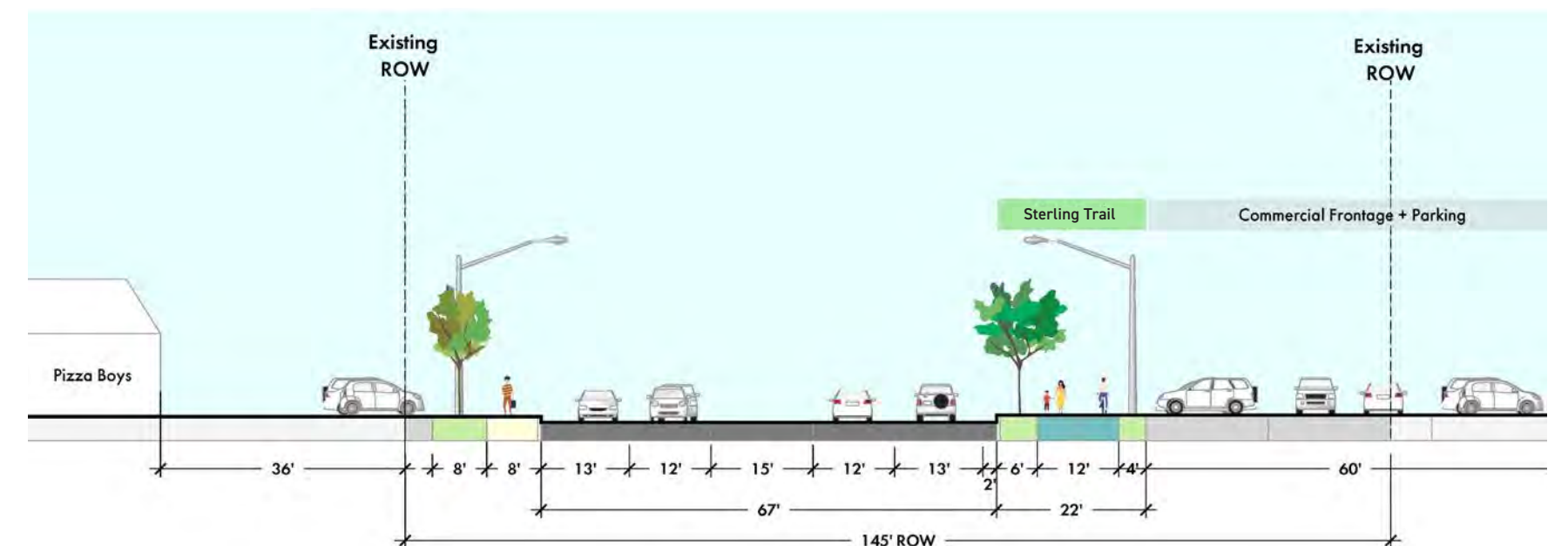
The conceptual design would:

1. Incorporate the existing face of curb and replace the existing sidewalk with a 5.5-foot tree-lined buffer
2. Replace the existing landscape buffer with a 12-foot multi-use trail, a 4-foot landscaped buffer
3. Upgrade with new pavement and striping the existing parking and frontage lane and provide driveway access between businesses.

## Existing Sterling Highway – Section AA

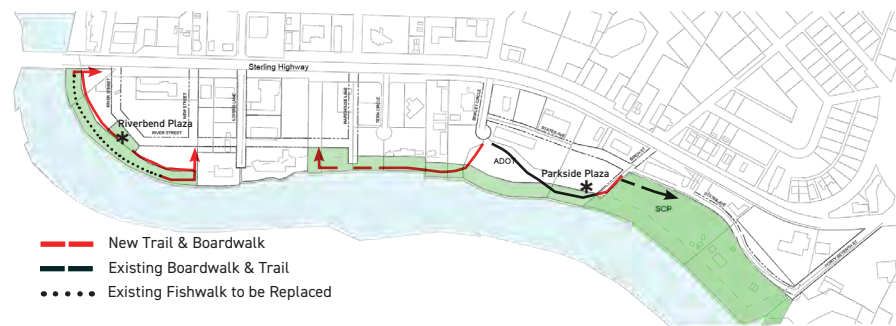


## Proposed Sterling Highway – Section AA



# RIVERFRONT BOARDWALK AND TRAIL | UPLAND TRAIL

## Riverfront Boardwalk and Trail Framework



The Kenai River and riparian corridor is envisioned to be an **interconnected network of trails and boardwalks that connect the “bookends” public plazas**. Today, portions of the corridor include trail, and boardwalks between Soldotna Creek Park, the ADOT detention pond and Binkley Circle.

The conceptual design would:

1. Replace the existing fishwalk with a new light penetrating platform compliant with Kenai River Overlay District requirements.
2. Add new trail alignments along the Parkside Plaza frontage and between the Parkside Plaza and existing trail in Soldotna Creek Park.
3. Add new upland trail alignments and boardwalks between the ADOT detention pond and Tern Circle. (see Typical Upland Trail section at right).

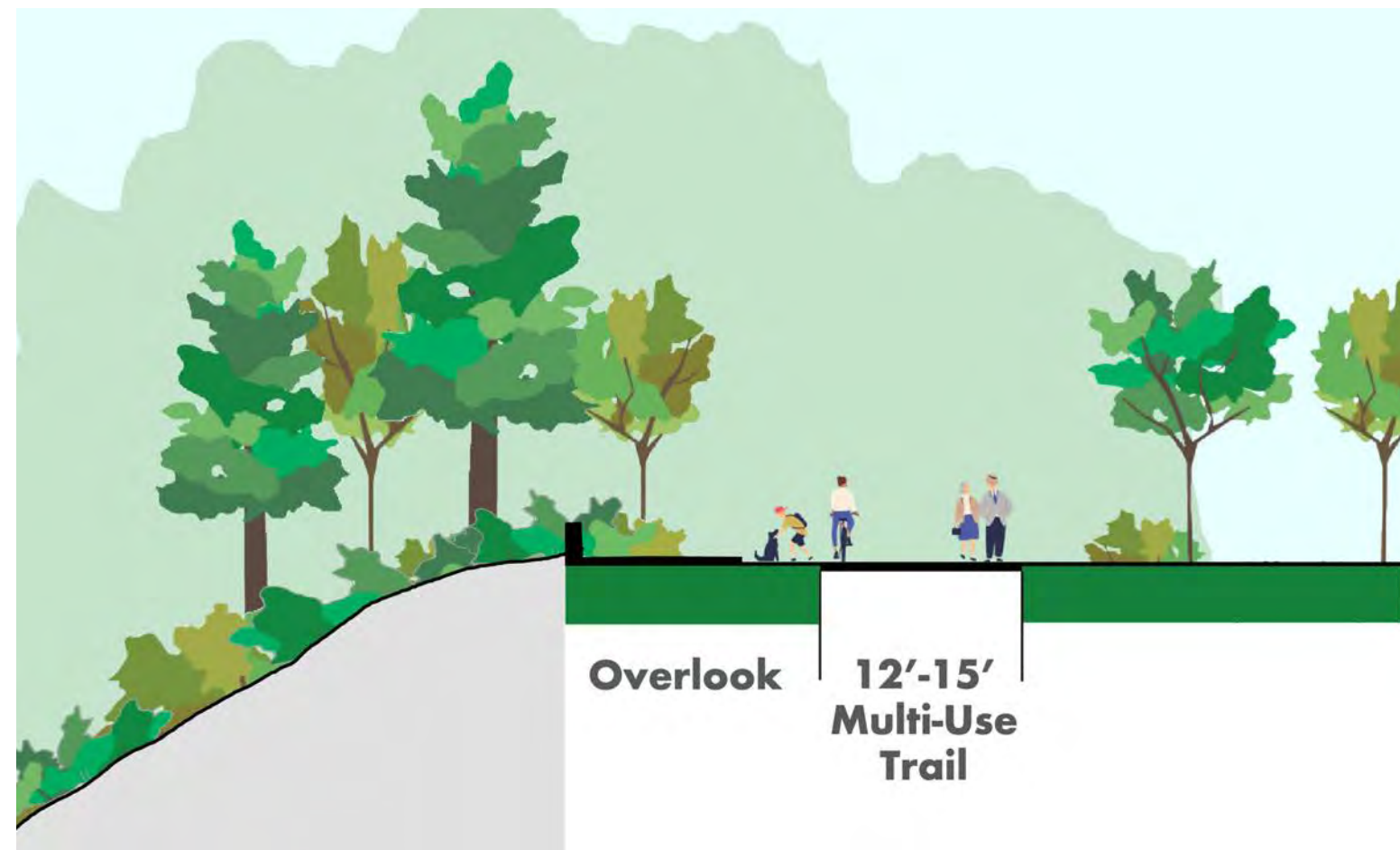
Boardwalk



Trail



## Typical Upland Trail Section



# NEW AND ENHANCED STREETS | RIVERSIDE DRIVE MULTI-USE TRAIL

## Enhanced Street (Riverside Drive) Framework



The City of Soldotna and the City of Kenai manage the Unity Trail, an intercity paved and separated trail connection. A portion of the trail is built and resides along Kalifornsky Beach Road with connections to the Tsalteshi and Centennial Trails west of the downtown project area. **The City of Soldotna identifies Riverside Drive, and Kobuk Street as part of the Unity Trail route** between the downtown and built portions of the trail along the Kenai Spur, north of Knight Drive.

Today, Kobuk Street is improved with bike lanes and sidewalks that supports this route as an extension of the Unity Trail. Riverside Drive is partially improved with a narrow sidewalk on one side of the street.

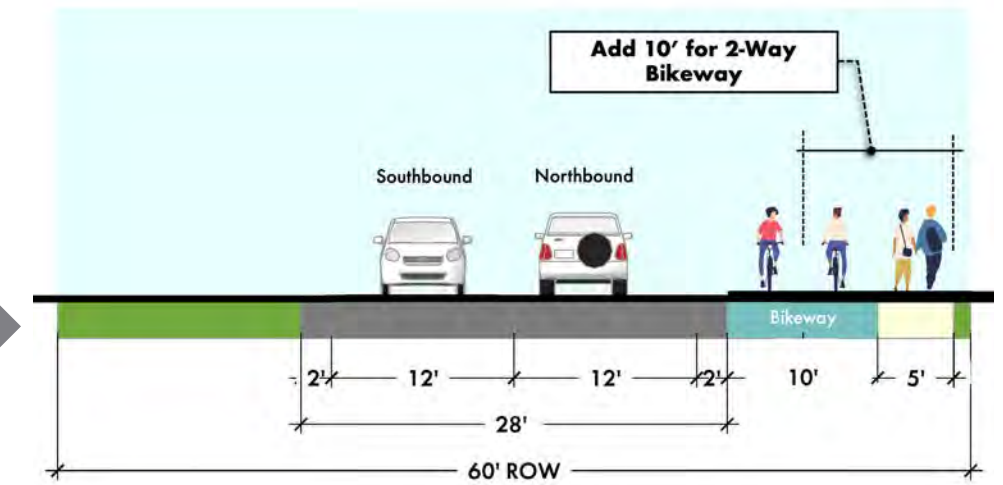
The conceptual design would:

1. Add a 10-foot wide trail to the sidewalk along the west side of the street intersection at Kobuk Street.
2. Replace rolled curb with a stand-up curb.

## Existing Riverside Drive



## Proposed Riverside Drive- Section AA





# APPENDIX B: BUILD THE VISION

## B.1 Preliminary Development Concepts

Document: Preliminary Development Concepts, FIRST FORTY FEET

Description: Summary of the project objectives, vision, and guiding principles that informed a set of “big ideas” for future development within the project area. Concepts include mobility, land uses, development scenarios and the supporting riverfront public use areas amenities that are essential to attract investment and establish downtown as a one-of-a-kind destination.

## B.2 Utilities Impacts Analysis

**Document: Utilities Impacts Analysis Memo; Kinney Engineering**

**Description: Assessment of the current utilities (water, sewer, storm, gas, electric and communications) serving the Project area, identifies utilities in need of upgrade, and new utilities to support planned future development.**

## B.3 Traffic and Safety Impacts Analysis

Document: Traffic and Safety Impacts Analysis Memo; Kinney Engineering

Description: Assessment of the preliminary development concepts for land uses and mobility improvements to determine potential impacts to traffic operations, Sterling Highway access and pedestrian and bicycle circulation. Provides a summary of the main benefits or impacts.

## B.4 Market Hall Case Studies

Document: Market Hall Case Studies; ECONorthwest, Economics and Research Consultant

Description: Memo showcasing three case studies that have varying governance and operations structures, varying public investment, and different missions. These case studies demonstrate a range of what the City might want to consider and can help the City identify which elements they like from each.

## B.5 Market Hall Assessment

Document: Market Hall Assessment Presentation; ECONorthwest, Economics and Research Consultant

Description: Slideshow presentation showcasing three case studies, their takeaways and considerations for Soldotna. Provides results of stakeholder interviews and recommendations for the Market Hall’s potential offerings, critical elements, potential tenant mix, partners and programming for the City to consider.

## B.6 Development Feasibility

Document: Soldotna Riverfront Redevelopment, Feasibility Analysis Results; ECONorthwest, Economics and Research Consultant

Description: Feasibility study on four development types based on the preliminary development concepts and discussions with the City. These development types include mixed-use, multifamily, townhomes, and hotel. The study provides insights into the feasible scale and types of development for the initial “catalytic” phase, which is intended to kick-start future development.

**DATE:** June 28, 2023

**SUBJECT:** City of Soldotna Riverfront Plan: Utilities Impact Analysis

## Introduction

Figure 1 shows the Utilities Impact Analysis study area for the Soldotna Downtown Riverfront Redevelopment Plan. In the study area, there are a number of existing utilities that would be impacted by the proposed development alternatives. The City provides and maintains the water and sanitary sewer infrastructure, as well as limited storm drain maintenance in the study area. Electricity is provided by the regional utility company Homer Electric Association (HEA). Natural Gas is provided by the regional utility ENSTAR Natural Gas Company. Communications are provided by both General Communications Inc. (GCI) and Alaska Communications Systems (ACS). The following analysis examines the need for relocating, extending, or constructing new utilities to support the specific proposed roadway development concepts.



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

The study area is adequately covered by existing **water distribution mains and well-spaced fire hydrants**. New development would likely require a connection to the city water facilities. Water mains and service pipes contain shut off valves at the angle fittings and are typically buried at a depth of 10 feet for frost protection.

Most of the study area is covered by **existing sewer collection mains and sewer services**. There exists a network of 8-inch diameter sewer main pipes, most of which were installed in the 1970s, 1980s and 1990s. New development would likely require a connection to the sewer facilities. They are commonly spaced 10 feet horizontally from water main pipes and run through manholes at about 300 foot spacing. They are typically buried at a depth of 8 feet minimum for frost protection.

The bulk of the **storm drain systems** within the study area are focused along the Sterling Highway and are owned and maintained by ADOT. This includes a large sedimentation basin storm water outfall adjacent to the Aspen Hotel on Binkley Circle. A rain garden has also been constructed within Soldotna Creek Park. Any new development or roadway would be required to consider and facilitate drainage. Storm drain inlets are commonly placed in curb lines and run through manholes at about 300 foot spacing. The storm drain pipes are typically buried at a depth of 2 to 5 feet. Exact information on main pipe sizing and depth was not available for this analysis and reflect assumptions based on ADOT standards.

The study area is mostly covered by a mix of **existing overhead and underground electric primary service** conductors. Secondary service conductors branch off to all existing buildings in the riverfront study area. Most streets have pole mounted street lighting in place. The overhead electrical service is supported on wood utility poles spaced as necessary. Secondary service conductors then run overhead to a shorter service drop (transformer) pole near the building or underground through a surface pad mounted electric box (transformer) or pedestal near the building. Electrical conductors are typically buried within rigid metal or plastic conduit with a grounding wire, at a depth of 36 inches.

The entire study area is well covered by **existing coated steel and plastic pipe natural gas distribution mains**. Small diameter service lines branch off the gas mains to all existing buildings in the riverfront study area. ENSTAR provides a metered connection on the building exterior. Any new development would likely require a connection to ENSTAR gas pipelines. They are typically buried at a depth of 36 inches with warning tape and flexible delineator markers along the pipe line route.

Where overhead electrical service conductors are supported on wood utility poles, **communications cables** also use the same poles for transmission and then run down the poles to pedestals near the building or underground through a surface junction box near the building for distribution. Communications cables are typically buried within rigid metal or plastic conduit at a depth of 30 inches.

Soldotna Municipal Code requires all new utilities to be installed underground unless an exception is granted.

## Main Street Alternative

The **Main Street Alternative** would have the greatest potential impact on utilities as it would create short new street segments along routes not currently developed or supported by utility mains. While it may be possible to construct new roadways over the top of existing utilities, it is unlikely that would be practiced, due to the age and proximity to excavations of the utilities. It is assumed the existing utility materials would mostly be removed and disposed of as necessary and new utilities and utility extensions would be constructed through future projects. See Figure 2.



Figure 2: Main Street Alternative

### Water

A properly sized water main pipe should be constructed/extended along the new River Street 1, River Street 2, New Street, and Main Street. This pipe would form several loops for redundancy, which is desirable for flexibility in the city water system. The existing Lovers Lane and Sterling Highway water main pipes would be connected into these new main extensions. Water is currently supplied to the area between Lovers Lane and Binkley Circle. A new main extension should be looped around Access Lane and River Street 3 to connect to the existing water pipe near Tern Circle.

Fire hydrants should be designed and constructed on every block or spaced approximately 300'. Water service stubs should be constructed to the ROW for future development and tie in by the property owners.

### Sewer

A properly sized sewer main pipe should be constructed/extended along the new River Street 1, River Street 2, New Street, and Main Street. The existing Lovers Lane sewer main pipe could be connected into these new main extensions. Sewer service is currently supplied to the area between Lovers Lane and Binkley Circle. A new main extension should be looped around Access Lane and River Street 3 to connect to the existing sewer pipe near Tern Circle.

Sanitary sewer manholes should be designed and constructed, spaced approximately 300'. Sewer service stubs should be constructed to the ROW for future development and tie in by the property owners.

### Storm Drain

A properly sized storm drain pipe should be constructed/extended along the new River Street 1, River Street 2, New Street, and Main Street's full length. If concurrent reconstruction allows for it, Lovers Lane should have a storm drain pipe extended its full length along with curb inlets installed. A new storm drain pipe extension should be looped around Access Lane, River Street 3, and Tern Circle, and connect to existing storm drain main piping along the Sterling Highway.

Storm drain manholes and curb line inlet catch basins should be designed and constructed, spaced approximately 300'.

### Electric

The local electric utility typically reviews new roadway work and designs relocations or extensions of their electrical service facilities in house. Street lighting and/or pedestrian scale lighting should be considered and designed along all proposed redevelopment routes. Lighting should be constructed along the new River Street 1, River Street 2, New Street, and Main Street's full length. If concurrent reconstruction allows for it, Lovers Lane could have a new modern lighting system extended its full length. New lighting should be looped around Access Lane, River Street 3, and Tern Circle, and connect to existing electrical systems along the Sterling Highway.

Street lighting poles and junction boxes should be designed and constructed and are commonly spaced approximately 150' along local roadways. Several new lighting load center meter panels are assumed to be needed to support the new lighting systems.

### Natural Gas

The local gas utility typically reviews new roadway work and designs relocations or extensions of their natural gas service facilities in house. Gas piping may be constructed along the New Street, and Main Street to the northeast. New gas piping could be looped around Access Lane, River Street 3, and Tern Circle, and connect to existing gas systems along the Sterling Highway.

### Communications

The local communications utility typically reviews new roadway work and designs relocations or extensions of their facilities in house. Communication facilities may be constructed along the new River Street 1, River Street 2, New Street, and most of Main Street's full length. New communication lines should be looped around Access Lane, River Street 3, and Tern Circle, and connect to existing systems along the Sterling Highway.

### Total Construction Cost

The above utility infrastructure improvements may be designed and constructed in phases or as part of street-by-street redevelopment plan under this alternative. See attachments for a more detailed breakdown of estimated construction costs. The total estimated construction cost is \$7,400,000.00.

## River Street Alternative

The **River Street Alternative** would also have significant impact on utilities as it would create new street segments along routes not currently developed or supported by utility mains. While it may be possible to construct new roadways over the top of existing utilities, it is unlikely that would be practiced, due to the age and proximity to excavations of the utilities. It is assumed the existing utility materials would mostly be removed and disposed of as necessary and new utilities and utility extensions would be constructed through future projects. See Figure 3.



Figure 3: River Street Alternative

### Water

A properly sized water main pipe should be constructed/extended along the new River Street 1, River Street 2, and New Street. This pipe would form a loop for redundancy, which is desirable for flexibility in the city water system. The existing Lovers Lane and Sterling Highway water main pipes would be connected into these new main extensions. Water is currently supplied to the area between Lovers Lane and Binkley Circle. A new main extension should be constructed on Warehouse Lane.

Fire hydrants should be designed and constructed on every block or spaced approximately 300'. Water service stubs should be constructed to the ROW for future development and tie in by the property owners.

### Sewer

A properly sized sewer main pipe should be constructed/extended along the new River Street 1, River Street 2, and New Street. The existing Lovers Lane sewer main pipe could be connected into these new main extensions. Sewer service is currently supplied to the area between Lovers Lane and Binkley Circle. A new main extension should be constructed on Warehouse Lane.

Sanitary sewer manholes should be designed and constructed, spaced approximately 300'. Sewer service stubs should be constructed to the ROW for future development and tie in by the property owners.

### Storm Drain

A properly sized storm drain pipe should be constructed/extended along the new River Street 1, River Street 2, and New Street's full length. If concurrent reconstruction allows for it, Lovers Lane should have a storm drain pipe extended its full length along with curb inlets installed. A new storm drain pipe extension should be constructed on Warehouse Lane and Tern Circle and connect to existing storm drain main piping along the Sterling Highway.

Storm drain manholes and curb line inlet catch basins should be designed and constructed, spaced approximately 300'.

### Electric

The local electric utility typically reviews new roadway work and designs relocations or extensions of their electrical service facilities in house. Street lighting and/or pedestrian scale lighting should be considered and designed along all proposed redevelopment routes. Lighting should be constructed along the new River Street 1, River Street 2, and New Street's full length. If concurrent reconstruction allows for it, Lovers Lane could have a new modern lighting system extended its full length. New lighting should be extended on Warehouse Lane and Tern Circle and connect to existing electrical systems along the Sterling Highway.

Street lighting poles and junction boxes should be designed and constructed and are commonly spaced approximately 150' along local roadways. Several new lighting load center meter panels are assumed to be needed to support the new lighting systems.

### Natural Gas

The local gas utility typically reviews new roadway work and designs relocations or extensions of their natural gas service facilities in house. Gas piping may be constructed along River Street 2, New Street and Warehouse Lane. New gas piping could be extended along Tern Circle and connect to existing gas systems along the Sterling Highway.

### Communications

The local communications utility typically reviews new roadway work and designs relocations or extensions of their facilities in house. Communication facilities may be constructed along the east end of River Street 2 and along New Street. New communication lines should connect to existing systems.

### Total Construction Cost

The above utility infrastructure improvements may be designed and constructed in phases or as part of street-by-street redevelopment plan under this alternative. See attachments for a more detailed breakdown of estimated construction costs. The total estimated construction cost is \$4,450,000.00.

## States Avenue Alternative

The **States Avenue Alternative** would have a potential impact on utilities in the Soldotna Park area. While it may be possible to construct improvements over the top of existing utilities, it is unlikely that would be practiced, due to the age and proximity to excavations of the utilities. It is assumed the existing utility materials would mostly be removed and disposed of as necessary and new utilities and utility extensions would be constructed through future projects. See Figure 4.



Figure 4: States Avenue Alternative

### Water

A properly sized water main pipe should be constructed/extended along Birch Street, There are water and sewer mains within Forty-Seventh Street.

Fire hydrants should be designed and constructed on every block or spaced approximately 300'. Water service stubs should be constructed for future development and tie in by the property owners.

### Sewer

A properly sized sewer main pipe should be constructed/extended along Birch Street and Forty-Seventh Street.

Sanitary sewer manholes should be designed and constructed, spaced approximately 300'. Sewer service stubs should be constructed for future development and tie in by the property owners.

### Storm Drain

A properly sized storm drain pipe should be constructed/extended along Binkley Circle, and part of States Avenue/Forty-Seventh Street.

Storm drain manholes and curb line inlet catch basins should be designed and constructed, spaced approximately 300'.

### Electric

The local electric utility typically reviews new roadway work and designs relocations or extensions of their electrical service facilities in house. Street lighting and/or pedestrian scale lighting should be considered and



designed along all proposed redevelopment routes. Lighting should be constructed along Binkley Circle, Birch Street, States Avenue and Forty-Seventh Street.

Street lighting poles and junction boxes should be designed and constructed and are commonly spaced approximately 150' along local roadways. A new lighting load center meter panel is assumed to be needed to support the new lighting systems.

### Natural Gas

The local gas utility typically reviews new roadway work and designs relocations or extensions of their natural gas service facilities in house. Gas piping may be constructed along Binkley Circle, Birch Street, and part of States Avenue/Forty-Seventh Street.

### Communications

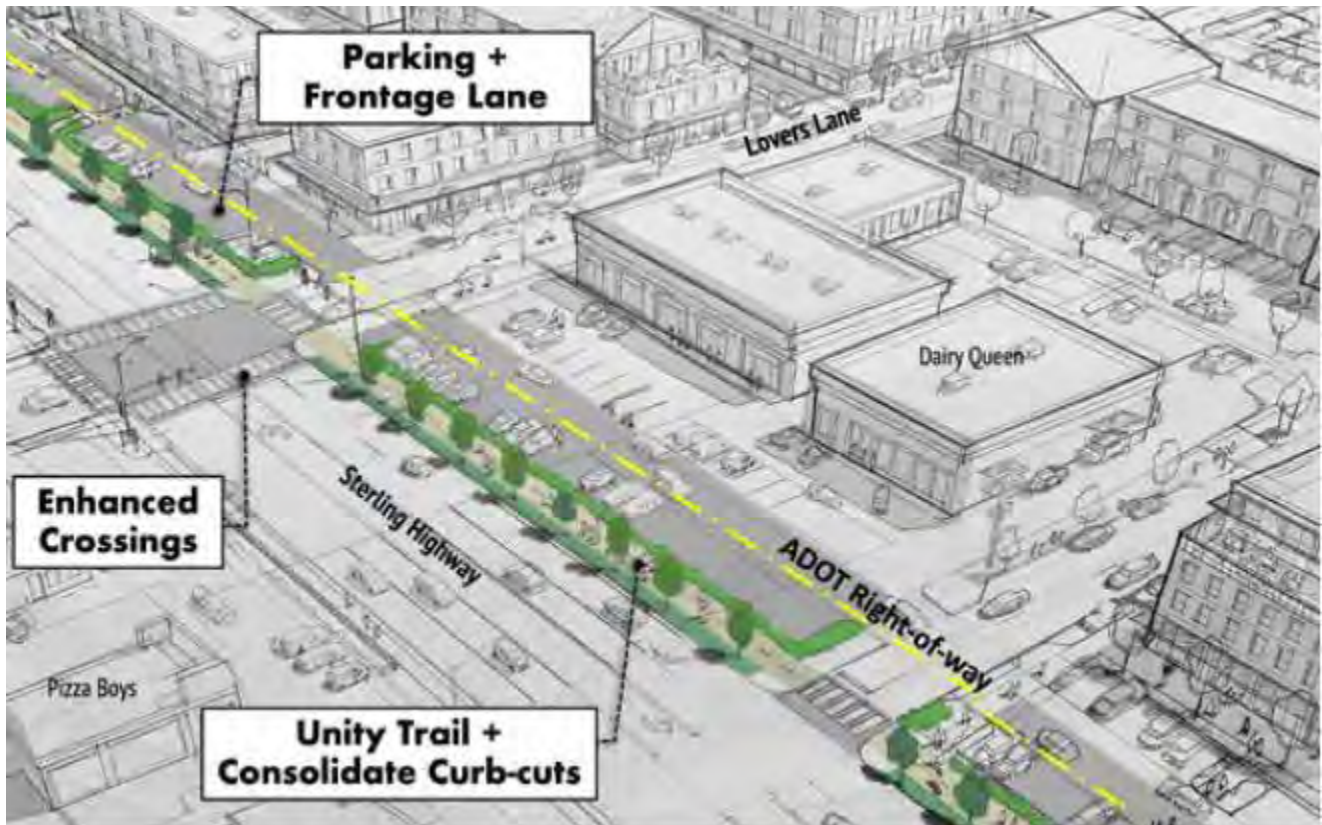
The local communications utility typically reviews new roadway work and designs relocations or extensions of their facilities in house. Communication facilities may be constructed along States Avenue, Birch Street, and part of Forty-Seventh Street. New communication lines should connect to existing systems.

### Total Construction Cost

The above utility infrastructure improvements may be designed and constructed in phases or as part of street-by-street redevelopment plan under this alternative. See attachments for a more detailed breakdown of estimated construction costs. The total estimated construction cost is \$2,900,000.00.

## Sterling Highway Frontage Lane Alternative

The **Sterling Highway Frontage Lane Alternative** would have limited impact on utilities. See Figure 5.



*Figure 5: Sterling Hwy Frontage Lane*

### Water

Several fire hydrants may be relocated.

### Sewer

A properly sized sewer main pipe could be constructed along the new frontage lane.

Sanitary sewer manholes should be designed and constructed, spaced approximately 300'. Sewer service stubs should be constructed for future development and tie in by the property owners.

### Storm Drain

No impacts. Frontage lane drainage could be handled by existing storm drain systems along the Sterling Highway and/or the proposed storm drain improvements described under the other design alternatives.

### Electric

The local electric utility typically reviews new roadway work and designs relocations or extensions of their electrical service facilities in house. There is potentially one power pole and one transformer box that may be relocated.

### Natural Gas

The local gas utility typically reviews new roadway work and designs relocations or extensions of their natural gas service facilities in house. No impacts to natural gas facilities are expected.

## Communications

The local communications utility typically reviews new roadway work and designs relocations or extensions of their facilities in house. Communication facilities could be constructed along the new frontage lane.

## Total Construction Cost

The above utility infrastructure improvements may be designed and constructed in phases or as part of street-by-street redevelopment plan under this alternative. See attachments for a more detailed breakdown of estimated construction costs. The total estimated construction cost is \$1,200,000.00.

## Additional Utility Improvement Considerations

### Utility Permitting & Requirements

The City provides online forms for coordination of most work that could have an effect on the water, sewer, or storm drain systems. A general "Utility Construction Project Permit" is required before a contractor undertakes digging in the area of or work directly on the city utilities. A ROW permit is also required of contractors doing work to ensure bonding and insurance city code requirements are met.

The City's Utility Department regulates connections to water, sewer and storm drain infrastructure. The Building and Plumbing codes along with the Soldotna Municipal Code do not allow certain illegal connections such as utilities serving several properties off of the same service, utilities served by passing under other structures, improper materials, or improper burial depth. Some utilities require the acquisition of easements prior to their construction. The use of public utilities requires properties within 300' of existing mains to connect. Not all areas within the City limits of Soldotna are served with public utilities. Some properties require onsite water wells and onsite waste water disposal systems (septic tanks and leach fields). The ADEC regulates the construction of onsite water wells and waste water disposal systems.

Each individual property is required to have a separate service and developers of property can apply to extend main line utilities to their property. Special assessment districts (SAD) are a way to finance the construction of public capital improvements which primarily benefit property owners in a limited geographical area. This distinguishes them from improvements which benefit the entire community and are generally paid for with City funds or grants. A special assessment district can be initiated either by the City Council, or by application of a sponsor who collects the requisite number of property owner signatures on a petition.

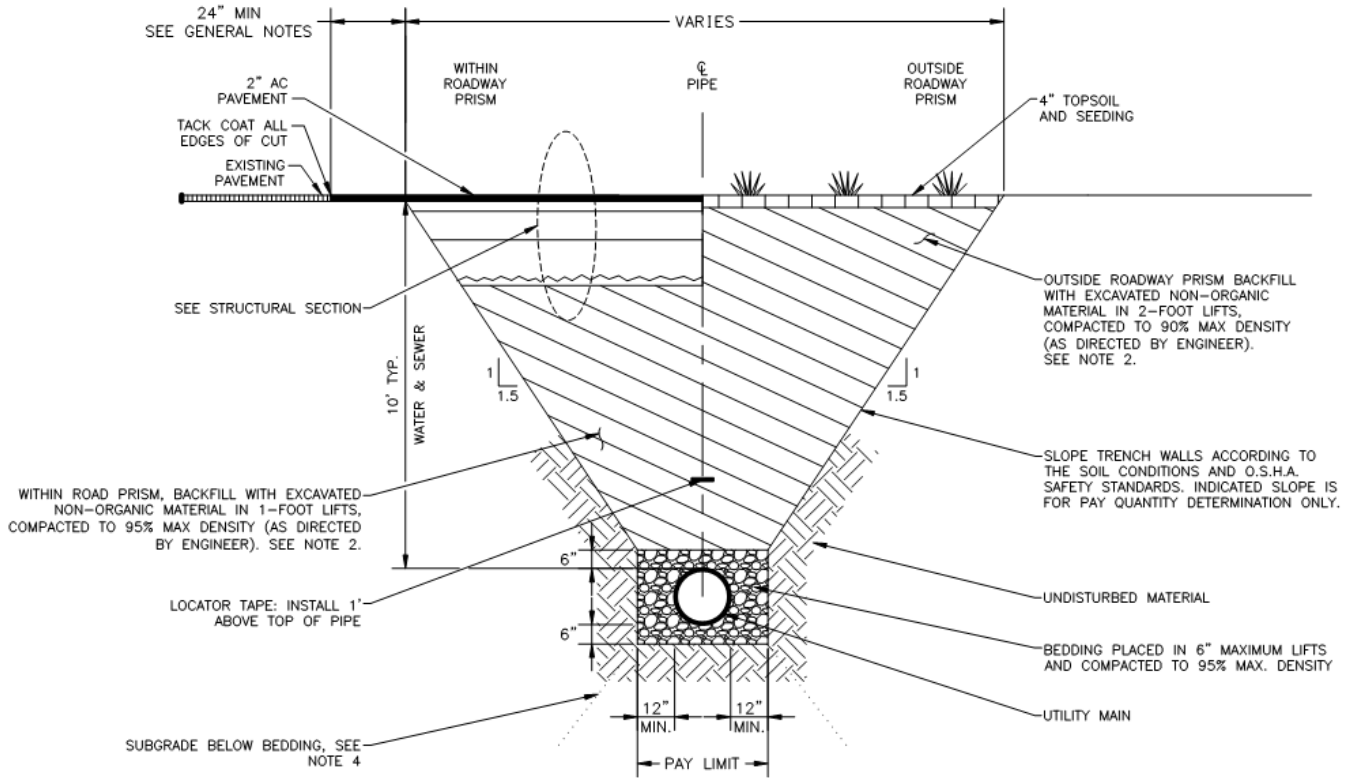
### Soldotna Standard Construction Specifications

The city provides design guidance and requirements for work on the water, sewer, and storm drain utility systems through their 1986 construction specifications and details. Design for new roads and utility projects must follow these criteria or provide alternate provisions and details if using a unique or more modern design. These 1986 city specifications and details contain divisions for water, sewer, and storm drain.

## Appendix

1. Typical Utility Trench Section
2. Main Street Concept Utilities Map
3. River Street, States Avenue & Sterling Hwy Frontage Lane Concept Utilities Map
4. Concept Utility Improvements Cost Estimates

# Utility Trench Detail

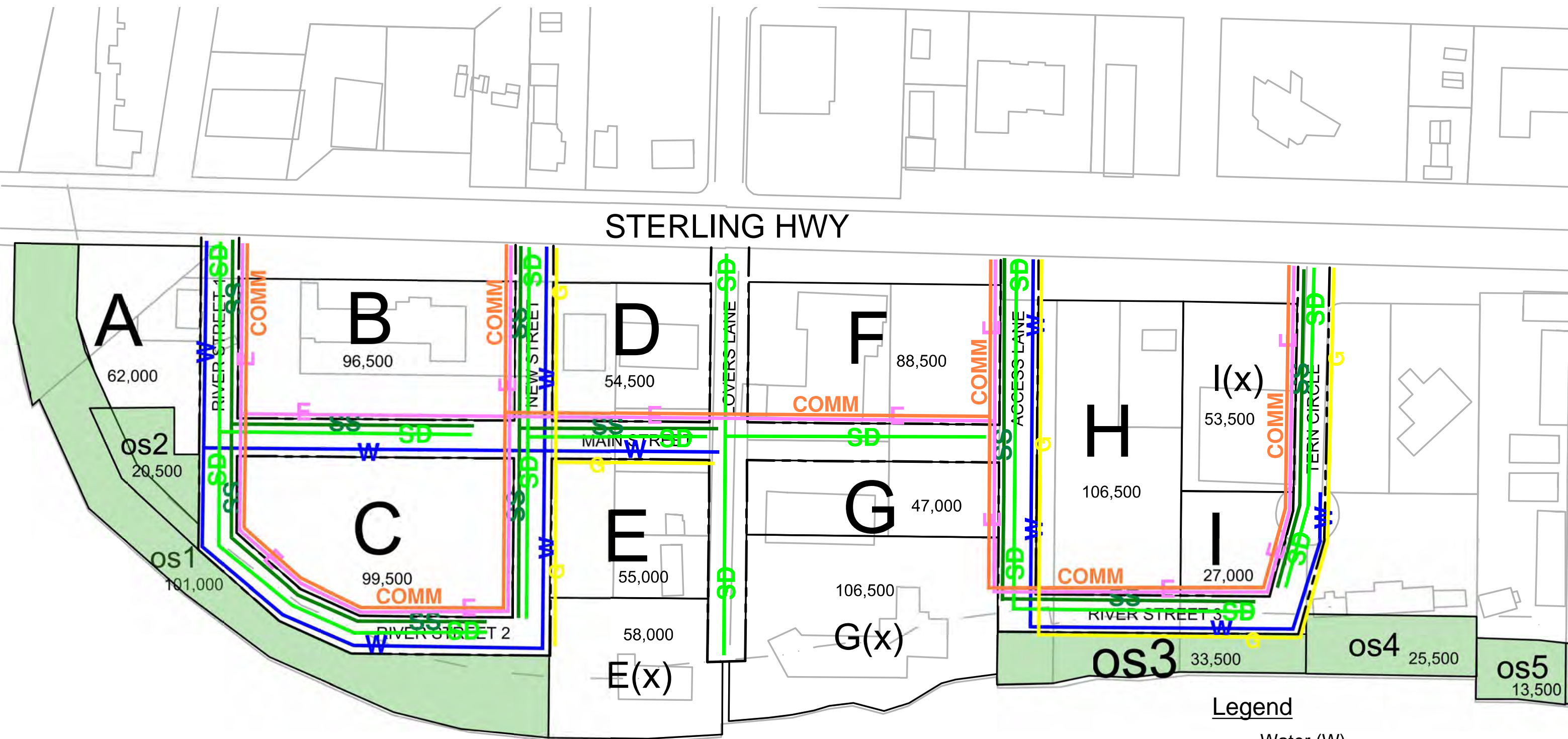


## TRENCH SECTION NOTES

1. TRENCH EXCAVATION AND SHORING SHALL COMPLY WITH ALL LOCAL, STATE AND OSHA REGULATIONS AND REQUIREMENTS. PROVIDE PORTABLE STEEL TRENCH SHIELD AS REQUIRED.
2. FOUNDATION MATERIAL FOR TRENCH BACKFILL SHALL BE NATIVE MATERIAL, MEETING TYPE II CLASSIFICATION (MINIMUM) AS APPROVED BY THE ENGINEER. NATIVE MATERIAL NOT MEETING TYPE II CLASSIFICATION SHALL BE REMOVED AND REPLACED WITH TYPE II FILL AND BACKFILL. BACKFILL MATERIAL WITHIN ROADWAY PRISM SHALL HAVE 8" MAXIMUM ROCK SIZE.
3. REMOVE AND PROPERLY DISPOSE OF ALL ORGANIC MATERIALS.
4. SUBGRADE BELOW BEDDING PRISM SHALL BE CLEARED OF ALL DEBRIS AND ORGANIC MATERIAL. BACKFILL AND COMPACT EXCAVATED SUBGRADE.
5. TYPICAL DEPTH OF BURY IS 10 FEET. FURNISH AND INSTALL 4" THICK INSULATION WHERE DEPTH OF BURY IS LESS THAN 10 FEET OR AS NOTED ON THE PLANS. INSULATION SHALL BE 4 FEET WIDE PLACED 1-FOOT ABOVE PIPE. INSULATION SHALL BE R-20 FOR A 4-INCH THICKNESS.

TYPICAL TRENCH SECTION - UTILITY MAIN

# APPENDIX 2: MAIN STREET CONCEPT UTILITIES MAP



- Legend**
- Water (W)
  - Sewer (SS)
  - Storm Drain (SD)
  - Electric (E)
  - Natural Gas (G)
  - Communications (COMM)

# APPENDIX 3: RIVER STREET, STATES AVENUE & STERLING HWY FRONTAGE LANE CONCEPT UTILITIES MAP



## Legend

- Water (W)
- Sewer (SS)
- Storm Drain (SD)
- Electric (E)
- Natural Gas (G)
- Communications (COMM)

Main Street Alternative

Date Modified: June 28, 2023

Date Printed: June 28, 2023

		WORK DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT BID PRICE	TOTAL BID PRICE
SEWER		FURNISH AND INSTALL DIP, 12"	LF	4,000	\$ 260.00	\$ 1,040,000.00
		SANITARY SEWER MANHOLES	EA	15	\$ 15,000.00	\$ 225,000.00
		SANITARY SEWER SERVICE CONNECTIONS	EA	20	\$ 6,000.00	\$ 120,000.00
STORM		FURNISH AND INSTALL CPEP, 24"	LF	5,400	\$ 210.00	\$ 1,134,000.00
		MANHOLES AND CATCH BASIN MANHOLES	EA	18	\$ 12,000.00	\$ 216,000.00
		CONSTRUCT CATCH BASIN	EA	36	\$ 6,000.00	\$ 216,000.00
WATER		FURNISH AND INSTALL 12" HDPE SDR 9 WATER MAIN	LF	4,100	\$ 260.00	\$ 1,066,000.00
		FURNISH AND INSTALL 12" GATE VALVE	EA	16	\$ 5,000.00	\$ 80,000.00
		FURNISH AND INSTALL FIRE HYDRANT ASSEMBLY (SINGLE PUMPER)	EA	14	\$ 18,000.00	\$ 252,000.00
		CONNECT WATER SERVICES	EA	20	\$ 6,500.00	\$ 130,000.00
ELECTRIC		CONDUIT/WIRE	LF	4,600	\$ 50.00	\$ 230,000.00
		JUNCTION BOX	EA	40	\$ 2,500.00	\$ 100,000.00
		LIGHT POLE	EA	30	\$ 20,000.00	\$ 600,000.00
GAS		NATURAL GAS MAIN PIPE	LF	2500	\$ 300.00	\$ 750,000.00
COMM		COMMUNICATIONS CONDUIT/FIBER	LF	4100	\$ 300.00	\$ 1,230,000.00

Total Cost	\$	7,389,000.00
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**River Street Alternative**

Date Modified: June 28, 2023

Date Printed: June 28, 2023

		WORK DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT BID PRICE	TOTAL BID PRICE
SEWER		FURNISH AND INSTALL DIP, 12"	LF	2,000	\$ 260.00	\$ 520,000.00
		SANITARY SEWER MANHOLES	EA	7	\$ 15,000.00	\$ 105,000.00
		SANITARY SEWER SERVICE CONNECTIONS	EA	10	\$ 6,000.00	\$ 60,000.00
STORM		FURNISH AND INSTALL CPEP, 24"	LF	4,100	\$ 210.00	\$ 861,000.00
		MANHOLES AND CATCH BASIN MANHOLES	EA	14	\$ 12,000.00	\$ 168,000.00
		CONSTRUCT CATCH BASIN	EA	28	\$ 6,000.00	\$ 168,000.00
WATER		FURNISH AND INSTALL 12" HDPE SDR 9 WATER MAIN	LF	2,000	\$ 260.00	\$ 520,000.00
		FURNISH AND INSTALL 12" GATE VALVE	EA	8	\$ 5,000.00	\$ 40,000.00
		FURNISH AND INSTALL FIRE HYDRANT ASSEMBLY (SINGLE PUMPER)	EA	7	\$ 18,000.00	\$ 126,000.00
		CONNECT WATER SERVICES	EA	10	\$ 6,500.00	\$ 65,000.00
ELECTRIC		CONDUIT/WIRE	LF	3,200	\$ 50.00	\$ 160,000.00
		JUNCTION BOX	EA	28	\$ 2,500.00	\$ 70,000.00
		LIGHT POLE	EA	21	\$ 20,000.00	\$ 420,000.00
GAS		NATURAL GAS MAIN PIPE	LF	2600	\$ 300.00	\$ 780,000.00
COMM		COMMUNICATIONS CONDUIT/FIBER	LF	1200	\$ 300.00	\$ 360,000.00

Total Cost	\$	4,423,000.00
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States Avenue Alternative

Date Modified: June 28, 2023

Date Printed: June 28, 2023

		WORK DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT BID PRICE	TOTAL BID PRICE
SEWER		FURNISH AND INSTALL DIP, 12"	LF	800	\$ 260.00	\$ 208,000.00
		SANITARY SEWER MANHOLES	EA	3	\$ 15,000.00	\$ 45,000.00
		SANITARY SEWER SERVICE CONNECTIONS	EA	5	\$ 6,000.00	\$ 30,000.00
STORM		FURNISH AND INSTALL CPEP, 24"	LF	1,200	\$ 210.00	\$ 252,000.00
		MANHOLES AND CATCH BASIN MANHOLES	EA	4	\$ 12,000.00	\$ 48,000.00
		CONSTRUCT CATCH BASIN	EA	8	\$ 6,000.00	\$ 48,000.00
WATER		FURNISH AND INSTALL 12" HDPE SDR 9 WATER MAIN	LF	700	\$ 260.00	\$ 182,000.00
		FURNISH AND INSTALL 12" GATE VALVE	EA	4	\$ 5,000.00	\$ 20,000.00
		FURNISH AND INSTALL FIRE HYDRANT ASSEMBLY (SINGLE PUMPER)	EA	2	\$ 18,000.00	\$ 36,000.00
		CONNECT WATER SERVICES	EA	5	\$ 6,500.00	\$ 32,500.00
ELECTRIC		CONDUIT/WIRE	LF	4,000	\$ 50.00	\$ 200,000.00
		JUNCTION BOX	EA	32	\$ 2,500.00	\$ 80,000.00
		LIGHT POLE	EA	27	\$ 20,000.00	\$ 540,000.00
GAS		NATURAL GAS MAIN PIPE	LF	1600	\$ 300.00	\$ 480,000.00
COMM		COMMUNICATIONS CONDUIT/FIBER	LF	2300	\$ 300.00	\$ 690,000.00

Total Cost	\$	2,891,500.00
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**Frontage Lane Alternative**

Date Modified: June 27, 2023

Date Printed: June 27, 2023

		WORK DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT BID PRICE	TOTAL BID PRICE
SEWER		FURNISH AND INSTALL DIP, 12"	LF	1,800	\$ 260.00	\$ 468,000.00
		SANITARY SEWER MANHOLES	EA	6	\$ 15,000.00	\$ 90,000.00
		SANITARY SEWER SERVICE CONNECTIONS	EA	10	\$ 6,000.00	\$ 60,000.00
WATER		FURNISH AND INSTALL FIRE HYDRANT ASSEMBLY (SINGLE PUMPER)	EA	3	\$ 18,000.00	\$ 54,000.00
ELECTRIC		CONDUIT/WIRE	LF	300	\$ 50.00	\$ 15,000.00
		POWER POLE RELOCATION	EA	1	\$ 15,000.00	\$ 15,000.00
		TRANSFORMER RELOCATION	EA	1	\$ 10,000.00	\$ 10,000.00
COMM		COMMUNICATIONS CONDUIT/FIBER	LF	1600	\$ 300.00	\$ 480,000.00

Total Cost	\$	1,192,000.00
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# APPENDIX B: BUILD THE VISION

## B.1 Preliminary Development Concepts

Document: Preliminary Development Concepts, FIRST FORTY FEET

Description: Summary of the project objectives, vision, and guiding principles that informed a set of “big ideas” for future development within the project area. Concepts include mobility, land uses, development scenarios and the supporting riverfront public use areas amenities that are essential to attract investment and establish downtown as a one-of-a-kind destination.

## B.2 Utilities Impacts Analysis

Document: Utilities Impacts Analysis Memo; Kinney Engineering

Description: Assessment of the current utilities (water, sewer, storm, gas, electric and communications) serving the Project area, identifies utilities in need of upgrade, and new utilities to support planned future development.

## B.3 Traffic and Safety Impacts Analysis

**Document: Traffic and Safety Impacts Analysis Memo; Kinney Engineering**

**Description: Assessment of the preliminary development concepts for land uses and mobility improvements to determine potential impacts to traffic operations, Sterling Highway access and pedestrian and bicycle circulation. Provides a summary of the main benefits or impacts.**

## B.4 Market Hall Case Studies

Document: Market Hall Case Studies; ECONorthwest, Economics and Research Consultant

Description: Memo showcasing three case studies that have varying governance and operations structures, varying public investment, and different missions. These case studies demonstrate a range of what the City might want to consider and can help the City identify which elements they like from each.

## B.5 Market Hall Assessment

Document: Market Hall Assessment Presentation; ECONorthwest, Economics and Research Consultant

Description: Slideshow presentation showcasing three case studies, their takeaways and considerations for Soldotna. Provides results of stakeholder interviews and recommendations for the Market Hall’s potential offerings, critical elements, potential tenant mix, partners and programming for the City to consider.

## B.6 Development Feasibility

Document: Soldotna Riverfront Redevelopment, Feasibility Analysis Results; ECONorthwest, Economics and Research Consultant

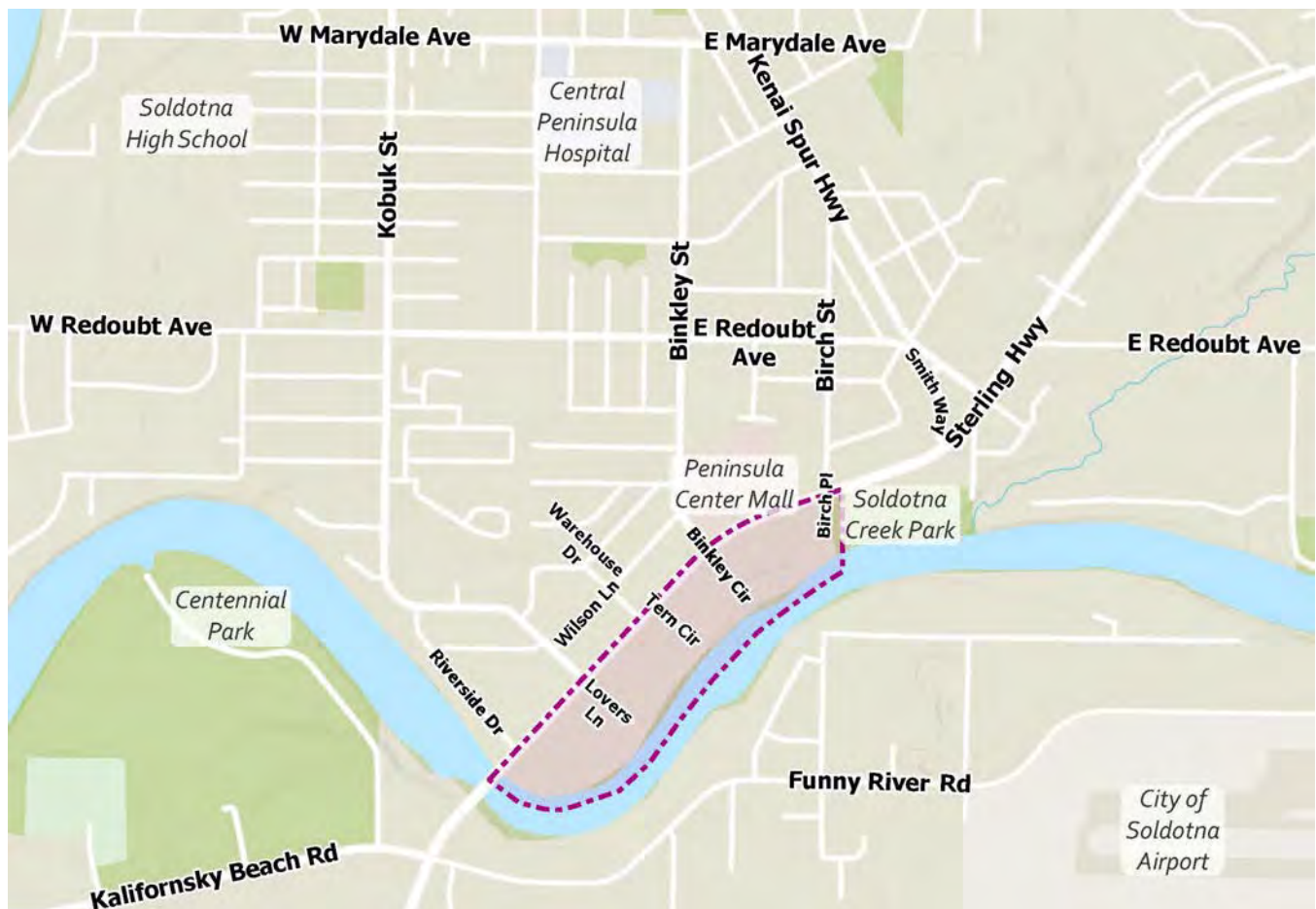
Description: Feasibility study on four development types based on the preliminary development concepts and discussions with the City. These development types include mixed-use, multifamily, townhomes, and hotel. The study provides insights into the feasible scale and types of development for the initial “catalytic” phase, which is intended to kick-start future development.

**DATE:** June 28, 2023

**SUBJECT:** City of Soldotna Riverfront Redevelopment Plan: Traffic & Safety Impact Analysis

## Introduction

Figure 1 shows the traffic and safety impact analysis study area for this Soldotna Riverfront Redevelopment 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 (COS).



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

Two main concepts have been developed for the redevelopment plan, each of which involves building a local street between the Sterling Highway and the Soldotna River. Both concepts include States Avenue – a route that runs parallel to the Sterling Highway between Binkley Circle and Forty Seventh Street (the recently built connection near the Kenai Spur Highway).

Under the Main Street concept shown in Figure 2, a new route (Main Street) bisects the existing parcels between the Sterling Highway and the river and three new roads (River Street, New Street 1, and New Street 2) are built perpendicular to the Sterling Highway. River Street turns and runs along the river, parallel to the river and the highway. Main Street and, or River Street connect River Street, New Street 1, Lovers Lane, New Street 2, and Tern Circle.

## Main Street Development Framework



Figure 2: Main Street Concept

Under the River Street concept shown in Figure 3, a new route (River Street) runs parallel to the river with views of the river and connecting to the Sterling Highway. Two new roads (New Street 1 and Warehouse Lane) are built perpendicular to the Sterling Highway, with Warehouse Lane lining up with Warehouse Drive across the Sterling Highway. River Street connects New Street, Lovers Lane, and Warehouse Lane. Tern Circle connects only to the Sterling Highway.

## River Street Development Framework



Figure 3: River Street Concept

## Trip Generation

As shown in Figure 2 and Figure 3, four general land use types are anticipated to be constructed in the project area. The number of trips that would be associated with each of these types was estimated using a range of specific land

uses in the ITE Trip Generation Manual that fit these generic land use types or using trip generation data that Kinney Engineering collected for the Matanuska-Susitna Borough (MSB), which is expected to better represent Soldotna trip behavior. For existing land uses, trips were estimated using the specific land use in the trip generation manual. Table 1 shows the land uses and trip estimates used.

Table 1: Values used for Trip Generation

Soldotna Riverfront Land Use Type	Trip Generation Example Uses (ITE or MSB)	Weekday PM Peak Hour Average Rate	Unit
Commercial	822 Strip Retail Plaza (<40k) (ITE) 930 Fast Casual Dining (ITE) 931 Fine Dining Restaurant (ITE) 932 High-Turnover (Sit-Down) Restaurant (ITE)	9	1,000 sf
Residential	Multi-Family Housing (MSB)	0.71	units
Hotel	310 Hotel 320 Motel	0.6	Rooms
Public Market	858 Farmers Market	179.4	acre
Assisted Living	254 Assisted Living (ITE)	0.48	1,000 sf
Office Building	710 General Office Building (ITE)	1.44	1,000 sf
Fast-Food Restaurant with Drive-Through	934 Fast-Food Restaurant with Drive-Through (ITE)	33.03	1,000 sf
Public Park	858 Farmers Market	179.4	acre

Using these values and the distributions of land uses shown in Figure 2 and Figure 3, the peak hour trips for each road connection to the Sterling Highway was estimated as shown in Table 2. Note that these values represent person trips for each use. They do not necessarily represent individual vehicle trips since some folks are expected to arrive by walking or biking and some of the trips will be internal (a person will come to the area for multiple purposes).

Table 2: Estimated Total Trips by Most Convenient Route

Main Street Concept		River Street Concept	
Road Name	Trips during Peak Hour	Road Name	Trips during Peak Hour
River Street	430	River Street	360
New Street 1	975	New Street	565
Lovers Lane	445	Lovers Lane	430
New Street 2	445	Warehouse Lane	325
Tern Circle	80	Tern Circle	30
Binkley Circle	225	Binkley Circle	210
Birch Street	1100	Birch Street	990
Forty-Seventh Street	220	Forty-Seventh Street	210

### Traffic Signals

There are three existing signals on Sterling Highway at intersections in the corridor: Lovers Lane (Kobuk Street), Binkley Circle (Binkley Street), and Birch Street. The River Street Concept proposes a signal at the proposed Warehouse Lane (Warehouse Drive) intersection.

The CalTrans method is used to evaluate the likelihood that a signal may be warranted in the future using future Annual Average Daily Traffic (AADT) estimates. This method is based on the *Manual on Uniform Traffic Control Warrant 1*, which looks at thresholds for volumes on the major and minor road separately. The AADTs for the Sterling Highway are above the major road thresholds. As such, the analysis considered whether the AADTs for the side streets fall above the minor road thresholds. If the signals met the warrant, then additional consideration was given as to the appropriateness of a signal at that intersection, such as the spacing of signalized intersections and whether it would be necessary to meet vehicle demand. Table 3 shows the results of this analysis. (Note that Forty-Seventh Street was not considered, as it is outside the project area and falls too close to the Kenai Spur Highway intersection.)

*Table 3: Suitability of Signalization at Side Streets*

Main Street Concept			River Street Concept		
Road Name	Above Minor Road Threshold?	Suitable for Signal?	Road Name	AADT above Minor Road Threshold?	Suitable for Signal?
River Street	Yes	Potential	River Street	Yes	Potential
New Street 1	Yes	No – poor network spacing	New Street	Yes	No – poor network spacing
Lovers Lane	Yes	Existing	Lovers Lane	Yes	Existing
New Street 2	Yes	No – poor network spacing	Warehouse Lane	Yes	Potential
Tern Circle	No	No	Tern Circle	No	No
Binkley Circle	Yes	Existing	Binkley Circle	Yes	Existing
Birch Street	Yes	Existing	Birch Street	Yes	Existing

If new signals are not built, it will be difficult for drivers to turn left from the stop-controlled side streets onto the Sterling Highway during peak traffic periods. However, if left-turning drivers travel to the existing signals, those signals are expected to be able to accommodate that traffic at an acceptable level of service.

### Pedestrian Signal at River Street

Riverside Drive (the existing extension of River Street) is just over an eighth mile away from the existing signal at Kobuk Street/Lovers Lane. Under both concepts, the Kobuk/Lovers Lane intersection can handle all of the traffic that would desire to turn left from the River Street intersection. As such, a full signal may not be desirable. However, an electric regulatory device such as a pedestrian hybrid beacon to accommodate a pedestrian crossing would be appropriate here:

- Pedestrian demand would likely be above 20 people per hour. This location would be used by people traveling between the Riverfront Boardwalk and the Centennial trail system. It would also be used by people who live along Riverside Drive and Kobuk Street who bike or walk to the riverfront area, as Soldotna residents have identified Riverside Drive as a preferred route for bicycling.
- Speed limit is 35 miles per hour.
- AADT is above 15,000 vehicles per day on Sterling Highway.

Consideration could also be given to placing a median refuge and using rectangular rapid flashing beacons (RRFBs). If this option were constructed, consideration should be given to only allowing right turns onto and off of Riverside Drive and River Street.

### Signal at Warehouse Lane (River Street Concept)

Warehouse Drive (the existing extension of River Street) lies just over an eighth mile away from the existing signals at both Lovers Lane (Kobuk Street) and Binkley Street (Binkley Circle). Given the 35 mph speed limit, eighth mile spacing may be acceptable and could potentially help to keep traffic on Sterling Highway platooned as it travels through Soldotna. That being said, the analysis indicates that the Lovers Lane (Kobuk Street) signal could likely handle all of the traffic desiring to turn left from the riverfront area at an acceptable level of service under existing Sterling Highway traffic volumes. Thus, a signal may not be needed at Warehouse Lane within the 20-year time frame but may be desirable in the future.

## Traffic Operations

While the proposed redevelopment will increase the number of people traveling to the area, the analysis shows that the existing signals can handle the increased traffic at an acceptable level of service (LOS D or better). Moreover, it is likely that a significant amount of the increased traffic to the redevelopment area would be nonmotorized traffic.

- The development would be built with sidewalks and paths that would allow people to park once and then comfortably walk throughout the improved area.
- There are many neighborhoods in Soldotna within walking and bike riding distance from this area, and with existing infrastructure to promote nonmotorized trips.

The following subsections discuss the operational benefits or impacts of additional concepts.

### Frontage Lane for Sterling Highway

One proposed improvement is to build a frontage lane and multi-use trail along the Sterling Highway, largely within the DOT&PF right-of-way. A frontage lane built on the river side of Sterling Highway would improve access control, eliminating driveways that intersect directly with the highway. Instead, drivers would use the frontage lane to access the Sterling Highway from one of the proposed side streets. A frontage lane from the bridge to Birch Place would reduce the number of driveways or side streets accessing the highway from 15 to 7. This would decrease conflict points along the highway, improving safety and decreasing delay. The proposed multi-use trail would also benefit from access control, as bike riders would interact with vehicles only at the side streets. Figure 4 shows what this concept might look like.



Figure 4: Parking Access Lane with Multi-Use Trail Concept



One concern with this concept is that vehicles traveling from the frontage lane to the Sterling Highway would likely be blocked by vehicles queued along the side streets to turn onto the Sterling Highway. In general, driveways on the side streets should be located at least 120 feet from the intersection, and behind the expected queuing distance. (See *NCHRP 659 Guide for the Geometric Design of Driveways*). This guideline may make a true frontage lane impractical; however, it will likely still be possible to build the multi-use trail and consolidate the curb cuts. The new Main Street or River Street will act as backage routes, allowing drivers to access businesses from the side streets.

### Reduction in Short Distance Vehicle Trips on Sterling Highway

Whether or not the frontage lane is possible, the new Main Street or River Street concepts provide local roads parallel to the Sterling Highway that are likely to reduce vehicle trips on the Sterling Highway. For example, a driver traveling between the Dairy Queen and the Blazy Mall must use the Sterling Highway under the existing conditions but will be able to avoid the Sterling Highway under the proposed configuration. Similarly, a driver traveling along Kobuk Street to the Blazy Mall currently must use the Sterling Highway but would be able to cross the Sterling Highway and travel on Main or River Street under the proposed configuration.

## Summary

Table 4 summarizes the main benefits or impacts of these options.

*Table 4: Summary of Main Benefits or Impacts*

	<b>Main Street Concept</b>	<b>River Street Concept</b>	<b>States Avenue Concept</b>	<b>Frontage Lane and Trail Concept</b>
Improved nonmotorized crossings of Sterling Highway	Yes, at signalized intersections and at new crossing at Riverside Drive	Yes, at signalized intersections and at new crossing at Riverside Drive		N/A
Improved nonmotorized travel parallel to Sterling Highway	Yes, new river walk and amenities along new roadways	Yes, new river walk and amenities along new roadways	Yes, new river walk and amenities along new roadways	Yes, wide trail instead of narrow sidewalk, plus fewer driveways to cross
Reduction of vehicle traffic on Sterling Highway	Yes, switch to nonmotorized mode plus parallel local streets	Yes, switch to nonmotorized mode plus parallel local streets	Yes, switch to nonmotorized mode plus parallel local streets	Yes, switch to nonmotorized mode
Additional traffic signal needed on Sterling Highway	Consider signalized pedestrian crossing at Riverside Drive	Consider signalized pedestrian crossing at Riverside Drive Consider new signal at Warehouse Drive	No	No
Safety improvements	Yes; decreased demand for local trips on Sterling Highway and decreased conflicts with Sterling Highway; improved pedestrian crossings	Yes; decreased demand for local trips on Sterling Highway and decreased conflicts with Sterling Highway; improved pedestrian crossings	Yes; decreased demand for local trips on Sterling Highway and decreased conflicts with Sterling Highway; improved pedestrian crossings	Yes, decreased conflicts with Sterling Highway Care should be taken that driveways on side streets meet corner clearance

## Appendices

- App A: Level of Service and Queuing Results for Alternatives (Synchro Software Reports)

HCM 6th TWSC

1: River Street/Riverside Drive & Sterling Highway

06/28/2023

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↕		↵	↕			↕			↕	
Traffic Vol, veh/h	70	870	20	190	1135	40	0	0	130	0	0	240
Future Vol, veh/h	70	870	20	190	1135	40	0	0	130	0	0	240
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	300	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	74	916	21	200	1195	42	0	0	137	0	0	253

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1237	0	0	937	0	0	2073	2712	469	2222	2701	619
Stage 1	-	-	-	-	-	-	1075	1075	-	1616	1616	-
Stage 2	-	-	-	-	-	-	998	1637	-	606	1085	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	559	-	-	727	-	-	31	21	541	24	21	432
Stage 1	-	-	-	-	-	-	234	294	-	108	161	-
Stage 2	-	-	-	-	-	-	261	157	-	451	291	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	559	-	-	727	-	-	9	13	541	13	13	432
Mov Cap-2 Maneuver	-	-	-	-	-	-	9	13	-	13	13	-
Stage 1	-	-	-	-	-	-	203	255	-	94	117	-
Stage 2	-	-	-	-	-	-	79	114	-	292	253	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.9			1.6			13.9			24.4		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	541	559	-	-	727	-	-	432
HCM Lane V/C Ratio	0.253	0.132	-	-	0.275	-	-	0.585
HCM Control Delay (s)	13.9	12.4	-	-	11.8	-	-	24.4
HCM Lane LOS		B	B	-	-	B	-	C
HCM 95th %tile Q(veh)		1	0.5	-	-	1.1	-	3.6

HCM 6th TWSC  
2: New Street & Sterling Highway

06/28/2023

Intersection						
Int Delay, s/veh	3.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↘	
Traffic Vol, veh/h	855	145	300	1350	15	200
Future Vol, veh/h	855	145	300	1350	15	200
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	900	153	316	1421	16	211

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	1053	0	2320
Stage 1	-	-	-	-	977
Stage 2	-	-	-	-	1343
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	657	-	32
Stage 1	-	-	-	-	325
Stage 2	-	-	-	-	208
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	657	-	17
Mov Cap-2 Maneuver	-	-	-	-	80
Stage 1	-	-	-	-	325
Stage 2	-	-	-	-	108

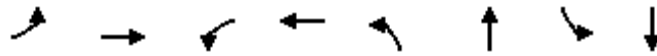
Approach	EB	WB	NB
HCM Control Delay, s	0	2.8	29.8
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	364	-	-	657	-
HCM Lane V/C Ratio	0.622	-	-	0.481	-
HCM Control Delay (s)	29.8	-	-	15.4	-
HCM Lane LOS	D	-	-	C	-
HCM 95th %tile Q(veh)	4	-	-	2.6	-

Queues

3: Lovers Lane/Kobuk Street & Sterling Highway

06/28/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	58	1053	200	1074	489	258	63	237
v/c Ratio	0.32	1.01	0.85	0.84	1.08	0.32	0.15	0.30
Control Delay	17.1	60.5	47.0	28.1	91.4	6.6	14.6	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.1	60.5	47.0	28.1	91.4	6.6	14.6	5.6
Queue Length 50th (ft)	16	-281	63	237	-278	26	18	18
Queue Length 95th (ft)	36	#420	#155	#392	#458	71	42	60
Internal Link Dist (ft)		216		343		420		423
Turn Bay Length (ft)	100		100		20		30	
Base Capacity (vph)	184	1040	236	1282	452	807	433	778
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	1.01	0.85	0.84	1.08	0.32	0.15	0.30

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

### HCM 6th Signalized Intersection Summary 3: Lovers Lane/Kobuk Street & Sterling Highway

06/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	990	10	190	965	55	465	70	175	60	5	220
Future Volume (veh/h)	55	990	10	190	965	55	465	70	175	60	5	220
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821
Adj Flow Rate, veh/h	58	1042	11	200	1016	58	489	74	184	63	5	232
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	181	1061	11	235	1156	66	479	204	508	466	14	669
Arrive On Green	0.04	0.30	0.30	0.05	0.23	0.23	0.44	0.44	0.44	0.44	0.44	0.44
Sat Flow, veh/h	1734	3508	37	1734	3327	190	1143	463	1151	1121	33	1516
Grp Volume(v), veh/h	58	514	539	200	528	546	489	0	258	63	0	237
Grp Sat Flow(s),veh/h/ln	1734	1730	1814	1734	1730	1787	1143	0	1614	1121	0	1548
Q Serve(g_s), s	1.7	23.6	23.6	6.3	23.6	23.6	27.2	0.0	8.5	3.2	0.0	8.1
Cycle Q Clear(g_c), s	1.7	23.6	23.6	6.3	23.6	23.6	35.3	0.0	8.5	11.7	0.0	8.1
Prop In Lane	1.00		0.02	1.00		0.11	1.00		0.71	1.00		0.98
Lane Grp Cap(c), veh/h	181	523	549	235	601	621	479	0	712	466	0	683
V/C Ratio(X)	0.32	0.98	0.98	0.85	0.88	0.88	1.02	0.00	0.36	0.14	0.00	0.35
Avail Cap(c_a), veh/h	207	523	549	235	601	621	479	0	712	466	0	683
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.6	27.7	27.7	21.4	29.1	29.1	28.9	0.0	14.9	18.7	0.0	14.7
Incr Delay (d2), s/veh	1.0	35.2	34.3	24.5	16.6	16.2	46.5	0.0	0.3	0.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	14.2	14.7	4.1	12.7	13.1	15.4	0.0	3.0	0.8	0.0	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.6	62.8	61.9	45.9	45.7	45.3	75.5	0.0	15.2	18.9	0.0	15.0
LnGrp LOS	C	E	E	D	D	D	F	A	B	B	A	B
Approach Vol, veh/h		1111			1274			747				300
Approach Delay, s/veh		60.2			45.5			54.6				15.9
Approach LOS		E			D			D				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		39.4	10.6	30.0		39.4	7.0	33.6				
Change Period (Y+Rc), s		* 4.1	* 4.1	* 5.8		* 4.1	* 4.1	* 5.8				
Max Green Setting (Gmax), s		* 35	* 6.5	* 24		* 35	* 4.1	* 27				
Max Q Clear Time (g_c+I1), s		37.3	8.3	25.6		13.7	3.7	25.6				
Green Ext Time (p_c), s		0.0	0.0	0.0		1.7	0.0	0.7				

#### Intersection Summary

HCM 6th Ctrl Delay	49.7
HCM 6th LOS	D

#### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC  
4: New Street & Sterling Highway

06/28/2023

Intersection						
Int Delay, s/veh	3.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↘	
Traffic Vol, veh/h	1175	50	135	1165	45	120
Future Vol, veh/h	1175	50	135	1165	45	120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	300	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1237	53	142	1226	47	126

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	1290	0	2161 645
Stage 1	-	-	-	-	1264 -
Stage 2	-	-	-	-	897 -
Critical Hdwy	-	-	4.14	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	-	-	2.22	-	3.52 3.32
Pot Cap-1 Maneuver	-	-	533	-	~ 40 415
Stage 1	-	-	-	-	229 -
Stage 2	-	-	-	-	358 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	533	-	~ 29 415
Mov Cap-2 Maneuver	-	-	-	-	125 -
Stage 1	-	-	-	-	229 -
Stage 2	-	-	-	-	263 -

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	45.1
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	254	-	-	533	-
HCM Lane V/C Ratio	0.684	-	-	0.267	-
HCM Control Delay (s)	45.1	-	-	14.2	-
HCM Lane LOS	E	-	-	B	-
HCM 95th %tile Q(veh)	4.5	-	-	1.1	-

Notes  
 -: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon



HCM 6th TWSC  
5: Tern Circle & Sterling Highway

06/28/2023

Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↘	
Traffic Vol, veh/h	1290	5	30	1255	45	30
Future Vol, veh/h	1290	5	30	1255	45	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1358	5	32	1321	47	32

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1363	0	2086
Stage 1	-	-	-	-	1361
Stage 2	-	-	-	-	725
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	500	-	46
Stage 1	-	-	-	-	203
Stage 2	-	-	-	-	440
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	500	-	43
Mov Cap-2 Maneuver	-	-	-	-	141
Stage 1	-	-	-	-	203
Stage 2	-	-	-	-	412

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	36.8
HCM LOS			E

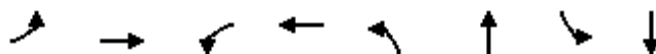
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	190	-	-	500	-
HCM Lane V/C Ratio	0.416	-	-	0.063	-
HCM Control Delay (s)	36.8	-	-	12.7	-
HCM Lane LOS	E	-	-	B	-
HCM 95th %tile Q(veh)	1.9	-	-	0.2	-

Notes  
 -: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

Queues

6: Binkley Circle/Binkley Street & Sterling Highway

06/28/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	5	1384	168	1153	5	132	174	300
v/c Ratio	0.02	0.76	0.68	0.52	0.05	0.31	0.72	0.65
Control Delay	1.8	8.4	23.7	10.4	22.8	8.8	44.8	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.8	8.4	23.7	10.4	22.8	8.8	44.8	18.2
Queue Length 50th (ft)	0	48	25	108	2	8	80	54
Queue Length 95th (ft)	m1	m383	m29	m171	10	47	136	123
Internal Link Dist (ft)		598		1107		320		616
Turn Bay Length (ft)	200		350		70		100	
Base Capacity (vph)	327	1814	252	2198	149	536	333	569
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.76	0.67	0.52	0.03	0.25	0.52	0.53

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

# HCM 6th Signalized Intersection Summary

## 6: Binkley Circle/Binkley Street & Sterling Highway

06/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕		↖	↕		↖	↕	
Traffic Volume (veh/h)	5	1250	65	160	1000	95	5	20	105	165	5	280
Future Volume (veh/h)	5	1250	65	160	1000	95	5	20	105	165	5	280
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821
Adj Flow Rate, veh/h	5	1316	68	168	1053	100	5	21	111	174	5	295
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	381	1434	74	351	1847	175	154	61	321	307	6	367
Arrive On Green	0.01	0.57	0.57	0.27	1.00	1.00	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1734	3347	173	1734	3194	303	1079	252	1330	1258	26	1521
Grp Volume(v), veh/h	5	679	705	168	570	583	5	0	132	174	0	300
Grp Sat Flow(s),veh/h/ln	1734	1730	1790	1734	1730	1767	1079	0	1582	1258	0	1547
Q Serve(g_s), s	0.1	28.3	28.4	0.3	0.0	0.0	0.4	0.0	5.5	10.6	0.0	14.6
Cycle Q Clear(g_c), s	0.1	28.3	28.4	0.3	0.0	0.0	14.9	0.0	5.5	16.2	0.0	14.6
Prop In Lane	1.00		0.10	1.00		0.17	1.00		0.84	1.00		0.98
Lane Grp Cap(c), veh/h	381	741	767	351	1001	1022	154	0	382	307	0	374
V/C Ratio(X)	0.01	0.92	0.92	0.48	0.57	0.57	0.03	0.00	0.35	0.57	0.00	0.80
Avail Cap(c_a), veh/h	461	779	806	351	1001	1022	205	0	457	366	0	447
HCM Platoon Ratio	1.33	1.33	1.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.30	0.30	0.30	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.9	15.9	16.0	24.9	0.0	0.0	35.6	0.0	25.1	31.8	0.0	28.6
Incr Delay (d2), s/veh	0.0	18.0	17.9	0.3	0.7	0.7	0.1	0.0	0.5	1.6	0.0	8.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	11.4	11.8	2.3	0.2	0.2	0.1	0.0	2.1	3.3	0.0	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.0	33.9	33.8	25.2	0.7	0.7	35.7	0.0	25.6	33.4	0.0	37.2
LnGrp LOS	A	C	C	C	A	A	D	A	C	C	A	D
Approach Vol, veh/h		1389			1321			137				474
Approach Delay, s/veh		33.8			3.8			26.0				35.8
Approach LOS		C			A			C				D
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.4	16.5	40.1		23.4	4.5	52.1				
Change Period (Y+Rc), s		* 4.1	* 5.8	* 5.8		* 4.1	* 4.1	* 5.8				
Max Green Setting (Gmax), s		* 23	* 6.9	* 36		* 23	* 4.1	* 39				
Max Q Clear Time (g_c+I1), s		16.9	2.3	30.4		18.2	2.1	2.0				
Green Ext Time (p_c), s		0.3	0.2	3.8		1.2	0.0	9.4				

### Intersection Summary

HCM 6th Ctrl Delay	21.8
HCM 6th LOS	C

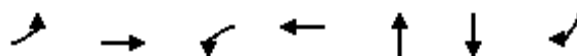
### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

## Queues

### 7: Birch Street & Sterling Highway

06/28/2023



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	168	1432	5	1273	616	10	100
v/c Ratio	0.74	0.85	0.03	0.97	1.08	0.02	0.15
Control Delay	29.8	15.3	9.2	41.9	85.7	16.5	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.8	15.3	9.2	41.9	85.7	16.5	0.9
Queue Length 50th (ft)	14	95	1	303	-327	3	0
Queue Length 95th (ft)	m#51	#518	6	#455	#527	13	5
Internal Link Dist (ft)		1107		775	289	236	
Turn Bay Length (ft)	175		100				
Base Capacity (vph)	226	1677	172	1318	571	573	646
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.85	0.03	0.97	1.08	0.02	0.15

#### Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

# HCM 6th Signalized Intersection Summary

## 7: Birch Street & Sterling Highway

06/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	1330	30	5	880	330	280	25	280	5	5	95
Future Volume (veh/h)	160	1330	30	5	880	330	280	25	280	5	5	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1850	1807	1850	1850	1807	1850	1850	1850	1850	1850	1850	1807
Adj Flow Rate, veh/h	168	1400	32	5	926	347	295	26	295	5	5	100
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	0	0	3	0	0	0	0	0	0	3
Cap, veh/h	258	1697	39	278	942	351	315	22	249	271	250	557
Arrive On Green	0.19	0.99	0.99	0.01	0.38	0.38	0.36	0.36	0.36	0.36	0.36	0.36
Sat Flow, veh/h	1762	3431	78	1762	2447	912	684	60	684	561	688	1531
Grp Volume(v), veh/h	168	700	732	5	648	625	616	0	0	10	0	100
Grp Sat Flow(s),veh/h/ln	1762	1716	1793	1762	1716	1643	1427	0	0	1249	0	1531
Q Serve(g_s), s	2.4	1.9	1.9	0.1	29.8	30.2	28.8	0.0	0.0	0.0	0.0	3.6
Cycle Q Clear(g_c), s	2.4	1.9	1.9	0.1	29.8	30.2	29.1	0.0	0.0	0.3	0.0	3.6
Prop In Lane	1.00		0.04	1.00		0.55	0.48		0.48	0.50		1.00
Lane Grp Cap(c), veh/h	258	849	887	278	661	632	586	0	0	522	0	557
V/C Ratio(X)	0.65	0.82	0.83	0.02	0.98	0.99	1.05	0.00	0.00	0.02	0.00	0.18
Avail Cap(c_a), veh/h	258	849	887	356	661	632	586	0	0	522	0	557
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.57	0.57	0.57	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.8	0.2	0.2	10.1	24.3	24.4	27.2	0.0	0.0	16.3	0.0	17.3
Incr Delay (d2), s/veh	3.3	5.3	5.2	0.0	30.5	33.1	51.5	0.0	0.0	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	1.4	1.4	0.0	16.6	16.5	19.8	0.0	0.0	0.1	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.1	5.6	5.4	10.1	54.8	57.6	78.7	0.0	0.0	16.3	0.0	17.5
LnGrp LOS	C	A	A	B	D	E	F	A	A	B	A	B
Approach Vol, veh/h		1600			1278			616				110
Approach Delay, s/veh		8.4			56.0			78.7				17.4
Approach LOS		A			E			E				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		33.2	4.5	45.4		33.2	13.3	36.6				
Change Period (Y+Rc), s		* 4.1	* 4.1	* 5.8		* 4.1	* 5.8	* 5.8				
Max Green Setting (Gmax), s		* 29	* 4	* 33		* 29	* 6.1	* 31				
Max Q Clear Time (g_c+I1), s		31.1	2.1	3.9		5.6	4.4	32.2				
Green Ext Time (p_c), s		0.0	0.0	12.1		0.3	0.1	0.0				

### Intersection Summary

HCM 6th Ctrl Delay	37.5
HCM 6th LOS	D

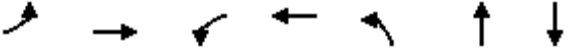
### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues

14: Devin Drive & Sterling Highway

06/28/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	4	981	17	525	302	38	23
v/c Ratio	0.01	0.81	0.07	0.45	0.51	0.05	0.03
Control Delay	10.2	22.1	11.1	16.8	16.4	5.5	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.2	22.1	11.1	16.8	16.4	5.5	9.7
Queue Length 50th (ft)	1	125	3	68	68	1	3
Queue Length 95th (ft)	5	#274	13	130	166	17	17
Internal Link Dist (ft)		909		895		264	217
Turn Bay Length (ft)							
Base Capacity (vph)	358	1246	233	1217	593	713	746
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.79	0.07	0.43	0.51	0.05	0.03

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

## 14: Devin Drive & Sterling Highway

06/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗			↕	
Traffic Volume (veh/h)	4	585	317	16	482	1	278	5	30	6	11	4
Future Volume (veh/h)	4	585	317	16	482	1	278	5	30	6	11	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821
Adj Flow Rate, veh/h	4	636	345	17	524	1	302	5	33	7	12	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	317	694	376	167	1190	2	689	84	557	240	388	116
Arrive On Green	0.00	0.32	0.32	0.02	0.34	0.34	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	1734	2165	1175	1734	3543	7	1397	207	1368	402	951	285
Grp Volume(v), veh/h	4	508	473	17	256	269	302	0	38	23	0	0
Grp Sat Flow(s),veh/h/ln	1734	1730	1610	1734	1730	1820	1397	0	1575	1637	0	0
Q Serve(g_s), s	0.1	17.5	17.5	0.4	7.1	7.1	9.5	0.0	0.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	17.5	17.5	0.4	7.1	7.1	10.0	0.0	0.9	0.5	0.0	0.0
Prop In Lane	1.00		0.73	1.00		0.00	1.00		0.87	0.30		0.17
Lane Grp Cap(c), veh/h	317	554	516	167	581	611	689	0	642	743	0	0
V/C Ratio(X)	0.01	0.92	0.92	0.10	0.44	0.44	0.44	0.00	0.06	0.03	0.00	0.00
Avail Cap(c_a), veh/h	422	560	521	250	581	611	689	0	642	743	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.4	20.2	20.2	16.3	16.0	16.0	13.8	0.0	11.1	11.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	19.9	21.0	0.3	0.5	0.5	2.0	0.0	0.2	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.4	8.9	0.2	2.6	2.8	2.7	0.0	0.3	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.5	40.2	41.2	16.5	16.5	16.5	15.8	0.0	11.3	11.1	0.0	0.0
LnGrp LOS	B	D	D	B	B	B	B	A	B	B	A	A
Approach Vol, veh/h		985			542			340				23
Approach Delay, s/veh		40.6			16.5			15.3				11.1
Approach LOS		D			B			B				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		30.4	5.6	25.8		30.4	4.7	26.8				
Change Period (Y+Rc), s		* 5.2	* 4.6	6.0		* 5.2	* 4.4	6.0				
Max Green Setting (Gmax), s		* 25	* 4	20.0		* 25	* 4	20.2				
Max Q Clear Time (g_c+I1), s		12.0	2.4	19.5		2.5	2.1	9.1				
Green Ext Time (p_c), s		0.8	0.0	0.3		0.0	0.0	2.4				

### Intersection Summary

HCM 6th Ctrl Delay	28.8
HCM 6th LOS	C

### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

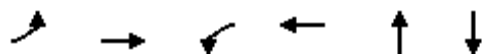




## Queues

### 1: River Street/Riverside Drive & Sterling Highway

06/28/2023



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	74	937	200	974	442	279
v/c Ratio	0.37	0.85	0.77	0.74	0.97	0.38
Control Delay	16.6	34.5	33.8	16.9	60.0	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.6	34.5	33.8	16.9	60.0	6.7
Queue Length 50th (ft)	19	227	28	103	198	24
Queue Length 95th (ft)	41	#332	m#128	m202	#394	74
Internal Link Dist (ft)		804		476	311	453
Turn Bay Length (ft)	300		300			
Base Capacity (vph)	201	1101	261	1308	455	743
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.85	0.77	0.74	0.97	0.38

#### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

# HCM 6th Signalized Intersection Summary

## 1: River Street/Riverside Drive & Sterling Highway

06/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷			↷			↷	
Traffic Volume (veh/h)	70	870	20	190	885	40	255	35	130	20	5	240
Future Volume (veh/h)	70	870	20	190	885	40	255	35	130	20	5	240
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821
Adj Flow Rate, veh/h	74	916	21	200	932	42	268	37	137	21	5	253
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	249	1106	25	261	1256	57	361	45	150	73	37	606
Arrive On Green	0.04	0.32	0.32	0.10	0.50	0.50	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	1734	3458	79	1734	3372	152	701	109	364	60	91	1472
Grp Volume(v), veh/h	74	458	479	200	478	496	442	0	0	279	0	0
Grp Sat Flow(s),veh/h/ln	1734	1730	1807	1734	1730	1794	1174	0	0	1624	0	0
Q Serve(g_s), s	2.1	19.6	19.6	2.5	17.6	17.6	18.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.1	19.6	19.6	2.5	17.6	17.6	29.0	0.0	0.0	10.2	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.08	0.61		0.31	0.08		0.91
Lane Grp Cap(c), veh/h	249	554	578	261	644	668	555	0	0	716	0	0
V/C Ratio(X)	0.30	0.83	0.83	0.77	0.74	0.74	0.80	0.00	0.00	0.39	0.00	0.00
Avail Cap(c_a), veh/h	271	554	578	297	644	668	555	0	0	716	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.6	25.2	25.2	33.1	17.1	17.1	23.2	0.0	0.0	16.9	0.0	0.0
Incr Delay (d2), s/veh	0.7	13.3	12.8	10.1	7.5	7.3	11.3	0.0	0.0	1.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	9.5	9.9	4.2	6.7	6.9	9.1	0.0	0.0	3.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.2	38.5	38.0	43.3	24.7	24.4	34.5	0.0	0.0	18.5	0.0	0.0
LnGrp LOS	B	D	D	D	C	C	C	A	A	B	A	A
Approach Vol, veh/h		1011			1174			442				279
Approach Delay, s/veh		36.7			27.7			34.5				18.5
Approach LOS		D			C			C				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		37.0	11.6	31.4		37.0	7.4	35.6				
Change Period (Y+Rc), s		* 4.1	* 5.8	* 5.8		* 4.1	* 4.1	* 5.8				
Max Green Setting (Gmax), s		* 33	* 7.5	* 26		* 33	* 4.3	* 29				
Max Q Clear Time (g_c+I1), s		31.0	4.5	21.6		12.2	4.1	19.6				
Green Ext Time (p_c), s		0.6	0.2	2.1		1.8	0.0	4.0				

### Intersection Summary

HCM 6th Ctrl Delay	31.0
HCM 6th LOS	C

### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC  
2: New Street & Sterling Highway

06/28/2023

Intersection						
Int Delay, s/veh	4.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↘	
Traffic Vol, veh/h	875	145	300	1095	20	200
Future Vol, veh/h	875	145	300	1095	20	200
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	921	153	316	1153	21	211

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1074	0	2207
Stage 1	-	-	-	-	998
Stage 2	-	-	-	-	1209
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	645	-	38
Stage 1	-	-	-	-	317
Stage 2	-	-	-	-	245
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	645	-	19
Mov Cap-2 Maneuver	-	-	-	-	89
Stage 1	-	-	-	-	317
Stage 2	-	-	-	-	125

Approach	EB	WB	NB
HCM Control Delay, s	0	3.4	33.9
HCM LOS			D

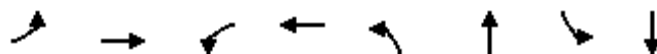
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	347	-	-	645	-
HCM Lane V/C Ratio	0.667	-	-	0.49	-
HCM Control Delay (s)	33.9	-	-	15.8	-
HCM Lane LOS	D	-	-	C	-
HCM 95th %tile Q(veh)	4.6	-	-	2.7	-

Notes  
 -: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

## Queues

### 3: Lovers Lane/Kobuk Street & Sterling Highway

06/28/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	58	1074	200	1042	253	221	42	237
v/c Ratio	0.20	0.75	0.68	0.60	0.92	0.36	0.15	0.42
Control Delay	3.9	9.7	23.6	13.9	65.5	6.8	20.3	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.9	9.7	23.6	13.9	65.5	6.8	20.3	12.1
Queue Length 50th (ft)	4	72	61	257	115	12	14	38
Queue Length 95th (ft)	m5	m91	#119	148	#246	59	38	95
Internal Link Dist (ft)		216		343		420		423
Turn Bay Length (ft)	100		100		20		30	
Base Capacity (vph)	283	1428	304	1753	305	655	320	605
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.75	0.66	0.59	0.83	0.34	0.13	0.39

#### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

### HCM 6th Signalized Intersection Summary 3: Lovers Lane/Kobuk Street & Sterling Highway

06/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	1010	10	190	935	55	240	35	175	40	5	220
Future Volume (veh/h)	55	1010	10	190	935	55	240	35	175	40	5	220
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821
Adj Flow Rate, veh/h	58	1063	11	200	984	58	253	37	184	42	5	232
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	371	1386	14	322	1113	66	337	89	443	355	11	510
Arrive On Green	0.13	0.40	0.40	0.19	0.67	0.67	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	1734	3508	36	1734	3320	196	1143	265	1319	1160	33	1516
Grp Volume(v), veh/h	58	524	550	200	513	529	253	0	221	42	0	237
Grp Sat Flow(s),veh/h/ln	1734	1730	1815	1734	1730	1786	1143	0	1584	1160	0	1548
Q Serve(g_s), s	0.0	21.0	21.0	5.5	19.2	19.2	17.3	0.0	8.6	2.3	0.0	9.6
Cycle Q Clear(g_c), s	0.0	21.0	21.0	5.5	19.2	19.2	26.9	0.0	8.6	10.9	0.0	9.6
Prop In Lane	1.00		0.02	1.00		0.11	1.00		0.83	1.00		0.98
Lane Grp Cap(c), veh/h	371	684	717	322	580	598	337	0	533	355	0	521
V/C Ratio(X)	0.16	0.77	0.77	0.62	0.88	0.88	0.75	0.00	0.41	0.12	0.00	0.46
Avail Cap(c_a), veh/h	371	684	717	352	757	781	337	0	533	355	0	521
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.7	21.0	21.0	14.4	11.9	11.9	31.5	0.0	20.5	24.7	0.0	20.8
Incr Delay (d2), s/veh	0.2	8.0	7.7	2.9	17.7	17.3	9.0	0.0	0.5	0.1	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	9.3	9.7	1.9	6.3	6.5	5.6	0.0	3.1	0.6	0.0	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.9	29.0	28.7	17.3	29.6	29.2	40.6	0.0	21.0	24.8	0.0	21.4
LnGrp LOS	C	C	C	B	C	C	D	A	C	C	A	C
Approach Vol, veh/h		1132			1242			474				279
Approach Delay, s/veh		28.8			27.5			31.4				21.9
Approach LOS		C			C			C				C
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		31.0	11.6	37.4		31.0	16.4	32.6				
Change Period (Y+Rc), s		* 4.1	* 4.1	* 5.8		* 4.1	* 5.8	* 5.8				
Max Green Setting (Gmax), s		* 27	* 8.9	* 30		* 27	* 4.1	* 35				
Max Q Clear Time (g_c+I1), s		28.9	7.5	23.0		12.9	2.0	21.2				
Green Ext Time (p_c), s		0.0	0.1	3.7		1.4	0.0	5.6				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			28.0									
HCM 6th LOS			C									
<b>Notes</b>												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th TWSC  
4: New Street & Sterling Highway

06/28/2023

Intersection						
Int Delay, s/veh	2.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↗	
Traffic Vol, veh/h	1175	50	135	1150	30	120
Future Vol, veh/h	1175	50	135	1150	30	120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	300	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1237	53	142	1211	32	126

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1290	0	2154
Stage 1	-	-	-	-	1264
Stage 2	-	-	-	-	890
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	533	-	41
Stage 1	-	-	-	-	229
Stage 2	-	-	-	-	361
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	533	-	30
Mov Cap-2 Maneuver	-	-	-	-	126
Stage 1	-	-	-	-	229
Stage 2	-	-	-	-	265

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	32.5
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	284	-	-	533	-
HCM Lane V/C Ratio	0.556	-	-	0.267	-
HCM Control Delay (s)	32.5	-	-	14.2	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	3.1	-	-	1.1	-

Notes  
 -: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

HCM 6th TWSC  
5: Tern Circle & Sterling Highway

06/28/2023

Intersection						
Int Delay, s/veh	0.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↗	
Traffic Vol, veh/h	1290	5	30	1255	30	30
Future Vol, veh/h	1290	5	30	1255	30	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1358	5	32	1321	32	32

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1363	0	2086
Stage 1	-	-	-	-	1361
Stage 2	-	-	-	-	725
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	500	-	46
Stage 1	-	-	-	-	203
Stage 2	-	-	-	-	440
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	500	-	43
Mov Cap-2 Maneuver	-	-	-	-	141
Stage 1	-	-	-	-	203
Stage 2	-	-	-	-	412

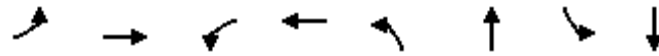
Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	29.9
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	207	-	-	500	-
HCM Lane V/C Ratio	0.305	-	-	0.063	-
HCM Control Delay (s)	29.9	-	-	12.7	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	1.2	-	-	0.2	-

Queues

6: Binkley Circle/Binkley Street & Sterling Highway

06/28/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	5	1384	168	1153	5	132	174	300
v/c Ratio	0.02	0.78	0.63	0.52	0.05	0.31	0.72	0.66
Control Delay	1.8	11.4	13.8	8.8	22.8	8.8	44.8	19.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.8	11.4	13.8	8.8	22.8	8.8	44.8	19.3
Queue Length 50th (ft)	0	47	21	177	2	8	80	58
Queue Length 95th (ft)	m0	#470	m35	m275	10	47	136	127
Internal Link Dist (ft)		598		1107		320		616
Turn Bay Length (ft)	200		350		70		100	
Base Capacity (vph)	327	1766	267	2198	149	536	333	563
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.78	0.63	0.52	0.03	0.25	0.52	0.53

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



# HCM 6th Signalized Intersection Summary

## 6: Binkley Circle/Binkley Street & Sterling Highway

06/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷		↶	↷	
Traffic Volume (veh/h)	5	1250	65	160	1000	95	5	20	105	165	5	280
Future Volume (veh/h)	5	1250	65	160	1000	95	5	20	105	165	5	280
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821
Adj Flow Rate, veh/h	5	1316	68	168	1053	100	5	21	111	174	5	295
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	235	1727	89	308	1847	175	154	61	321	307	6	367
Arrive On Green	0.01	0.69	0.69	0.02	0.19	0.19	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1734	3347	173	1734	3194	303	1079	252	1330	1258	26	1521
Grp Volume(v), veh/h	5	679	705	168	570	583	5	0	132	174	0	300
Grp Sat Flow(s),veh/h/ln	1734	1730	1790	1734	1730	1767	1079	0	1582	1258	0	1547
Q Serve(g_s), s	0.1	20.6	20.8	3.5	23.9	24.0	0.4	0.0	5.5	10.6	0.0	14.6
Cycle Q Clear(g_c), s	0.1	20.6	20.8	3.5	23.9	24.0	14.9	0.0	5.5	16.2	0.0	14.6
Prop In Lane	1.00		0.10	1.00		0.17	1.00		0.84	1.00		0.98
Lane Grp Cap(c), veh/h	235	892	923	308	1001	1022	154	0	382	307	0	374
V/C Ratio(X)	0.02	0.76	0.76	0.55	0.57	0.57	0.03	0.00	0.35	0.57	0.00	0.80
Avail Cap(c_a), veh/h	315	892	923	340	1001	1022	205	0	457	366	0	447
HCM Platoon Ratio	1.33	1.33	1.33	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.30	0.30	0.30	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.6	9.3	9.3	13.2	23.3	23.3	35.6	0.0	25.1	31.8	0.0	28.6
Incr Delay (d2), s/veh	0.0	6.1	6.0	0.5	0.7	0.7	0.1	0.0	0.5	1.6	0.0	8.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.0	6.2	1.2	11.1	11.3	0.1	0.0	2.1	3.3	0.0	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.6	15.4	15.3	13.6	24.0	24.0	35.7	0.0	25.6	33.4	0.0	37.2
LnGrp LOS	B	B	B	B	C	C	D	A	C	C	A	D
Approach Vol, veh/h		1389			1321			137				474
Approach Delay, s/veh		15.3			22.7			26.0				35.8
Approach LOS		B			C			C				D
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.4	9.5	47.1		23.4	4.5	52.1				
Change Period (Y+Rc), s		* 4.1	* 4.1	* 5.8		* 4.1	* 4.1	* 5.8				
Max Green Setting (Gmax), s		* 23	* 6.9	* 36		* 23	* 4.1	* 39				
Max Q Clear Time (g_c+I1), s		16.9	5.5	22.8		18.2	2.1	26.0				
Green Ext Time (p_c), s		0.3	0.1	7.5		1.2	0.0	6.0				

### Intersection Summary

HCM 6th Ctrl Delay	21.6
HCM 6th LOS	C

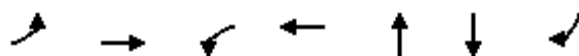
### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

## Queues

### 7: Birch Street & Sterling Highway

06/28/2023



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	168	1432	5	1273	616	10	100
v/c Ratio	0.78	0.85	0.03	0.97	1.08	0.02	0.17
Control Delay	41.8	14.1	9.2	41.9	85.7	16.5	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.8	14.1	9.2	41.9	85.7	16.5	4.7
Queue Length 50th (ft)	33	62	1	303	-327	3	0
Queue Length 95th (ft)	m#78	#518	6	#455	#527	13	30
Internal Link Dist (ft)		1107		775	289	236	
Turn Bay Length (ft)	175		100				
Base Capacity (vph)	216	1677	172	1318	571	573	600
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.85	0.03	0.97	1.08	0.02	0.17

#### Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

# HCM 6th Signalized Intersection Summary

## 7: Birch Street & Sterling Highway

06/28/2023

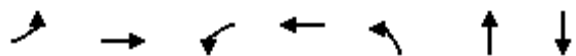


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	1330	30	5	880	330	280	25	280	5	5	95
Future Volume (veh/h)	160	1330	30	5	880	330	280	25	280	5	5	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1850	1807	1850	1850	1807	1850	1850	1850	1850	1850	1850	1807
Adj Flow Rate, veh/h	168	1400	32	5	926	347	295	26	295	5	5	100
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	0	0	3	0	0	0	0	0	0	3
Cap, veh/h	227	1564	36	130	942	351	315	22	249	271	250	557
Arrive On Green	0.08	0.46	0.46	0.01	0.39	0.39	0.36	0.36	0.36	0.36	0.36	0.36
Sat Flow, veh/h	1762	3431	78	1762	2447	912	684	60	684	561	688	1531
Grp Volume(v), veh/h	168	700	732	5	648	625	616	0	0	10	0	100
Grp Sat Flow(s),veh/h/ln	1762	1716	1793	1762	1716	1643	1427	0	0	1249	0	1531
Q Serve(g_s), s	4.5	30.0	30.0	0.1	29.8	30.2	28.8	0.0	0.0	0.0	0.0	3.6
Cycle Q Clear(g_c), s	4.5	30.0	30.0	0.1	29.8	30.2	29.1	0.0	0.0	0.3	0.0	3.6
Prop In Lane	1.00		0.04	1.00		0.55	0.48		0.48	0.50		1.00
Lane Grp Cap(c), veh/h	227	783	817	130	661	632	586	0	0	522	0	557
V/C Ratio(X)	0.74	0.89	0.90	0.04	0.98	0.99	1.05	0.00	0.00	0.02	0.00	0.18
Avail Cap(c_a), veh/h	227	783	817	209	661	632	586	0	0	522	0	557
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.54	0.54	0.54	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.8	20.0	20.0	17.4	24.3	24.4	27.2	0.0	0.0	16.3	0.0	17.3
Incr Delay (d2), s/veh	6.7	8.8	8.6	0.1	30.5	33.1	51.5	0.0	0.0	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	12.6	13.1	0.0	16.6	16.5	19.8	0.0	0.0	0.1	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.5	28.8	28.6	17.5	54.8	57.6	78.7	0.0	0.0	16.3	0.0	17.5
LnGrp LOS	C	C	C	B	D	E	F	A	A	B	A	B
Approach Vol, veh/h		1600			1278			616				110
Approach Delay, s/veh		28.4			56.0			78.7				17.4
Approach LOS		C			E			E				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		33.2	4.5	42.3		33.2	10.2	36.6				
Change Period (Y+Rc), s		* 4.1	* 4.1	* 5.8		* 4.1	* 4.1	* 5.8				
Max Green Setting (Gmax), s		* 29	* 4	* 33		* 29	* 6.1	* 31				
Max Q Clear Time (g_c+I1), s		31.1	2.1	32.0		5.6	6.5	32.2				
Green Ext Time (p_c), s		0.0	0.0	0.7		0.3	0.0	0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			46.5									
HCM 6th LOS			D									
<b>Notes</b>												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Queues

14: Devin Drive & Sterling Highway

06/28/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	4	981	17	525	302	38	23
v/c Ratio	0.01	0.81	0.07	0.45	0.51	0.05	0.03
Control Delay	10.2	22.1	11.1	16.8	16.4	5.5	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.2	22.1	11.1	16.8	16.4	5.5	9.7
Queue Length 50th (ft)	1	125	3	68	68	1	3
Queue Length 95th (ft)	5	#274	13	130	166	17	17
Internal Link Dist (ft)		909		895		264	217
Turn Bay Length (ft)							
Base Capacity (vph)	358	1246	233	1217	593	713	746
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.79	0.07	0.43	0.51	0.05	0.03

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

## 14: Devin Drive & Sterling Highway

06/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	585	317	16	482	1	278	5	30	6	11	4
Future Volume (veh/h)	4	585	317	16	482	1	278	5	30	6	11	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821
Adj Flow Rate, veh/h	4	636	345	17	524	1	302	5	33	7	12	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	317	694	376	167	1190	2	689	84	557	240	388	116
Arrive On Green	0.00	0.32	0.32	0.02	0.34	0.34	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	1734	2165	1175	1734	3543	7	1397	207	1368	402	951	285
Grp Volume(v), veh/h	4	508	473	17	256	269	302	0	38	23	0	0
Grp Sat Flow(s),veh/h/ln	1734	1730	1610	1734	1730	1820	1397	0	1575	1637	0	0
Q Serve(g_s), s	0.1	17.5	17.5	0.4	7.1	7.1	9.5	0.0	0.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	17.5	17.5	0.4	7.1	7.1	10.0	0.0	0.9	0.5	0.0	0.0
Prop In Lane	1.00		0.73	1.00		0.00	1.00		0.87	0.30		0.17
Lane Grp Cap(c), veh/h	317	554	516	167	581	611	689	0	642	743	0	0
V/C Ratio(X)	0.01	0.92	0.92	0.10	0.44	0.44	0.44	0.00	0.06	0.03	0.00	0.00
Avail Cap(c_a), veh/h	422	560	521	250	581	611	689	0	642	743	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.4	20.2	20.2	16.3	16.0	16.0	13.8	0.0	11.1	11.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	19.9	21.0	0.3	0.5	0.5	2.0	0.0	0.2	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.4	8.9	0.2	2.6	2.8	2.7	0.0	0.3	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.5	40.2	41.2	16.5	16.5	16.5	15.8	0.0	11.3	11.1	0.0	0.0
LnGrp LOS	B	D	D	B	B	B	B	A	B	B	A	A
Approach Vol, veh/h		985			542			340				23
Approach Delay, s/veh		40.6			16.5			15.3				11.1
Approach LOS		D			B			B				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		30.4	5.6	25.8		30.4	4.7	26.8				
Change Period (Y+Rc), s		* 5.2	* 4.6	6.0		* 5.2	* 4.4	6.0				
Max Green Setting (Gmax), s		* 25	* 4	20.0		* 25	* 4	20.2				
Max Q Clear Time (g_c+I1), s		12.0	2.4	19.5		2.5	2.1	9.1				
Green Ext Time (p_c), s		0.8	0.0	0.3		0.0	0.0	2.4				

### Intersection Summary

HCM 6th Ctrl Delay	28.8
HCM 6th LOS	C

### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



HCM 6th TWSC  
1: Riverside Drive & Sterling Highway

06/28/2023

Intersection												
Int Delay, s/veh	6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↕↗		↵	↕↗			↕↗			↕↗	
Traffic Vol, veh/h	65	885	15	160	1130	45	2	1	115	1	1	240
Future Vol, veh/h	65	885	15	160	1130	45	2	1	115	1	1	240
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	300	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	68	932	16	168	1189	47	2	1	121	1	1	253

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1236	0	0	948	0	0	2007	2648	474	2152	2633	618
Stage 1	-	-	-	-	-	-	1076	1076	-	1549	1549	-
Stage 2	-	-	-	-	-	-	931	1572	-	603	1084	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	559	-	-	720	-	-	35	23	537	27	23	432
Stage 1	-	-	-	-	-	-	234	294	-	119	174	-
Stage 2	-	-	-	-	-	-	287	169	-	453	291	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	559	-	-	720	-	-	10	15	537	15	15	432
Mov Cap-2 Maneuver	-	-	-	-	-	-	10	15	-	15	15	-
Stage 1	-	-	-	-	-	-	205	258	-	104	133	-
Stage 2	-	-	-	-	-	-	91	130	-	307	255	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.8			1.4			33.9			38.2		
HCM LOS							D			E		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	245	559	-	-	720	-	-	351
HCM Lane V/C Ratio	0.507	0.122	-	-	0.234	-	-	0.726
HCM Control Delay (s)	33.9	12.3	-	-	11.5	-	-	38.2
HCM Lane LOS	D	B	-	-	B	-	-	E
HCM 95th %tile Q(veh)	2.6	0.4	-	-	0.9	-	-	5.5

## HCM 6th TWSC 2: New Street & Sterling Highway

06/28/2023

Intersection						
Int Delay, s/veh	3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↘	
Traffic Vol, veh/h	925	75	180	1295	40	125
Future Vol, veh/h	925	75	180	1295	40	125
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	974	79	189	1363	42	132

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1053	0	2074
Stage 1	-	-	-	-	1014
Stage 2	-	-	-	-	1060
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	657	-	46
Stage 1	-	-	-	-	311
Stage 2	-	-	-	-	294
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	657	-	33
Mov Cap-2 Maneuver	-	-	-	-	128
Stage 1	-	-	-	-	311
Stage 2	-	-	-	-	209

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	33.9
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	292	-	-	657	-
HCM Lane V/C Ratio	0.595	-	-	0.288	-
HCM Control Delay (s)	33.9	-	-	12.7	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	3.6	-	-	1.2	-

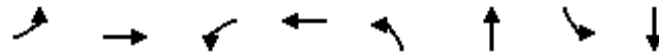
Notes  
 -: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon



Queues

3: Lovers Lane/Kobuk Street & Sterling Highway

06/28/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	53	1053	195	1153	226	242	74	237
v/c Ratio	0.20	0.68	0.59	0.62	0.93	0.42	0.31	0.43
Control Delay	9.9	23.9	16.6	17.5	72.8	10.0	27.2	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	23.9	16.6	17.5	72.8	10.0	27.2	11.5
Queue Length 50th (ft)	12	258	47	236	119	29	32	35
Queue Length 95th (ft)	28	353	79	422	#240	85	67	92
Internal Link Dist (ft)		216		658		420		423
Turn Bay Length (ft)	100		100		20		30	
Base Capacity (vph)	261	1548	354	1870	286	649	281	616
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.68	0.55	0.62	0.79	0.37	0.26	0.38

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

### HCM 6th Signalized Intersection Summary 3: Lovers Lane/Kobuk Street & Sterling Highway

06/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕		↖	↕		↖	↕	
Traffic Volume (veh/h)	50	990	10	185	1040	55	215	60	170	70	5	220
Future Volume (veh/h)	50	990	10	185	1040	55	215	60	170	70	5	220
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821
Adj Flow Rate, veh/h	53	1042	11	195	1095	58	226	63	179	74	5	232
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	220	1502	16	326	1603	85	322	139	395	323	11	504
Arrive On Green	0.03	0.43	0.43	0.03	0.16	0.16	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	1734	3508	37	1734	3342	177	1143	418	1189	1138	33	1516
Grp Volume(v), veh/h	53	514	539	195	567	586	226	0	242	74	0	237
Grp Sat Flow(s),veh/h/ln	1734	1730	1814	1734	1730	1789	1143	0	1607	1138	0	1548
Q Serve(g_s), s	1.4	21.8	21.8	5.4	27.8	27.8	17.5	0.0	10.7	4.9	0.0	10.9
Cycle Q Clear(g_c), s	1.4	21.8	21.8	5.4	27.8	27.8	28.3	0.0	10.7	15.6	0.0	10.9
Prop In Lane	1.00		0.02	1.00		0.10	1.00		0.74	1.00		0.98
Lane Grp Cap(c), veh/h	220	741	777	326	830	858	322	0	534	323	0	514
V/C Ratio(X)	0.24	0.69	0.69	0.60	0.68	0.68	0.70	0.00	0.45	0.23	0.00	0.46
Avail Cap(c_a), veh/h	246	741	777	398	830	858	322	0	534	323	0	514
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.86	0.86	0.86	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.9	20.9	20.9	17.3	31.4	31.4	34.9	0.0	23.6	29.7	0.0	23.7
Incr Delay (d2), s/veh	0.6	5.3	5.1	1.5	3.9	3.8	6.7	0.0	0.6	0.4	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	9.3	9.7	2.3	13.6	14.1	5.3	0.0	4.0	1.4	0.0	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.4	26.2	26.0	18.8	35.3	35.2	41.6	0.0	24.2	30.1	0.0	24.3
LnGrp LOS	B	C	C	B	D	D	D	A	C	C	A	C
Approach Vol, veh/h		1106			1348			468				311
Approach Delay, s/veh		25.7			32.9			32.6				25.7
Approach LOS		C			C			C				C
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		34.0	11.7	44.3		34.0	7.0	49.0				
Change Period (Y+Rc), s		* 4.1	* 4.1	* 5.8		* 4.1	* 4.1	* 5.8				
Max Green Setting (Gmax), s		* 30	* 11	* 35		* 30	* 4.3	* 42				
Max Q Clear Time (g_c+I1), s		30.3	7.4	23.8		17.6	3.4	29.8				
Green Ext Time (p_c), s		0.0	0.2	4.9		1.4	0.0	5.8				

#### Intersection Summary

HCM 6th Ctrl Delay	29.7
HCM 6th LOS	C

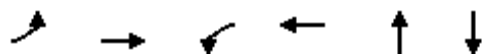
#### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

## Queues

### 4: Warehouse Drive & Sterling Highway

06/28/2023



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	26	1268	116	1205	195	84
v/c Ratio	0.07	0.58	0.35	0.50	0.73	0.29
Control Delay	2.1	6.3	6.6	5.8	36.4	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.1	6.3	6.6	5.8	36.4	12.0
Queue Length 50th (ft)	1	22	17	115	63	5
Queue Length 95th (ft)	m6	425	m12	111	124	41
Internal Link Dist (ft)		658		119	352	525
Turn Bay Length (ft)	300		300			
Base Capacity (vph)	352	2201	361	2407	418	461
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.58	0.32	0.50	0.47	0.18

#### Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

# HCM 6th Signalized Intersection Summary

## 4: Warehouse Drive & Sterling Highway

06/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↕		↖	↕			↕			↕	
Traffic Volume (veh/h)	25	1180	25	110	1140	5	70	5	110	5	5	70
Future Volume (veh/h)	25	1180	25	110	1140	5	70	5	110	5	5	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821
Adj Flow Rate, veh/h	26	1242	26	116	1200	5	74	5	116	5	5	74
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	428	1455	30	563	2373	10	131	19	139	48	24	214
Arrive On Green	0.02	0.42	0.42	0.51	1.00	1.00	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1734	3466	73	1734	3534	15	500	124	917	35	156	1411
Grp Volume(v), veh/h	26	620	648	116	587	618	195	0	0	84	0	0
Grp Sat Flow(s),veh/h/ln	1734	1730	1808	1734	1730	1818	1541	0	0	1602	0	0
Q Serve(g_s), s	0.4	29.2	29.2	0.0	0.0	0.0	6.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	29.2	29.2	0.0	0.0	0.0	10.9	0.0	0.0	4.3	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.01	0.38		0.59	0.06		0.88
Lane Grp Cap(c), veh/h	428	726	759	563	1162	1221	289	0	0	285	0	0
V/C Ratio(X)	0.06	0.85	0.85	0.21	0.51	0.51	0.68	0.00	0.00	0.29	0.00	0.00
Avail Cap(c_a), veh/h	471	842	880	563	1162	1221	445	0	0	450	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.71	0.71	0.71	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.3	23.6	23.6	15.0	0.0	0.0	36.8	0.0	0.0	34.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	9.0	8.7	0.2	1.6	1.5	2.7	0.0	0.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	12.8	13.4	1.2	0.5	0.5	4.3	0.0	0.0	1.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.4	32.6	32.3	15.1	1.6	1.5	39.6	0.0	0.0	34.8	0.0	0.0
LnGrp LOS	A	C	C	B	A	A	D	A	A	C	A	A
Approach Vol, veh/h		1294			1321			195				84
Approach Delay, s/veh		31.9			2.7			39.6				34.8
Approach LOS		C			A			D				C
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		17.7	28.7	43.6		17.7	6.0	66.2				
Change Period (Y+Rc), s		* 4.1	* 5.8	* 5.8		* 4.1	* 4.1	* 5.8				
Max Green Setting (Gmax), s		* 23	* 8.9	* 44		* 23	* 4.1	* 49				
Max Q Clear Time (g_c+I1), s		12.9	2.0	31.2		6.3	2.4	2.0				
Green Ext Time (p_c), s		0.8	0.1	6.6		0.3	0.0	10.3				

### Intersection Summary

HCM 6th Ctrl Delay	19.2
HCM 6th LOS	B

### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC  
5: Tern Circle & Sterling Highway

06/28/2023

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↘	
Traffic Vol, veh/h	1290	5	10	1250	5	10
Future Vol, veh/h	1290	5	10	1250	5	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1358	5	11	1316	5	11

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1363	0	2041
Stage 1	-	-	-	-	1361
Stage 2	-	-	-	-	680
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	500	-	49
Stage 1	-	-	-	-	203
Stage 2	-	-	-	-	465
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	500	-	48
Mov Cap-2 Maneuver	-	-	-	-	146
Stage 1	-	-	-	-	203
Stage 2	-	-	-	-	455

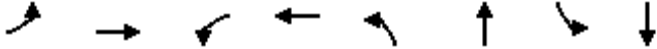
Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	20.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	251	-	-	500	-
HCM Lane V/C Ratio	0.063	-	-	0.021	-
HCM Control Delay (s)	20.3	-	-	12.4	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Queues

6: Binkley Circle/Binkley Street & Sterling Highway

06/28/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	68	1300	95	1211	5	116	174	289
v/c Ratio	0.22	0.63	0.34	0.60	0.05	0.30	0.75	0.62
Control Delay	2.2	4.8	8.3	5.7	27.4	9.8	52.9	16.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.2	4.8	8.3	5.7	27.4	9.8	52.9	16.2
Queue Length 50th (ft)	2	59	1	47	2	7	94	43
Queue Length 95th (ft)	m3	104	m16	m108	11	47	154	114
Internal Link Dist (ft)		598		1107		320		616
Turn Bay Length (ft)	200		350		70		100	
Base Capacity (vph)	319	2061	306	2017	126	489	309	554
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.63	0.31	0.60	0.04	0.24	0.56	0.52

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

# HCM 6th Signalized Intersection Summary

## 6: Binkley Circle/Binkley Street & Sterling Highway

06/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕		↖	↕		↖	↕	
Traffic Volume (veh/h)	65	1230	5	90	985	165	5	15	95	165	5	270
Future Volume (veh/h)	65	1230	5	90	985	165	5	15	95	165	5	270
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821
Adj Flow Rate, veh/h	68	1295	5	95	1037	174	5	16	100	174	5	284
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	537	1483	6	468	1139	191	133	49	308	291	6	345
Arrive On Green	0.31	0.56	0.56	0.40	0.77	0.77	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1734	3535	14	1734	2965	497	1090	217	1359	1276	27	1521
Grp Volume(v), veh/h	68	634	666	95	604	607	5	0	116	174	0	289
Grp Sat Flow(s),veh/h/ln	1734	1730	1819	1734	1730	1732	1090	0	1577	1276	0	1547
Q Serve(g_s), s	0.0	28.4	28.4	0.0	24.2	24.4	0.4	0.0	5.5	11.9	0.0	16.0
Cycle Q Clear(g_c), s	0.0	28.4	28.4	0.0	24.2	24.4	16.4	0.0	5.5	17.4	0.0	16.0
Prop In Lane	1.00		0.01	1.00		0.29	1.00		0.86	1.00		0.98
Lane Grp Cap(c), veh/h	537	726	763	468	664	665	133	0	357	291	0	351
V/C Ratio(X)	0.13	0.87	0.87	0.20	0.91	0.91	0.04	0.00	0.32	0.60	0.00	0.82
Avail Cap(c_a), veh/h	537	861	905	468	882	883	173	0	415	338	0	407
HCM Platoon Ratio	1.33	1.33	1.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.83	0.83	0.83	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.9	17.8	17.8	19.6	9.2	9.3	40.9	0.0	29.1	36.3	0.0	33.1
Incr Delay (d2), s/veh	0.1	13.7	13.2	0.2	16.2	16.5	0.1	0.0	0.5	2.2	0.0	11.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	11.3	11.8	1.2	6.2	6.3	0.1	0.0	2.1	3.8	0.0	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.0	31.5	31.0	19.8	25.4	25.8	41.0	0.0	29.6	38.5	0.0	44.5
LnGrp LOS	C	C	C	B	C	C	D	A	C	D	A	D
Approach Vol, veh/h		1368			1306			121				463
Approach Delay, s/veh		30.7			25.2			30.0				42.3
Approach LOS		C			C			C				D
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		24.5	21.9	43.6		24.5	25.1	40.4				
Change Period (Y+Rc), s		* 4.1	* 4.1	* 5.8		* 4.1	* 4.1	* 5.8				
Max Green Setting (Gmax), s		* 24	* 7.5	* 45		* 24	* 6.4	* 46				
Max Q Clear Time (g_c+I1), s		18.4	2.0	30.4		19.4	2.0	26.4				
Green Ext Time (p_c), s		0.2	0.1	7.4		1.0	0.0	8.1				

### Intersection Summary

HCM 6th Ctrl Delay	30.1
HCM 6th LOS	C

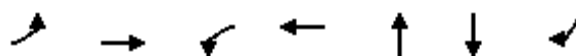
### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

## Queues

### 7: Birch Street & Sterling Highway

06/28/2023



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	53	1516	316	952	547	10	100
v/c Ratio	0.16	1.05	1.14	0.57	1.15	0.02	0.18
Control Delay	11.5	59.2	120.7	19.5	119.6	22.5	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.5	59.2	120.7	19.5	119.6	22.5	1.9
Queue Length 50th (ft)	4	-476	-162	241	-348	4	0
Queue Length 95th (ft)	m28	#618	#327	267	#548	16	12
Internal Link Dist (ft)		1107		775	289	236	
Turn Bay Length (ft)	175		100				
Base Capacity (vph)	341	1440	278	1829	474	487	549
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	1.05	1.14	0.52	1.15	0.02	0.18

#### Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



# HCM 6th Signalized Intersection Summary

## 7: Birch Street & Sterling Highway

06/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	1310	130	300	900	5	245	20	255	5	5	95
Future Volume (veh/h)	50	1310	130	300	900	5	245	20	255	5	5	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1850	1807	1850	1850	1807	1850	1850	1850	1850	1850	1850	1807
Adj Flow Rate, veh/h	53	1379	137	316	947	5	258	21	268	5	5	100
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	0	0	3	0	0	0	0	0	0	3
Cap, veh/h	470	1339	132	293	1176	6	260	16	208	225	207	458
Arrive On Green	0.25	0.56	0.56	0.12	0.34	0.34	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1762	3155	312	1762	3501	18	671	55	698	553	691	1531
Grp Volume(v), veh/h	53	747	769	316	464	488	547	0	0	10	0	100
Grp Sat Flow(s),veh/h/ln	1762	1716	1751	1762	1716	1803	1424	0	0	1244	0	1531
Q Serve(g_s), s	0.0	38.2	38.2	10.9	22.2	22.2	26.6	0.0	0.0	0.0	0.0	4.4
Cycle Q Clear(g_c), s	0.0	38.2	38.2	10.9	22.2	22.2	26.9	0.0	0.0	0.3	0.0	4.4
Prop In Lane	1.00		0.18	1.00		0.01	0.47		0.49	0.50		1.00
Lane Grp Cap(c), veh/h	470	729	743	293	576	606	484	0	0	432	0	458
V/C Ratio(X)	0.11	1.03	1.04	1.08	0.81	0.81	1.13	0.00	0.00	0.02	0.00	0.22
Avail Cap(c_a), veh/h	470	729	743	293	858	902	484	0	0	432	0	458
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.72	0.72	0.72	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.4	19.6	19.6	26.9	27.2	27.2	33.3	0.0	0.0	22.2	0.0	23.7
Incr Delay (d2), s/veh	0.1	34.9	37.5	74.6	11.4	10.9	81.4	0.0	0.0	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	18.3	19.2	9.0	10.4	10.9	21.8	0.0	0.0	0.2	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.5	54.5	57.1	101.5	38.7	38.2	114.7	0.0	0.0	22.3	0.0	23.9
LnGrp LOS	C	F	F	F	D	D	F	A	A	C	A	C
Approach Vol, veh/h		1569			1268			547				110
Approach Delay, s/veh		54.7			54.1			114.7				23.8
Approach LOS		D			D			F				C
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		31.0	15.0	44.0		31.0	23.0	36.0				
Change Period (Y+Rc), s		* 4.1	* 4.1	* 5.8		* 4.1	* 5.8	* 5.8				
Max Green Setting (Gmax), s		* 27	* 11	* 38		* 27	* 4.1	* 45				
Max Q Clear Time (g_c+I1), s		28.9	12.9	40.2		6.4	2.0	24.2				
Green Ext Time (p_c), s		0.0	0.0	0.0		0.3	0.0	6.1				

### Intersection Summary

HCM 6th Ctrl Delay	62.9
HCM 6th LOS	E

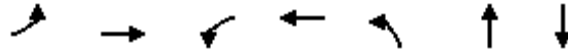
### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues

14: Devin Drive & Sterling Highway

06/28/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	4	981	17	525	302	38	23
v/c Ratio	0.01	0.81	0.07	0.45	0.51	0.05	0.03
Control Delay	10.2	22.1	11.1	16.8	16.4	5.5	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.2	22.1	11.1	16.8	16.4	5.5	9.7
Queue Length 50th (ft)	1	125	3	68	68	1	3
Queue Length 95th (ft)	5	#274	13	130	166	17	17
Internal Link Dist (ft)		909		895		264	217
Turn Bay Length (ft)							
Base Capacity (vph)	358	1246	233	1217	593	713	746
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.79	0.07	0.43	0.51	0.05	0.03

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

## 14: Devin Drive & Sterling Highway

06/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	585	317	16	482	1	278	5	30	6	11	4
Future Volume (veh/h)	4	585	317	16	482	1	278	5	30	6	11	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821
Adj Flow Rate, veh/h	4	636	345	17	524	1	302	5	33	7	12	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	317	694	376	167	1190	2	689	84	557	240	388	116
Arrive On Green	0.00	0.32	0.32	0.02	0.34	0.34	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	1734	2165	1175	1734	3543	7	1397	207	1368	402	951	285
Grp Volume(v), veh/h	4	508	473	17	256	269	302	0	38	23	0	0
Grp Sat Flow(s),veh/h/ln	1734	1730	1610	1734	1730	1820	1397	0	1575	1637	0	0
Q Serve(g_s), s	0.1	17.5	17.5	0.4	7.1	7.1	9.5	0.0	0.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	17.5	17.5	0.4	7.1	7.1	10.0	0.0	0.9	0.5	0.0	0.0
Prop In Lane	1.00		0.73	1.00		0.00	1.00		0.87	0.30		0.17
Lane Grp Cap(c), veh/h	317	554	516	167	581	611	689	0	642	743	0	0
V/C Ratio(X)	0.01	0.92	0.92	0.10	0.44	0.44	0.44	0.00	0.06	0.03	0.00	0.00
Avail Cap(c_a), veh/h	422	560	521	250	581	611	689	0	642	743	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.4	20.2	20.2	16.3	16.0	16.0	13.8	0.0	11.1	11.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	19.9	21.0	0.3	0.5	0.5	2.0	0.0	0.2	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.4	8.9	0.2	2.6	2.8	2.7	0.0	0.3	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.5	40.2	41.2	16.5	16.5	16.5	15.8	0.0	11.3	11.1	0.0	0.0
LnGrp LOS	B	D	D	B	B	B	B	A	B	B	A	A
Approach Vol, veh/h		985			542			340				23
Approach Delay, s/veh		40.6			16.5			15.3				11.1
Approach LOS		D			B			B				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		30.4	5.6	25.8		30.4	4.7	26.8				
Change Period (Y+Rc), s		* 5.2	* 4.6	6.0		* 5.2	* 4.4	6.0				
Max Green Setting (Gmax), s		* 25	* 4	20.0		* 25	* 4	20.2				
Max Q Clear Time (g_c+I1), s		12.0	2.4	19.5		2.5	2.1	9.1				
Green Ext Time (p_c), s		0.8	0.0	0.3		0.0	0.0	2.4				

### Intersection Summary

HCM 6th Ctrl Delay	28.8
HCM 6th LOS	C

### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



## Queues

### 1: Riverside Drive & Sterling Highway

06/28/2023



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	68	948	168	1115	274	284
v/c Ratio	0.23	0.57	0.45	0.60	1.00	0.54
Control Delay	9.6	20.2	13.5	12.0	80.4	14.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.6	20.2	13.5	12.0	80.4	14.1
Queue Length 50th (ft)	13	201	12	79	130	49
Queue Length 95th (ft)	35	310	m66	255	#251	111
Internal Link Dist (ft)		804		476	311	453
Turn Bay Length (ft)	300		300			
Base Capacity (vph)	293	1662	406	1851	351	639
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.57	0.41	0.60	0.78	0.44

#### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

# HCM 6th Signalized Intersection Summary

## 1: Riverside Drive & Sterling Highway

06/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	885	15	160	1015	45	115	30	115	25	5	240
Future Volume (veh/h)	65	885	15	160	1015	45	115	30	115	25	5	240
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821
Adj Flow Rate, veh/h	68	932	16	168	1068	47	121	32	121	26	5	253
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	419	1104	19	546	1841	81	177	55	137	66	24	378
Arrive On Green	0.04	0.32	0.32	0.49	1.00	1.00	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1734	3481	60	1734	3376	149	453	208	522	85	91	1439
Grp Volume(v), veh/h	68	463	485	168	547	568	274	0	0	284	0	0
Grp Sat Flow(s),veh/h/ln	1734	1730	1810	1734	1730	1794	1183	0	0	1615	0	0
Q Serve(g_s), s	1.5	22.5	22.5	0.0	0.0	0.0	6.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.5	22.5	22.5	0.0	0.0	0.0	20.5	0.0	0.0	14.3	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.08	0.44		0.44	0.09		0.89
Lane Grp Cap(c), veh/h	419	549	574	546	944	979	368	0	0	468	0	0
V/C Ratio(X)	0.16	0.84	0.84	0.31	0.58	0.58	0.74	0.00	0.00	0.61	0.00	0.00
Avail Cap(c_a), veh/h	450	657	688	546	944	979	477	0	0	590	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.2	28.6	28.6	16.5	0.0	0.0	32.1	0.0	0.0	29.8	0.0	0.0
Incr Delay (d2), s/veh	0.2	14.7	14.1	0.3	2.6	2.5	4.5	0.0	0.0	1.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	11.1	11.5	1.8	0.7	0.7	6.1	0.0	0.0	5.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.4	43.3	42.8	16.9	2.6	2.5	36.7	0.0	0.0	31.1	0.0	0.0
LnGrp LOS	A	D	D	B	A	A	D	A	A	C	A	A
Approach Vol, veh/h		1016			1283			274				284
Approach Delay, s/veh		40.7			4.4			36.7				31.1
Approach LOS		D			A			D				C
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		27.7	27.9	34.4		27.7	7.4	54.9				
Change Period (Y+Rc), s		* 4.1	* 5.8	* 5.8		* 4.1	* 4.1	* 5.8				
Max Green Setting (Gmax), s		* 31	* 11	* 34		* 31	* 4.9	* 40				
Max Q Clear Time (g_c+I1), s		22.5	2.0	24.5		16.3	3.5	2.0				
Green Ext Time (p_c), s		1.1	0.3	4.1		1.6	0.0	8.9				

### Intersection Summary

HCM 6th Ctrl Delay	23.1
HCM 6th LOS	C

### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC  
2: New Street & Sterling Highway

06/28/2023

Intersection						
Int Delay, s/veh	3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↘	
Traffic Vol, veh/h	950	75	180	1180	40	125
Future Vol, veh/h	950	75	180	1180	40	125
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1000	79	189	1242	42	132

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1079	0	2039
Stage 1	-	-	-	-	1040
Stage 2	-	-	-	-	999
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	642	-	49
Stage 1	-	-	-	-	302
Stage 2	-	-	-	-	317
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	642	-	35
Mov Cap-2 Maneuver	-	-	-	-	133
Stage 1	-	-	-	-	302
Stage 2	-	-	-	-	224

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	33.1
HCM LOS			D

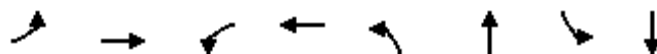
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	296	-	-	642	-
HCM Lane V/C Ratio	0.587	-	-	0.295	-
HCM Control Delay (s)	33.1	-	-	12.9	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	3.5	-	-	1.2	-

Notes  
 -: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

## Queues

### 3: Lovers Lane/Kobuk Street & Sterling Highway

06/28/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	53	1079	195	1153	105	211	47	237
v/c Ratio	0.15	0.58	0.49	0.53	0.93	0.49	0.35	0.54
Control Delay	2.8	5.0	14.2	3.4	102.8	10.9	37.1	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.8	5.0	14.2	3.4	102.8	10.9	37.1	12.3
Queue Length 50th (ft)	3	57	29	51	59	15	24	22
Queue Length 95th (ft)	m7	77	94	43	#128	68	52	79
Internal Link Dist (ft)		216		658		420		423
Turn Bay Length (ft)	100		100		20		30	
Base Capacity (vph)	351	1870	457	2157	167	553	197	553
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.58	0.43	0.53	0.63	0.38	0.24	0.43

#### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



### HCM 6th Signalized Intersection Summary 3: Lovers Lane/Kobuk Street & Sterling Highway

06/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	1015	10	185	1040	55	100	30	170	45	5	220
Future Volume (veh/h)	50	1015	10	185	1040	55	100	30	170	45	5	220
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821
Adj Flow Rate, veh/h	53	1068	11	195	1095	58	105	32	179	47	5	232
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	530	1258	13	529	1221	65	212	60	336	238	8	380
Arrive On Green	0.23	0.36	0.36	0.47	0.73	0.73	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1734	3509	36	1734	3342	177	1143	240	1340	1171	33	1516
Grp Volume(v), veh/h	53	527	552	195	567	586	105	0	211	47	0	237
Grp Sat Flow(s),veh/h/ln	1734	1730	1815	1734	1730	1789	1143	0	1580	1171	0	1548
Q Serve(g_s), s	0.0	25.3	25.3	0.0	23.0	23.1	8.1	0.0	10.4	3.3	0.0	12.2
Cycle Q Clear(g_c), s	0.0	25.3	25.3	0.0	23.0	23.1	20.2	0.0	10.4	13.7	0.0	12.2
Prop In Lane	1.00		0.02	1.00		0.10	1.00		0.85	1.00		0.98
Lane Grp Cap(c), veh/h	530	620	651	529	632	654	212	0	396	238	0	388
V/C Ratio(X)	0.10	0.85	0.85	0.37	0.90	0.90	0.50	0.00	0.53	0.20	0.00	0.61
Avail Cap(c_a), veh/h	530	732	768	529	888	918	230	0	421	257	0	413
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.85	0.85	0.85	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.1	26.6	26.6	17.5	10.8	10.8	38.8	0.0	29.2	35.1	0.0	29.8
Incr Delay (d2), s/veh	0.1	13.6	13.0	0.4	15.7	15.3	1.8	0.0	1.1	0.4	0.0	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	12.1	12.6	2.2	6.3	6.5	2.3	0.0	4.0	0.9	0.0	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.2	40.2	39.6	17.9	26.5	26.1	40.6	0.0	30.3	35.5	0.0	32.2
LnGrp LOS	C	D	D	B	C	C	D	A	C	D	A	C
Approach Vol, veh/h		1132			1348			316				284
Approach Delay, s/veh		39.1			25.1			33.7				32.8
Approach LOS		D			C			C				C
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		26.6	25.3	38.1		26.6	24.7	38.7				
Change Period (Y+Rc), s		* 4.1	* 4.1	* 5.8		* 4.1	* 4.1	* 5.8				
Max Green Setting (Gmax), s		* 24	* 14	* 38		* 24	* 5.8	* 46				
Max Q Clear Time (g_c+I1), s		22.2	2.0	27.3		15.7	2.0	25.1				
Green Ext Time (p_c), s		0.3	0.4	5.0		1.0	0.0	7.8				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				31.8								
HCM 6th LOS				C								
<b>Notes</b>												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Queues

4: Warehouse Drive & Sterling Highway

06/28/2023



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	26	1268	116	1205	195	84
v/c Ratio	0.07	0.58	0.34	0.51	0.73	0.29
Control Delay	1.5	3.9	8.6	10.9	36.4	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.5	3.9	8.6	10.9	36.4	12.0
Queue Length 50th (ft)	1	58	13	105	63	5
Queue Length 95th (ft)	m1	77	m67	408	124	41
Internal Link Dist (ft)		658		119	352	525
Turn Bay Length (ft)	300		300			
Base Capacity (vph)	358	2190	365	2384	418	461
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.58	0.32	0.51	0.47	0.18

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

# HCM 6th Signalized Intersection Summary

## 4: Warehouse Drive & Sterling Highway

06/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕			↕			↕	
Traffic Volume (veh/h)	25	1180	25	110	1140	5	70	5	110	5	5	70
Future Volume (veh/h)	25	1180	25	110	1140	5	70	5	110	5	5	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821
Adj Flow Rate, veh/h	26	1242	26	116	1200	5	74	5	116	5	5	74
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	547	2254	47	438	1529	6	131	19	139	48	24	214
Arrive On Green	0.48	1.00	1.00	0.01	0.14	0.14	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1734	3466	73	1734	3534	15	500	124	917	35	156	1411
Grp Volume(v), veh/h	26	620	648	116	587	618	195	0	0	84	0	0
Grp Sat Flow(s),veh/h/ln	1734	1730	1808	1734	1730	1818	1541	0	0	1602	0	0
Q Serve(g_s), s	0.0	0.0	0.0	1.9	29.5	29.5	6.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	1.9	29.5	29.5	10.9	0.0	0.0	4.3	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.01	0.38		0.59	0.06		0.88
Lane Grp Cap(c), veh/h	547	1125	1176	438	748	787	289	0	0	285	0	0
V/C Ratio(X)	0.05	0.55	0.55	0.26	0.78	0.79	0.68	0.00	0.00	0.29	0.00	0.00
Avail Cap(c_a), veh/h	547	1125	1176	536	934	982	445	0	0	450	0	0
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.80	0.80	0.80	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.6	0.0	0.0	4.7	34.5	34.5	36.8	0.0	0.0	34.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.6	1.5	0.3	8.1	7.7	2.7	0.0	0.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.5	0.5	0.6	15.2	15.9	4.3	0.0	0.0	1.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.7	1.6	1.5	5.0	42.6	42.3	39.6	0.0	0.0	34.8	0.0	0.0
LnGrp LOS	B	A	A	A	D	D	D	A	A	C	A	A
Approach Vol, veh/h		1294			1321			195				84
Approach Delay, s/veh		1.8			39.2			39.6				34.8
Approach LOS		A			D			D				C
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		17.7	7.9	64.3		17.7	27.5	44.7				
Change Period (Y+Rc), s		* 4.1	* 4.1	* 5.8		* 4.1	* 5.8	* 5.8				
Max Green Setting (Gmax), s		* 23	* 8.9	* 44		* 23	* 4.1	* 49				
Max Q Clear Time (g_c+I1), s		12.9	3.9	2.0		6.3	2.0	31.5				
Green Ext Time (p_c), s		0.8	0.1	11.1		0.3	0.0	7.4				

### Intersection Summary

HCM 6th Ctrl Delay	22.3
HCM 6th LOS	C

### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC  
5: Tern Circle & Sterling Highway

06/28/2023

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↘	
Traffic Vol, veh/h	1290	5	10	1250	5	10
Future Vol, veh/h	1290	5	10	1250	5	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1358	5	11	1316	5	11

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1363	0	2041
Stage 1	-	-	-	-	1361
Stage 2	-	-	-	-	680
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	500	-	49
Stage 1	-	-	-	-	203
Stage 2	-	-	-	-	465
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	500	-	48
Mov Cap-2 Maneuver	-	-	-	-	146
Stage 1	-	-	-	-	203
Stage 2	-	-	-	-	455

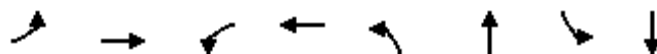
Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	20.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	251	-	-	500	-
HCM Lane V/C Ratio	0.063	-	-	0.021	-
HCM Control Delay (s)	20.3	-	-	12.4	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Queues

6: Binkley Circle/Binkley Street & Sterling Highway

06/28/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	68	1300	95	1211	5	116	174	289
v/c Ratio	0.22	0.63	0.34	0.60	0.05	0.30	0.75	0.61
Control Delay	3.0	5.4	7.0	6.7	27.4	9.8	52.9	14.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.0	5.4	7.0	6.7	27.4	9.8	52.9	14.6
Queue Length 50th (ft)	5	92	6	49	2	7	94	37
Queue Length 95th (ft)	m2	47	m11	m112	11	47	154	106
Internal Link Dist (ft)		598		1107		320		616
Turn Bay Length (ft)	200		350		70		100	
Base Capacity (vph)	310	2061	303	2026	126	489	309	564
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.63	0.31	0.60	0.04	0.24	0.56	0.51

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

# HCM 6th Signalized Intersection Summary

## 6: Binkley Circle/Binkley Street & Sterling Highway

06/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↕		↖	↕		↗	↕		↖	↕	
Traffic Volume (veh/h)	65	1230	5	90	985	165	5	15	95	165	5	270
Future Volume (veh/h)	65	1230	5	90	985	165	5	15	95	165	5	270
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821
Adj Flow Rate, veh/h	68	1295	5	95	1037	174	5	16	100	174	5	284
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	411	1547	6	400	1724	289	133	49	308	291	6	345
Arrive On Green	0.02	0.29	0.29	0.32	1.00	1.00	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1734	3535	14	1734	2965	497	1090	217	1359	1276	27	1521
Grp Volume(v), veh/h	68	634	666	95	604	607	5	0	116	174	0	289
Grp Sat Flow(s),veh/h/ln	1734	1730	1819	1734	1730	1732	1090	0	1577	1276	0	1547
Q Serve(g_s), s	1.4	30.9	30.9	0.0	0.0	0.0	0.4	0.0	5.5	11.9	0.0	16.0
Cycle Q Clear(g_c), s	1.4	30.9	30.9	0.0	0.0	0.0	16.4	0.0	5.5	17.4	0.0	16.0
Prop In Lane	1.00		0.01	1.00		0.29	1.00		0.86	1.00		0.98
Lane Grp Cap(c), veh/h	411	757	796	400	1006	1007	133	0	357	291	0	351
V/C Ratio(X)	0.17	0.84	0.84	0.24	0.60	0.60	0.04	0.00	0.32	0.60	0.00	0.82
Avail Cap(c_a), veh/h	472	861	905	400	1006	1007	173	0	415	338	0	407
HCM Platoon Ratio	0.67	0.67	0.67	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.83	0.83	0.83	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.9	28.8	28.8	23.8	0.0	0.0	40.9	0.0	29.1	36.3	0.0	33.1
Incr Delay (d2), s/veh	0.2	10.7	10.2	0.3	2.2	2.2	0.1	0.0	0.5	2.2	0.0	11.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	15.3	16.0	1.4	0.6	0.6	0.1	0.0	2.1	3.8	0.0	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.1	39.4	39.0	24.0	2.2	2.2	41.0	0.0	29.6	38.5	0.0	44.5
LnGrp LOS	A	D	D	C	A	A	D	A	C	D	A	D
Approach Vol, veh/h		1368			1306			121				463
Approach Delay, s/veh		37.6			3.8			30.0				42.3
Approach LOS		D			A			C				D
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		24.5	20.3	45.2		24.5	7.4	58.1				
Change Period (Y+Rc), s		* 4.1	* 5.8	* 5.8		* 4.1	* 4.1	* 5.8				
Max Green Setting (Gmax), s		* 24	* 7.5	* 45		* 24	* 6.4	* 46				
Max Q Clear Time (g_c+I1), s		18.4	2.0	32.9		19.4	3.4	2.0				
Green Ext Time (p_c), s		0.2	0.1	6.5		1.0	0.0	10.6				

### Intersection Summary

HCM 6th Ctrl Delay	24.4
HCM 6th LOS	C

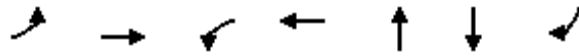
### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues

7: Birch Street & Sterling Highway

06/28/2023



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	53	1516	316	952	547	10	100
v/c Ratio	0.16	1.05	1.14	0.57	1.15	0.02	0.18
Control Delay	5.2	57.5	120.7	19.5	119.6	22.5	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.2	57.5	120.7	19.5	119.6	22.5	1.9
Queue Length 50th (ft)	4	~506	~162	241	~348	4	0
Queue Length 95th (ft)	m11	#616	#327	267	#548	16	12
Internal Link Dist (ft)		1107		775	289	236	
Turn Bay Length (ft)	175		100				
Base Capacity (vph)	341	1440	278	1829	474	487	549
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	1.05	1.14	0.52	1.15	0.02	0.18

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

# HCM 6th Signalized Intersection Summary

## 7: Birch Street & Sterling Highway

06/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	1310	130	300	900	5	245	20	255	5	5	95
Future Volume (veh/h)	50	1310	130	300	900	5	245	20	255	5	5	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1850	1807	1850	1850	1807	1850	1850	1850	1850	1850	1850	1807
Adj Flow Rate, veh/h	53	1379	137	316	947	5	258	21	268	5	5	100
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	0	0	3	0	0	0	0	0	0	3
Cap, veh/h	470	1339	132	293	1176	6	260	16	208	225	207	458
Arrive On Green	0.38	0.85	0.85	0.12	0.34	0.34	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1762	3155	312	1762	3501	18	671	55	698	553	691	1531
Grp Volume(v), veh/h	53	747	769	316	464	488	547	0	0	10	0	100
Grp Sat Flow(s),veh/h/ln	1762	1716	1751	1762	1716	1803	1424	0	0	1244	0	1531
Q Serve(g_s), s	0.0	38.2	38.2	10.9	22.2	22.2	26.6	0.0	0.0	0.0	0.0	4.4
Cycle Q Clear(g_c), s	0.0	38.2	38.2	10.9	22.2	22.2	26.9	0.0	0.0	0.3	0.0	4.4
Prop In Lane	1.00		0.18	1.00		0.01	0.47		0.49	0.50		1.00
Lane Grp Cap(c), veh/h	470	729	743	293	576	606	484	0	0	432	0	458
V/C Ratio(X)	0.11	1.03	1.04	1.08	0.81	0.81	1.13	0.00	0.00	0.02	0.00	0.22
Avail Cap(c_a), veh/h	470	729	743	293	858	902	484	0	0	432	0	458
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.72	0.72	0.72	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.1	6.8	6.8	26.9	27.2	27.2	33.3	0.0	0.0	22.2	0.0	23.7
Incr Delay (d2), s/veh	0.1	34.9	37.5	74.6	11.4	10.9	81.4	0.0	0.0	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	9.5	10.2	9.0	10.4	10.9	21.8	0.0	0.0	0.2	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.2	41.7	44.3	101.5	38.7	38.2	114.7	0.0	0.0	22.3	0.0	23.9
LnGrp LOS	B	F	F	F	D	D	F	A	A	C	A	C
Approach Vol, veh/h		1569			1268			547				110
Approach Delay, s/veh		42.2			54.1			114.7				23.8
Approach LOS		D			D			F				C
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		31.0	15.0	44.0		31.0	23.0	36.0				
Change Period (Y+Rc), s		* 4.1	* 4.1	* 5.8		* 4.1	* 5.8	* 5.8				
Max Green Setting (Gmax), s		* 27	* 11	* 38		* 27	* 4.1	* 45				
Max Q Clear Time (g_c+I1), s		28.9	12.9	40.2		6.4	2.0	24.2				
Green Ext Time (p_c), s		0.0	0.0	0.0		0.3	0.0	6.1				

### Intersection Summary

HCM 6th Ctrl Delay	57.3
HCM 6th LOS	E

### Notes

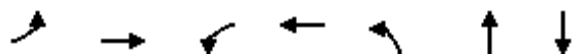
\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Queues

14: Devin Drive & Sterling Highway

06/28/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	4	981	17	525	302	38	23
v/c Ratio	0.01	0.81	0.07	0.45	0.51	0.05	0.03
Control Delay	10.2	22.1	11.1	16.8	16.4	5.5	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.2	22.1	11.1	16.8	16.4	5.5	9.7
Queue Length 50th (ft)	1	125	3	68	68	1	3
Queue Length 95th (ft)	5	#274	13	130	166	17	17
Internal Link Dist (ft)		909		895		264	217
Turn Bay Length (ft)							
Base Capacity (vph)	358	1246	233	1217	593	713	746
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.79	0.07	0.43	0.51	0.05	0.03

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

## 14: Devin Drive & Sterling Highway

06/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	585	317	16	482	1	278	5	30	6	11	4
Future Volume (veh/h)	4	585	317	16	482	1	278	5	30	6	11	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821
Adj Flow Rate, veh/h	4	636	345	17	524	1	302	5	33	7	12	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	317	694	376	167	1190	2	689	84	557	240	388	116
Arrive On Green	0.00	0.32	0.32	0.02	0.34	0.34	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	1734	2165	1175	1734	3543	7	1397	207	1368	402	951	285
Grp Volume(v), veh/h	4	508	473	17	256	269	302	0	38	23	0	0
Grp Sat Flow(s),veh/h/ln	1734	1730	1610	1734	1730	1820	1397	0	1575	1637	0	0
Q Serve(g_s), s	0.1	17.5	17.5	0.4	7.1	7.1	9.5	0.0	0.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	17.5	17.5	0.4	7.1	7.1	10.0	0.0	0.9	0.5	0.0	0.0
Prop In Lane	1.00		0.73	1.00		0.00	1.00		0.87	0.30		0.17
Lane Grp Cap(c), veh/h	317	554	516	167	581	611	689	0	642	743	0	0
V/C Ratio(X)	0.01	0.92	0.92	0.10	0.44	0.44	0.44	0.00	0.06	0.03	0.00	0.00
Avail Cap(c_a), veh/h	422	560	521	250	581	611	689	0	642	743	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.4	20.2	20.2	16.3	16.0	16.0	13.8	0.0	11.1	11.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	19.9	21.0	0.3	0.5	0.5	2.0	0.0	0.2	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.4	8.9	0.2	2.6	2.8	2.7	0.0	0.3	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.5	40.2	41.2	16.5	16.5	16.5	15.8	0.0	11.3	11.1	0.0	0.0
LnGrp LOS	B	D	D	B	B	B	B	A	B	B	A	A
Approach Vol, veh/h		985			542			340				23
Approach Delay, s/veh		40.6			16.5			15.3				11.1
Approach LOS		D			B			B				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		30.4	5.6	25.8		30.4	4.7	26.8				
Change Period (Y+Rc), s		* 5.2	* 4.6	6.0		* 5.2	* 4.4	6.0				
Max Green Setting (Gmax), s		* 25	* 4	20.0		* 25	* 4	20.2				
Max Q Clear Time (g_c+I1), s		12.0	2.4	19.5		2.5	2.1	9.1				
Green Ext Time (p_c), s		0.8	0.0	0.3		0.0	0.0	2.4				

### Intersection Summary

HCM 6th Ctrl Delay	28.8
HCM 6th LOS	C

### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



HCM 6th TWSC  
1: Riverside Drive & Sterling Highway

06/28/2023

Intersection												
Int Delay, s/veh	6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↕↗		↵	↕↗			↕↗			↕↗	
Traffic Vol, veh/h	65	885	15	160	1130	45	2	1	115	1	1	240
Future Vol, veh/h	65	885	15	160	1130	45	2	1	115	1	1	240
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	300	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	68	932	16	168	1189	47	2	1	121	1	1	253

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1236	0	0	948	0	0	2007	2648	474	2152	2633	618
Stage 1	-	-	-	-	-	-	1076	1076	-	1549	1549	-
Stage 2	-	-	-	-	-	-	931	1572	-	603	1084	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	559	-	-	720	-	-	35	23	537	27	23	432
Stage 1	-	-	-	-	-	-	234	294	-	119	174	-
Stage 2	-	-	-	-	-	-	287	169	-	453	291	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	559	-	-	720	-	-	10	15	537	15	15	432
Mov Cap-2 Maneuver	-	-	-	-	-	-	10	15	-	15	15	-
Stage 1	-	-	-	-	-	-	205	258	-	104	133	-
Stage 2	-	-	-	-	-	-	91	130	-	307	255	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0.8		1.4		33.9		38.2	
HCM LOS					D		E	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	245	559	-	-	720	-	-	351
HCM Lane V/C Ratio	0.507	0.122	-	-	0.234	-	-	0.726
HCM Control Delay (s)	33.9	12.3	-	-	11.5	-	-	38.2
HCM Lane LOS	D	B	-	-	B	-	-	E
HCM 95th %tile Q(veh)	2.6	0.4	-	-	0.9	-	-	5.5

HCM 6th TWSC  
2: New Street & Sterling Highway

06/28/2023

Intersection						
Int Delay, s/veh	3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↘	
Traffic Vol, veh/h	925	75	180	1295	40	125
Future Vol, veh/h	925	75	180	1295	40	125
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	974	79	189	1363	42	132

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1053	0	2074
Stage 1	-	-	-	-	1014
Stage 2	-	-	-	-	1060
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	657	-	46
Stage 1	-	-	-	-	311
Stage 2	-	-	-	-	294
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	657	-	33
Mov Cap-2 Maneuver	-	-	-	-	128
Stage 1	-	-	-	-	311
Stage 2	-	-	-	-	209

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	33.9
HCM LOS			D

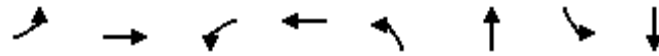
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	292	-	-	657	-
HCM Lane V/C Ratio	0.595	-	-	0.288	-
HCM Control Delay (s)	33.9	-	-	12.7	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	3.6	-	-	1.2	-

Notes  
 -: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

Queues

3: Lovers Lane/Kobuk Street & Sterling Highway

06/28/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	53	1053	195	1079	300	247	74	237
v/c Ratio	0.22	0.79	0.72	0.66	0.94	0.38	0.24	0.37
Control Delay	11.3	28.0	34.9	11.2	64.6	9.3	20.4	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	28.0	34.9	11.2	64.6	9.3	20.4	8.0
Queue Length 50th (ft)	12	248	37	127	138	31	25	23
Queue Length 95th (ft)	28	#336	m#139	173	#286	83	57	72
Internal Link Dist (ft)		216		658		420		423
Turn Bay Length (ft)	100		100		20		30	
Base Capacity (vph)	238	1329	273	1635	342	682	333	666
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.79	0.71	0.66	0.88	0.36	0.22	0.36

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

### HCM 6th Signalized Intersection Summary 3: Lovers Lane/Kobuk Street & Sterling Highway

06/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷		↶	↷	
Traffic Volume (veh/h)	50	990	10	185	970	55	285	65	170	70	5	220
Future Volume (veh/h)	50	990	10	185	970	55	285	65	170	70	5	220
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821
Adj Flow Rate, veh/h	53	1042	11	195	1021	58	300	68	179	74	5	232
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	231	1306	14	306	1428	81	371	160	422	368	12	548
Arrive On Green	0.03	0.37	0.37	0.06	0.29	0.29	0.36	0.36	0.36	0.36	0.36	0.36
Sat Flow, veh/h	1734	3508	37	1734	3328	189	1143	444	1167	1133	33	1516
Grp Volume(v), veh/h	53	514	539	195	531	548	300	0	247	74	0	237
Grp Sat Flow(s),veh/h/ln	1734	1730	1814	1734	1730	1787	1143	0	1611	1133	0	1548
Q Serve(g_s), s	1.4	21.2	21.2	5.4	22.0	22.0	19.7	0.0	9.3	4.2	0.0	9.2
Cycle Q Clear(g_c), s	1.4	21.2	21.2	5.4	22.0	22.0	28.9	0.0	9.3	13.5	0.0	9.2
Prop In Lane	1.00		0.02	1.00		0.11	1.00		0.72	1.00		0.98
Lane Grp Cap(c), veh/h	231	644	675	306	742	767	371	0	582	368	0	559
V/C Ratio(X)	0.23	0.80	0.80	0.64	0.71	0.71	0.81	0.00	0.42	0.20	0.00	0.42
Avail Cap(c_a), veh/h	259	644	675	319	742	767	371	0	582	368	0	559
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.2	22.4	22.4	17.8	24.1	24.1	30.8	0.0	19.3	24.4	0.0	19.3
Incr Delay (d2), s/veh	0.5	10.0	9.5	4.0	5.8	5.6	12.5	0.0	0.5	0.3	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	9.7	10.1	2.3	10.4	10.7	6.9	0.0	3.4	1.1	0.0	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.7	32.4	32.0	21.8	29.9	29.7	43.3	0.0	19.8	24.6	0.0	19.8
LnGrp LOS	B	C	C	C	C	C	D	A	B	C	A	B
Approach Vol, veh/h		1106			1274			547				311
Approach Delay, s/veh		31.4			28.6			32.7				20.9
Approach LOS		C			C			C				C
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		33.0	11.4	35.6		33.0	6.9	40.1				
Change Period (Y+Rc), s		* 4.1	* 4.1	* 5.8		* 4.1	* 4.1	* 5.8				
Max Green Setting (Gmax), s		* 29	* 7.9	* 29		* 29	* 4.1	* 33				
Max Q Clear Time (g_c+I1), s		30.9	7.4	23.2		15.5	3.4	24.0				
Green Ext Time (p_c), s		0.0	0.0	3.2		1.5	0.0	4.4				

#### Intersection Summary

HCM 6th Ctrl Delay	29.5
HCM 6th LOS	C

#### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC  
4: Warehouse Drive & Sterling Highway

06/28/2023

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↕		↵	↕			↕			↕	↕
Traffic Vol, veh/h	25	1185	25	110	1140	5	2	1	110	2	1	70
Future Vol, veh/h	25	1185	25	110	1140	5	2	1	110	2	1	70
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	300	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	1247	26	116	1200	5	2	1	116	2	1	74

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1205	0	0	1273	0	0	2145	2749	637	2111	2760	603
Stage 1	-	-	-	-	-	-	1312	1312	-	1435	1435	-
Stage 2	-	-	-	-	-	-	833	1437	-	676	1325	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	575	-	-	541	-	-	27	20	420	29	19	442
Stage 1	-	-	-	-	-	-	167	227	-	140	197	-
Stage 2	-	-	-	-	-	-	329	197	-	409	223	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	575	-	-	541	-	-	17	15	420	16	14	442
Mov Cap-2 Maneuver	-	-	-	-	-	-	17	15	-	16	14	-
Stage 1	-	-	-	-	-	-	159	217	-	134	155	-
Stage 2	-	-	-	-	-	-	214	155	-	281	213	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			1.2			31.2			32.5		
HCM LOS							D			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	253	575	-	-	541	-	-	206
HCM Lane V/C Ratio	0.47	0.046	-	-	0.214	-	-	0.373
HCM Control Delay (s)	31.2	11.6	-	-	13.5	-	-	32.5
HCM Lane LOS	D	B	-	-	B	-	-	D
HCM 95th %tile Q(veh)	2.3	0.1	-	-	0.8	-	-	1.6



HCM 6th TWSC  
5: Tern Circle & Sterling Highway

06/28/2023

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↘	
Traffic Vol, veh/h	1290	5	10	1250	5	10
Future Vol, veh/h	1290	5	10	1250	5	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1358	5	11	1316	5	11

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1363	0	2041
Stage 1	-	-	-	-	1361
Stage 2	-	-	-	-	680
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	500	-	49
Stage 1	-	-	-	-	203
Stage 2	-	-	-	-	465
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	500	-	48
Mov Cap-2 Maneuver	-	-	-	-	146
Stage 1	-	-	-	-	203
Stage 2	-	-	-	-	455

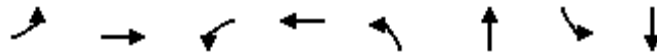
Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	20.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	251	-	-	500	-
HCM Lane V/C Ratio	0.063	-	-	0.021	-
HCM Control Delay (s)	20.3	-	-	12.4	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Queues

6: Binkley Circle/Binkley Street & Sterling Highway

06/28/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	68	1300	95	1211	5	116	174	289
v/c Ratio	0.23	0.66	0.36	0.63	0.04	0.29	0.69	0.61
Control Delay	4.1	6.8	7.9	7.2	22.8	8.7	42.9	14.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.1	6.8	7.9	7.2	22.8	8.7	42.9	14.9
Queue Length 50th (ft)	2	58	4	51	2	6	81	40
Queue Length 95th (ft)	m4	370	m12	m116	10	42	133	103
Internal Link Dist (ft)		598		1107		320		616
Turn Bay Length (ft)	200		350		70		100	
Base Capacity (vph)	296	1978	264	1924	159	531	354	588
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.66	0.36	0.63	0.03	0.22	0.49	0.49

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

# HCM 6th Signalized Intersection Summary

## 6: Binkley Circle/Binkley Street & Sterling Highway

06/28/2023

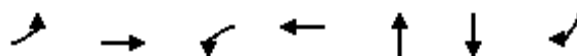


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷		↶	↷	
Traffic Volume (veh/h)	65	1230	5	90	985	165	5	15	95	165	5	270
Future Volume (veh/h)	65	1230	5	90	985	165	5	15	95	165	5	270
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821
Adj Flow Rate, veh/h	68	1295	5	95	1037	174	5	16	100	174	5	284
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	333	1399	5	441	1641	275	152	51	316	309	6	354
Arrive On Green	0.08	0.79	0.79	0.23	0.74	0.74	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1734	3535	14	1734	2965	497	1090	217	1359	1276	27	1521
Grp Volume(v), veh/h	68	634	666	95	604	607	5	0	116	174	0	289
Grp Sat Flow(s),veh/h/ln	1734	1730	1819	1734	1730	1732	1090	0	1577	1276	0	1547
Q Serve(g_s), s	1.3	22.8	22.9	0.0	13.8	13.9	0.3	0.0	4.9	10.5	0.0	14.1
Cycle Q Clear(g_c), s	1.3	22.8	22.9	0.0	13.8	13.9	14.4	0.0	4.9	15.3	0.0	14.1
Prop In Lane	1.00		0.01	1.00		0.29	1.00		0.86	1.00		0.98
Lane Grp Cap(c), veh/h	333	685	720	441	957	958	152	0	367	309	0	360
V/C Ratio(X)	0.20	0.93	0.93	0.22	0.63	0.63	0.03	0.00	0.32	0.56	0.00	0.80
Avail Cap(c_a), veh/h	372	813	855	441	957	958	215	0	459	384	0	451
HCM Platoon Ratio	2.00	2.00	2.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.83	0.83	0.83	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.0	7.4	7.4	23.1	6.5	6.5	35.8	0.0	25.4	31.8	0.0	29.0
Incr Delay (d2), s/veh	0.3	20.3	19.6	0.2	2.6	2.6	0.1	0.0	0.5	1.6	0.0	8.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	6.4	6.6	1.4	3.8	3.8	0.1	0.0	1.8	3.3	0.0	5.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.3	27.8	27.0	23.3	9.2	9.2	35.9	0.0	25.9	33.4	0.0	37.1
LnGrp LOS	A	C	C	C	A	A	D	A	C	C	A	D
Approach Vol, veh/h		1368			1306			121				463
Approach Delay, s/veh		26.4			10.2			26.3				35.7
Approach LOS		C			B			C				D
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		22.7	19.8	37.5		22.7	7.2	50.1				
Change Period (Y+Rc), s		* 4.1	* 5.8	* 5.8		* 4.1	* 4.1	* 5.8				
Max Green Setting (Gmax), s		* 23	* 5.1	* 38		* 23	* 4.9	* 38				
Max Q Clear Time (g_c+I1), s		16.4	2.0	24.9		17.3	3.3	15.9				
Green Ext Time (p_c), s		0.3	0.1	6.8		1.3	0.0	8.6				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				21.2								
HCM 6th LOS				C								
<b>Notes</b>												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

## Queues

### 7: Birch Street & Sterling Highway

06/28/2023



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	53	1516	316	952	547	10	100
v/c Ratio	0.16	1.08	1.16	0.58	1.14	0.02	0.18
Control Delay	7.8	62.2	127.6	17.6	112.7	20.1	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.8	62.2	127.6	17.6	112.7	20.1	1.2
Queue Length 50th (ft)	3	-427	-141	210	-302	4	0
Queue Length 95th (ft)	m16	#564	#298	237	#495	15	6
Internal Link Dist (ft)		1107		775	289	236	
Turn Bay Length (ft)	175		100				
Base Capacity (vph)	324	1409	272	1760	479	488	562
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	1.08	1.16	0.54	1.14	0.02	0.18

#### Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

# HCM 6th Signalized Intersection Summary

## 7: Birch Street & Sterling Highway

06/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	1310	130	300	900	5	245	20	255	5	5	95
Future Volume (veh/h)	50	1310	130	300	900	5	245	20	255	5	5	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1850	1807	1850	1850	1807	1850	1850	1850	1850	1850	1850	1807
Adj Flow Rate, veh/h	53	1379	137	316	947	5	258	21	268	5	5	100
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	3	0	0	3	0	0	0	0	0	0	3
Cap, veh/h	439	1309	129	286	1186	6	267	16	208	232	211	457
Arrive On Green	0.22	0.55	0.55	0.11	0.34	0.34	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1762	3155	312	1762	3501	18	671	55	698	551	706	1531
Grp Volume(v), veh/h	53	747	769	316	464	488	547	0	0	10	0	100
Grp Sat Flow(s),veh/h/ln	1762	1716	1751	1762	1716	1803	1424	0	0	1257	0	1531
Q Serve(g_s), s	0.0	33.2	33.2	8.9	19.6	19.6	23.6	0.0	0.0	0.0	0.0	3.9
Cycle Q Clear(g_c), s	0.0	33.2	33.2	8.9	19.6	19.6	23.9	0.0	0.0	0.3	0.0	3.9
Prop In Lane	1.00		0.18	1.00		0.01	0.47		0.49	0.50		1.00
Lane Grp Cap(c), veh/h	439	712	726	286	581	611	492	0	0	443	0	457
V/C Ratio(X)	0.12	1.05	1.06	1.10	0.80	0.80	1.11	0.00	0.00	0.02	0.00	0.22
Avail Cap(c_a), veh/h	439	712	726	286	815	857	492	0	0	443	0	457
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.70	0.70	0.70	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.3	17.9	17.9	22.2	24.0	24.0	29.8	0.0	0.0	19.8	0.0	21.0
Incr Delay (d2), s/veh	0.1	41.8	44.9	84.3	10.9	10.5	75.2	0.0	0.0	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	17.5	18.5	9.2	9.1	9.5	19.9	0.0	0.0	0.1	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.4	59.7	62.8	106.5	34.9	34.4	105.0	0.0	0.0	19.8	0.0	21.3
LnGrp LOS	C	F	F	F	C	C	F	A	A	B	A	C
Approach Vol, veh/h		1569			1268			547				110
Approach Delay, s/veh		60.0			52.6			105.0				21.1
Approach LOS		E			D			F				C
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		28.0	13.0	39.0		28.0	19.1	32.9				
Change Period (Y+Rc), s		* 4.1	* 4.1	* 5.8		* 4.1	* 5.8	* 5.8				
Max Green Setting (Gmax), s		* 24	* 8.9	* 33		* 24	* 4.1	* 38				
Max Q Clear Time (g_c+I1), s		25.9	10.9	35.2		5.9	2.0	21.6				
Green Ext Time (p_c), s		0.0	0.0	0.0		0.3	0.0	5.5				

### Intersection Summary

HCM 6th Ctrl Delay	63.1
HCM 6th LOS	E

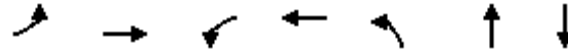
### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues

14: Devin Drive & Sterling Highway

06/28/2023



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	4	981	17	525	302	38	23
v/c Ratio	0.01	0.81	0.07	0.45	0.51	0.05	0.03
Control Delay	10.2	22.1	11.1	16.8	16.4	5.5	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.2	22.1	11.1	16.8	16.4	5.5	9.7
Queue Length 50th (ft)	1	125	3	68	68	1	3
Queue Length 95th (ft)	5	#274	13	130	166	17	17
Internal Link Dist (ft)		909		895		264	217
Turn Bay Length (ft)							
Base Capacity (vph)	358	1246	233	1217	593	713	746
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.79	0.07	0.43	0.51	0.05	0.03

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM 6th Signalized Intersection Summary

## 14: Devin Drive & Sterling Highway

06/28/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗			↕	
Traffic Volume (veh/h)	4	585	317	16	482	1	278	5	30	6	11	4
Future Volume (veh/h)	4	585	317	16	482	1	278	5	30	6	11	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821	1821
Adj Flow Rate, veh/h	4	636	345	17	524	1	302	5	33	7	12	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	317	694	376	167	1190	2	689	84	557	240	388	116
Arrive On Green	0.00	0.32	0.32	0.02	0.34	0.34	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	1734	2165	1175	1734	3543	7	1397	207	1368	402	951	285
Grp Volume(v), veh/h	4	508	473	17	256	269	302	0	38	23	0	0
Grp Sat Flow(s),veh/h/ln	1734	1730	1610	1734	1730	1820	1397	0	1575	1637	0	0
Q Serve(g_s), s	0.1	17.5	17.5	0.4	7.1	7.1	9.5	0.0	0.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	17.5	17.5	0.4	7.1	7.1	10.0	0.0	0.9	0.5	0.0	0.0
Prop In Lane	1.00		0.73	1.00		0.00	1.00		0.87	0.30		0.17
Lane Grp Cap(c), veh/h	317	554	516	167	581	611	689	0	642	743	0	0
V/C Ratio(X)	0.01	0.92	0.92	0.10	0.44	0.44	0.44	0.00	0.06	0.03	0.00	0.00
Avail Cap(c_a), veh/h	422	560	521	250	581	611	689	0	642	743	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.4	20.2	20.2	16.3	16.0	16.0	13.8	0.0	11.1	11.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	19.9	21.0	0.3	0.5	0.5	2.0	0.0	0.2	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.4	8.9	0.2	2.6	2.8	2.7	0.0	0.3	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.5	40.2	41.2	16.5	16.5	16.5	15.8	0.0	11.3	11.1	0.0	0.0
LnGrp LOS	B	D	D	B	B	B	B	A	B	B	A	A
Approach Vol, veh/h		985			542			340				23
Approach Delay, s/veh		40.6			16.5			15.3				11.1
Approach LOS		D			B			B				B
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		30.4	5.6	25.8		30.4	4.7	26.8				
Change Period (Y+Rc), s		* 5.2	* 4.6	6.0		* 5.2	* 4.4	6.0				
Max Green Setting (Gmax), s		* 25	* 4	20.0		* 25	* 4	20.2				
Max Q Clear Time (g_c+I1), s		12.0	2.4	19.5		2.5	2.1	9.1				
Green Ext Time (p_c), s		0.8	0.0	0.3		0.0	0.0	2.4				

### Intersection Summary

HCM 6th Ctrl Delay	28.8
HCM 6th LOS	C

### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.





# APPENDIX B: BUILD THE VISION

## B.1 Preliminary Development Concepts

Document: Preliminary Development Concepts, FIRST FORTY FEET

Description: Summary of the project objectives, vision, and guiding principles that informed a set of “big ideas” for future development within the project area. Concepts include mobility, land uses, development scenarios and the supporting riverfront public use areas amenities that are essential to attract investment and establish downtown as a one-of-a-kind destination.

## B.2 Utilities Impacts Analysis

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Description: Assessment of the current utilities (water, sewer, storm, gas, electric and communications) serving the Project area, identifies utilities in need of upgrade, and new utilities to support planned future development.

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## B.4 Market Hall Case Studies

**Document: Market Hall Case Studies; ECONorthwest, Economics and Research Consultant**

**Description: Memo showcasing three case studies that have varying governance and operations structures, varying public investment, and different missions. These case studies demonstrate a range of what the City might want to consider and can help the City identify which elements they like from each.**

## B.5 Market Hall Assessment

Document: Market Hall Assessment Presentation; ECONorthwest, Economics and Research Consultant

Description: Slideshow presentation showcasing three case studies, their takeaways and considerations for Soldotna. Provides results of stakeholder interviews and recommendations for the Market Hall’s potential offerings, critical elements, potential tenant mix, partners and programming for the City to consider.

## B.6 Development Feasibility

Document: Soldotna Riverfront Redevelopment, Feasibility Analysis Results; ECONorthwest, Economics and Research Consultant

Description: Feasibility study on four development types based on the preliminary development concepts and discussions with the City. These development types include mixed-use, multifamily, townhomes, and hotel. The study provides insights into the feasible scale and types of development for the initial “catalytic” phase, which is intended to kick-start future development.

DATE: August 3, 2023  
TO: City of Soldotna  
FROM: Nicole Underwood and Cadence Petros, ECONorthwest  
SUBJECT: Soldotna Riverfront Redevelopment - Public Market Case Studies

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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. One concept the City is interested in exploring is a public market that can serve as a catalyst for redevelopment of the area. The City expressed interest in having some control over the direction of the market hall but is open to both private and nonprofit operation of the space. The City also indicated that with the right design and model City Council could be supportive of the project but there will be scrutiny of ongoing public investment.

This memo showcases three case studies that have varying governance and operations structures, varying public investment, and different missions. These case studies demonstrate a range of what the City might want to consider and can help the City identify which elements they like from each.

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Who we spoke with

The Grove Market Hall  
Caroline Baggott  
Development Manager at Project^

Pybus Public Market  
Travis Hornby  
General Manager

Kodiak Marketplace  
Greg Zadina  
Project Manager

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# The Grove Market Hall - Bend, Oregon

## Overview

The Grove Market Hall is a privately owned and operated food hall that is the centerpiece for a development that included office space and luxury condos in Bend, Oregon. It is community-focused bringing together local smaller vendors and aims to provide a great experience for locals and visitors alike. The market hall features two large anchor tenants – a seafood store/cafe and a cocktail tenant from Bend Brewing. The governance structure is fully private, with no public partnerships involved in the project.



## Description

The Market Hall which opened in 2020 is in the wealthier Northwest Crossing community of Bend and consists of approximately 14,000 square feet tenanted by nine locally owned restaurants, bars and coffee shops. Two larger anchor spaces at each end of the market hall house a seafood store/cafe and a well-known local brewing company (Bend Brewing). The Market Hall was part of the first phase of a larger mixed-use development that includes private executive offices. The developer is working on Phase 2 of the buildout of this project with includes a 32-unit luxury condo building.

The Grove is a collaboration between real estate developer Project^, Portland-based architecture firm Hacker, SunWest Builders, and West Bend Property Company (master developer of Northwest Crossing neighborhood).

## Governance Structure

The Grove Market Hall operates under a private governance structure, with ownership and decision-making vested in the private development company. West Bend Property Company owns the development. Project^ is responsible for the overall management and operation of the market hall, including tenant selection, working with on-site property management, and ongoing maintenance.

## Funding

The Grove Market Hall's development was privately funded, with no involvement support from public entities. Ongoing operations is supported through rent from tenants who pay the high end of market rate.

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### Mission

“Savor and sip the best that Bend has to offer. With nine restaurants serving everything from coffee and pastries to fresh seafood, ice cream, and Italian food, Market Hall is a place to gather, refuel, and come together as a community.”

“All you need under one iconic roofline.”

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## City/Public Entity's Role in Startup and Ongoing Operations

As a totally private development, the city or public entity does not have a direct role in the startup or ongoing operations of The Grove Market Hall.

## Tenancing

The tenancing process prioritized tenants with operational experience, particularly those who were looking to expand to second locations or upgrade from food carts. This strategy aimed to mitigate the challenges faced by tenants without prior restaurant experience. The development company had specific vendors in mind for anchors and enlisted the help of a broker to advertise the remaining available spaces.

## What is Going Well

The focus on smaller, local vendors and the community-oriented approach has resonated well with customers. The outdoor space, featuring fire pits, tables, chairs, and umbrellas, has been highly valued and allows for events such as musician performances and art shows, particularly in the nicer months. Bend Brewing, one of the anchor tenants, has proven adept leveraging and marketing these events. This provides a good example for other tenants to follow.

## Lessons Learned

- Operations and managing multiple small tenants have been challenging. It is advisable to bring in property management early in the tenancing process to assist with tenant placement and overall operations. Property managers with prior experience in managing market halls can help ensure smooth execution.
- Offering warm shell spaces instead of cold shell spaces can attract smaller local vendors who may find it challenging to afford improvements to their spaces.
- Consideration should be given to the layout and design to ensure a balance between front-of-house and back-of-house space for each tenant.
- Consider location and security measures to maintain a family-friendly environment.
- Mechanical design should account for individual air systems to maintain comfort while ensuring kitchen hoods and cooling systems work efficiently.
- Waste management should be strategically located to avoid inconveniencing tenants and customers.
- Adequate parking, both for employees and customers, is essential to address the challenge posed by limited parking availability in the area.

## Conclusion

The Grove Market Hall has successfully created a vibrant community-focused marketplace that has become a popular destination in Bend, Oregon. By offering diverse services, engaging anchor tenants, and utilizing outdoor spaces for events, the market hall has created a unique

experience for visitors. However, the challenges faced in operations and tenanting highlight the importance of proactive management, tenant selection, and considering specific space needs.

### Key Takeaways for Soldotna

Smaller scale public market with a focus on local vendors and community gathering space

Privately developed and operated market hall commanding premium market rents

Part of a larger development which includes office and condos

Seasoned, local vendors need less business supports

Strong anchor tenants serve not only as a draw for the market but also as an example to other vendors on how to leverage and market events

The market hall hosts events leveraging an outdoor space during nicer weather

Design matters - consider ratio of FOH to BOH space, parking, and how both employees and customers navigate the space

*\*Real estate developer, Project^, willing to discuss technical/ consulting assistance if needed*

# Pybus Public Market- Wenatchee, Washington

## Overview

Pybus Public Market is a public-private partnership that transformed an unused steel warehouse in Wenatchee, Washington, into a vibrant public market. The Port of Chelan County acquired the property in 2010 and later worked with private investors Mike and JoAnn Walker and the City of Wenatchee to convert the 28,000-square-foot structure into a public market. Total construction costs for the project are estimated at \$10 million. Currently, the city owns the land and ground leases it to the Pybus Market Charitable Foundation which owns the buildings. The governance structure includes a 20-person board that oversees the operations of the market and charitable foundation



## Description

Pybus Public Market, opened in 2013, is a former steel warehouse located on the Columbia River waterfront in Wenatchee. It is 28,000 square feet and houses over 20 restaurants, shops, and specialty stores. Adjacent to the market, the Wenatchee Farmers Market hosts up to 35 vendors selling locally grown fruits and vegetables from May to October. The market is conveniently situated near the Apple Capital Recreation Loop Trail and is just two blocks away from historic downtown Wenatchee. Additional features of Pybus Public Market include an eight-foot bronze statue of E.T. Pybus, a commercial food demonstration kitchen, outdoor patio seating, picnic benches, bike rentals, and a converted flatbed railroad car used as a stage for performers. The foundation that operates the market also owns an event center that is available for public rentals at market rates. The public market includes covered, outdoor dining space.

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### Mission

Charitable Foundation  
“Enhance the quality of life in the greater Wenatchee valley, now and for generations to come.”

Public Market  
“Pybus Public Market is a destination where people gather to experience quality food, goods, and services from local businesses. We offer a platform for farmers, artisans, and nonprofit organization. We honor history, promote growth, and provide an outlet for community arts, education and charities.”

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## Governance Structure

The Pybus Market Charitable Foundation was founded in 2012 by Mike and JoAnn Walker to establish a public market for the greater community benefit. The Foundation’s strategy is to leverage the power, popularity and physical infrastructure of Pybus Public Market to create and maintain charitable activities at the Market benefiting a broad cross-section of the community. By intention, the Foundation engages in a broad set of charitable activities at Pybus Market, rather than a narrow set. Pybus Public Market, a 501(c)5 and Pybus Foundation, a 501(c)3 are governed by a single 20-person Board of Directors.

## Funding

The Port of Chelan County acquired the property in 2010 and collaborated with private investors and the City of Wenatchee to convert the 28,000-square-foot structure into a public market. The market construction cost \$10 million, funded through private investment and the State of Washington's "local revitalization financing" (LRF) program<sup>1</sup>, which directs new sales tax dollars to the City-designated area along the Wenatchee waterfront. In 2017, the City purchased the land from the Port for \$2 million using LRF funds and leases it back to the Pybus Market Charitable Foundation, which retains ownership of the buildings.

Ongoing operations of the public market are sustained through the rent paid by tenants, pop-ups, and events. The market is on the verge of breaking even financially as original leases (which were very low) expire and new leases are set closer to (or slightly below) market rate. The market is fully leased. The foundation also owns the event center and offers it for public rental at market rates. Additionally, the Charitable Foundation conducts fundraising efforts to cover operational deficits and to support expansion efforts.

## City/Public Entity's Role in Startup and Ongoing Operations

Pybus Public Market has a land lease from the City of Wenatchee. The city supports the market through occasional funding for specific projects, similar to its support for other local associations. However, there is no annual contribution from the city. The partnership between the city and the market aims to enhance the vibrancy of the downtown area and promote economic development.

## Tenancing

Pybus Public Market follows a committee-based approach to tenancing, with the leasing and development committee comprising three-quarters of the board members. The committee focuses on finding the right mix of tenants, ensuring a balance between different types of businesses. Most leases are five years or longer, with some tenants having leases exceeding 10 years. The market provides support to fledgling entrepreneurs through pop-up artisan spaces, where artisans rent small spaces and pay a percentage of their sales. For permanent tenants, the market offers two basic leases – flat fixed rate per square foot or percentage of sales (for restaurants) that have built in increases on an annual basis.

Pybus Market supports local tenants by offering loans for tenant improvements and/or reduction of leases when appropriate. The nonprofit does not offer specific business supports but given the nature of some of their tenants (local, small, new), they do provide guidance on what is needed to move into the market and explain the process for a business plan.

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<sup>1</sup> The Local Revitalization Financing (LRF) Program was created by Second Substitute Senate Bill 5045 (2SSB 5045), passed by the WA State Legislature in 2009. The LRF program authorizes cities and counties to create "revitalization areas" and allows certain increases in local sales and use tax revenues and local property tax revenues generated from within the revitalization area, additional funds from other local public sources, and a state contribution to be used for payment of bonds issued for financing local public improvements within the revitalization area.

## Successes and Lessons Learned

- The market's focus on local businesses has created a sense of community and loyalty. It has become a vibrant gathering place, hosting events and supporting local nonprofits.
- The market's partnership with the broader community has been instrumental in its success. There must be a strong vision shared by the broader community.
- Pybus Public Market and trail redevelopment served as a catalyst to activate the downtown. The alignment of the Market's opening with the development of recreational trails boosted visitation and community appeal.
- All vendors are expected to follow the same schedule (based on their business type), ensuring consistent business hours and a better experience for customers.
- It is important to manage advertising and partnerships to protect the organization's reputation (e.g., the foundation is not affiliated with...)
- Be intentional about pop-up placement to minimize disruption to other businesses
- Standardizing shelving, increasing storage space, and providing three-phase power to every unit have also been identified as crucial considerations for future development

## Conclusion

The success of Pybus Public Market is due to support from the broader community. The marketplace has contributed to the revitalization of the downtown area and has become a vibrant space that operates seven days a week, attracting visitors and fostering community engagement. The alignment of the marketplace's opening with the development of recreational trails boosted visitation and community appeal.

### Key Takeaways for Soldotna

Medium sized public market with 20 local businesses; hosts the farmer's market

Public/private partnership for market construction; Nonprofit was established to operate the market with oversight from a 20-person board

Community vision and buy in essential for long-term success

Operated through rents, events, and fundraising; Market is close to breaking even operationally as original leases (which were very low) expire and new leases are set at higher market rate.

All businesses are open seven days

Alignment of public market's opening with the development of recreation trails boosted visitation and served as a catalyst to activate the downtown

Committee-based approach to tenanting; Leases can be flat fixed rate per square foot or percentage of sales and can be customized based on business needs

Businesses stay long term once admitted to the market; no time limitations



# Kodiak Marketplace

## Overview

Kodiak Marketplace is owned by KANA (a regional travel consortium and 501(c)(3) organization representing ten tribes) and aims to expand local economic development opportunities as well as address space and programmatic needs



affecting KANA’s community services and primary healthcare programs. The marketplace will feature mixed-use small business and retail space on the ground floor, while the second floor will house meeting space, workforce development offices, and economic development services. The marketplace is envisioned as a way to revitalize the downtown area of Kodiak.

## Description

The Kodiak Marketplace is a 63,000 square foot building with 11 small business and retail spaces on the ground floor and meeting space, workforce development services, and economic development services on the second floor. It will support food security activities, offer community gathering rooms, conference spaces, training rooms with a commercial kitchen, and executive meeting space with a harbor view. Most of the space is dedicated to business storefronts and meeting areas, including a large open floor plan for microenterprise markets, tradeshow, workshops, and workforce development opportunities. The marketplace will also provide childcare services during events and serve as a seismic shelter. The anticipated opening is on July 31<sup>st</sup>, 2023, subject to construction timelines.

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About KANA and their mission

KANA provides integrated wellness services to the entire Kodiak Island community with focus on our Alaska Native Beneficiaries. Their mission is to “Elevate the Quality of Life of the People We Serve.”

The Public Market will advance the economic development and workforce development aspects of their mission, knowing that the health of individuals is impacted by the economic health of the entire community.

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## Governance Structure

KANA, a regional travel consortium representing ten tribes and 501(c)(3) organizations, owns the market and will oversee operations. The management of the retail spaces is contracted out to a real estate firm, with KANA overseeing business services and event space management.

## Funding

KANA funded the construction of the marketplace with some support from foundations. The marketplace had no financial support from the City or Borough.

The first three years of operations is expected to have a large operating deficit as KANA implements a gradual rent increase structure that will bring tenants to \$3 per square foot over the next three to five years. This is higher than the current downtown rent (\$1 to \$1.25 per square foot) but lower than what is needed for the project to be financially self-sufficient (\$5+

per square foot). Additional revenue opportunities for the marketplace include leasing storage space and administrative space. KANA expects to subsidize the marketplace long-term using funding from its other business revenue streams while aiming to minimize the subsidy over time.

### City/Public Entity's Role in Startup and Ongoing Operations

The City and Borough did not provide financial support or incentives for the project. The project faced some challenges with the City since the city has not experienced development of this scale before. However, the economic development agency plans to initiate a storefront revitalization program to build off the marketplace momentum/

### Tenancing

Despite higher rents, the marketplace has successfully secured nine tenants. Tenant businesses are mostly local to Kodiak with a mix of business relocations, expansions, and first-time brick and mortar. Recruiting tenants involved direct communication with potential tenants and assisting them in developing business plans to accommodate the higher rents. KANA emphasized the advantages of a new building with higher rents, highlighting how it avoids the challenges faced by older buildings with lower rents and deferred maintenance. Leases were tailored to meet the specific needs of tenants, including gradual rent increases over time. KANA has also provided tenant-ready spaces with essential amenities and negotiated commercial kitchen arrangements and use of event space with the tenants.

### Successes and Lessons Learned

- Don't underestimate the importance of an effective public marketing campaign and community engagement. The project initially faced some negative feedback from the community, but a public marketing campaign and social media efforts helped build momentum and address concerns.
- Dedicated parking is not available at the marketplace, which was a community concern. However, emphasizing the availability of parking in the downtown area and promoting the idea of walking short distances to reach destinations can help alleviate the concern
- Managing expectations is crucial. People were disappointed that the marketplace lacked activities for the youth, but this is not part of KANA's mission.
- Tailoring leases to individual tenants and providing business planning assistance were important strategies to ensure tenant success.
- Make sure to conduct market research for size of space needed by tenants. Many tenants needed smaller spaces (between 1,000 and 1,500 square feet).
- Consider business liability insurance requirements for small vendors. Tanana Valley Farmer's market has a good example of how they are structuring vendor agreements to meet liability insurance needs.
- Pop-up events are expected to be crucial for marketing and attracting visitors to the market.

## Conclusion

First-time store front business and microenterprise entrepreneurs will have access to high quality leasing space as well as small business development support all in the same building. The project is an investment in the Kodiak community and will benefit Kodiak and outlying village communities, operating as a workforce and economic development hub to improve the viability of existing economies.

### Key Takeaways for Soldotna

11 retail spaces co-located with business support services

Nonprofit owned, operated, and funded; no funding support from the City or Borough

The public market will be community benefit, economic driver, and way to revitalize the downtown

Ongoing subsidy from KANA's other business revenue streams with less deficit in year five operation as rents gradually increase

Getting higher rents (\$3/sf) required direct outreach to tenants and helping them with business planning

Public marketing campaign, public engagement, and managing expectations were crucial to the development of the marketplace

# APPENDIX B: BUILD THE VISION

## B.1 Preliminary Development Concepts

Document: Preliminary Development Concepts, FIRST FORTY FEET

Description: Summary of the project objectives, vision, and guiding principles that informed a set of “big ideas” for future development within the project area. Concepts include mobility, land uses, development scenarios and the supporting riverfront public use areas amenities that are essential to attract investment and establish downtown as a one-of-a-kind destination.

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**Description: Slideshow presentation showcasing three case studies, their takeaways and considerations for Soldotna. Provides results of stakeholder interviews and recommendations for the Market Hall’s potential offerings, critical elements, potential tenant mix, partners and programming for the City to consider.**

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# Soldotna Riverfront Redevelopment: Market Hall Options and Considerations

Begin to explore a market hall concept in Soldotna

- What can be learned from case studies and applied to Soldotna?
- Are key stakeholders interested in participating in a market hall?

”Love the idea! Public markets are fun and a great draw for locals and tourists. Lived in Washington and loved Pybus Market.”



The Grove Market Hall – credit: Hacker Architects

# Case Study 1: The Grove Market Hall

# The Grove Market Hall - Bend, Oregon

## Description:

- Opened in 2020
- 14,000 SF
- 9 local restaurants
- 2 well-known anchors
- Events and community gathering space
- Centerpiece for a development



Credit: Hacker Architects

## Mission

“All you need under one iconic roofline.”

“Savor and sip the best that Bend has to offer...Market Hall is a place to gather, refuel, and come together as a community.”



## Governance:

- Private developer - no public support

## Funding:

- Privately funded construction
- Operations supported through high-end market rate rents



Credit: Hacker Architects

# Grove Takeaways and Considerations for Soldotna

- Smaller scale
- Focus on local and community gathering space
- Outdoor expansion element
- Privately developed and operated; premium market rents
- Focus on seasoned retailers meant the need for fewer business supports
- Strong anchor tenants very important
- Events to boost visitation
- Design matters



## Case Study 2: Pybus Public Market

# Pybus Public Market - Wenatchee, Washington

## Description:

- Opened in 2013
- 28,000 SF
- 20 restaurants and shops
- Hosts Farmers Market May to Oct
- Commercial kitchen
- Adjacent event center
- Located on the Columbia River waterfront, adjacent to recreation trail



Credit: ECONorthwest

## Governance:

- Nonprofit established to operate
- Public land ownership

## Funding:

- **Construction:** Public land, funding through LRF district, private investors
- **Operations:** Rent, events, fundraising
- City occasionally provides project-specific funds but not an annual contribution



Credit: <https://pybuspublicmarket.org/>

Pybus Public Market is on the verge of breaking even as original leases expire and new leases are set to market rate

# Pybus Takeaways and Considerations for Soldotna

- Mid-sized; hosts Farmer's Market
- PPP developed, nonprofit operated
- Operated through rents, events, & fundraising
  - Rents have increased over time decreasing the operating deficit
- All businesses on same schedule
- No time limit for businesses in market
- Community vision and buy in essential for long-term success
- Market and trail dev aligned boosting visitation and activating downtown

“There have been lean times. Relied on the generosity of others who believed in the vision.”

- General Manager



Credit: KANA and Vision Architecture

## Case Study 3: Kodiak Marketplace

# Kodiak Marketplace – Kodiak, Alaska

## Description:

- Opening soon
- 63,000 SF
- 1/3 of space will be rented to businesses
- 11 storefronts on ground floor
- Commercial kitchen, meeting space, offices for workforce and economic development services
- Seismic shelter





## Governance:

- Nonprofit owned and operated; private property management

## Funding:

- **Construction:** Funded by KANA; no City or Borough money
- **Operations:** Funded by rental income and KANA's other revenue streams
  - Rents \$3/sf over 3 to 5 years

## About KANA and their mission

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The Public Market will advance the economic development and workforce development aspects of their mission, knowing that the health of individuals is impacted by the economic health of the entire community.

# Kodiak Takeaways and Considerations for Soldotna

- 11 retail spaces co-located with business supports
- Nonprofit owned, operated, funded
- Ongoing subsidy from KANA
  - Deficit decreases with gradual rent increases
- Community benefit, economic driver, revitalize downtown
- Direct outreach and business plan support essential for getting higher rents
- Crucial to have public engagement and manage expectations

“Had to go in person to businesses and help them to do business planning that would allow them to pay higher prices”

-Project Manager



# A market hall in Soldotna: stakeholder feedback

# Who we talked with and what they said

## Community Stakeholders

- Megan Weston, business owner
- Cliff Cochran, SBDC Director
- Melodie Allan, business owner
- Kaitlin Vadla, Planning Commission and nonprofit director
- Annette Villa, operator/manager of the Wednesday Market

“I’m excited about a market hall here. We have a great small business culture but it’s hard to compete against national chains.”

“I’m passionate about supporting small business. They’re the backbone of our town.”

“I love the idea of a public market!”

“This will be genuinely the best thing for the community”

# Envisioning a Soldotna market hall: what it should deliver

- Vibrant community hub: retail, food, entertainment
- Celebrate Soldotna and the Kenai River
- Gathering place for residents and tourists
- Appeal to all ages
- Operate year-round with events and activities
- Affordable for businesses and customers
- Support the business ecosystem

“Would be nice to integrate with the river and riverwalk and have views of the river and fishing.”

“Vendor and food is not enough - need music and something the old and young want to be at.”

“It would be the worst to be so expensive and only seasonally used.”

# Potential offerings in a market hall

Mix of local  
restaurants, retail,  
and services

Community gathering  
spaces and meeting  
rooms

Event space

Multi-use space that  
shifts with need

Shared office space  
for retail tenants

Commissary kitchen  
(could be utilized by market  
tenants but not located in the  
market)

Community seating  
and dining

Service provider or  
government office  
space (could be an anchor)

Indoor playground  
(movable, visible from all  
angles)

# Critical elements of a market hall

Affordable restaurant and  
retail space for local  
businesses

Multi-use space that shifts  
with need

Anchor tenant

Active programming:  
events, management, etc.

## Mix of Local Retail / Restaurants / Services

### Examples

#### Anchor

- Local Grocery w/Alaskan goods
- Deli
- Brewery
- Distillery
- Restaurant open majority of the day

#### Other

- Flower Shop
- Fish Market
- Ice Cream or Gelato
- Beverage
- Restaurants
- Take Home Dinners
- Food Truck Hookup
- Jewelry / Clothing
- Tour Guides

### Interviewees who expressed interest in tenancy:

- Megan Weston: Felicity Loft Tea Company
- Melodie Allen: Bakery
- Annette Villa – Anchor tenant



## Operator

If a paid position...

- Megan Weston
- Melodie Allen
- Annette Villa

“Need to find someone with a passion for this and sees the vision.”

## Supporters

- Kenai Economic Development District (KPED)
  - Business support; consider as potential tenant
- Cook Inlet Keeper
  - Currently operates incubator space with a DEC approved kitchen
  - Kaitlin could support through grant writing
- SBDC
  - Connecting to tenants
- City of Soldotna

# Potential programming components

Event programming is essential to draw both residents and visitors

## Programming

- Educational activities (esp. for children in winter)
- Musicians (busking/paid)
- Pop-ups
- Theme Days (e.g., children's day where they sell their work)
- Cooking Competitions (if there is a commissary kitchen)
- Art Shows
- Concerts
- Comedy Shows
- Community Forums

“Events are essential...vendors and food are not enough...”

# Specific ways to support small businesses

## In Market Hall

- Ensure affordable rent
  - Graduated rent or percentage rent
  - First month free
- Adequate storage within spaces
- Active, supportive management

## In City

- Pair facade improvement program with tenant improvement, and/or equipment grants in commercial areas
- Ensure adequate access to a commissary kitchen
- Coordinate suite of business support services

# Key considerations and takeaways

- Significant community expertise and capacity to operate/tenant space if paid positions and affordable rent
- Partnerships will be essential to success: public, private, nonprofit effort
- Public market may become more self-sustaining over time
- Need a consistent champion
- Community could be part of making the space
- Design matters (movable equipment, reclaimed materials, etc.)
- Marketing is critical
- Can serve as a catalyst for redevelopment and downtown activation

## PROS

- Wealth of talent and potential tenants
- Provides needed retail that may not be otherwise feasible
- Could serve as redevelopment catalyst
- Supports small businesses and builds capacity for additional retail tenancy over time

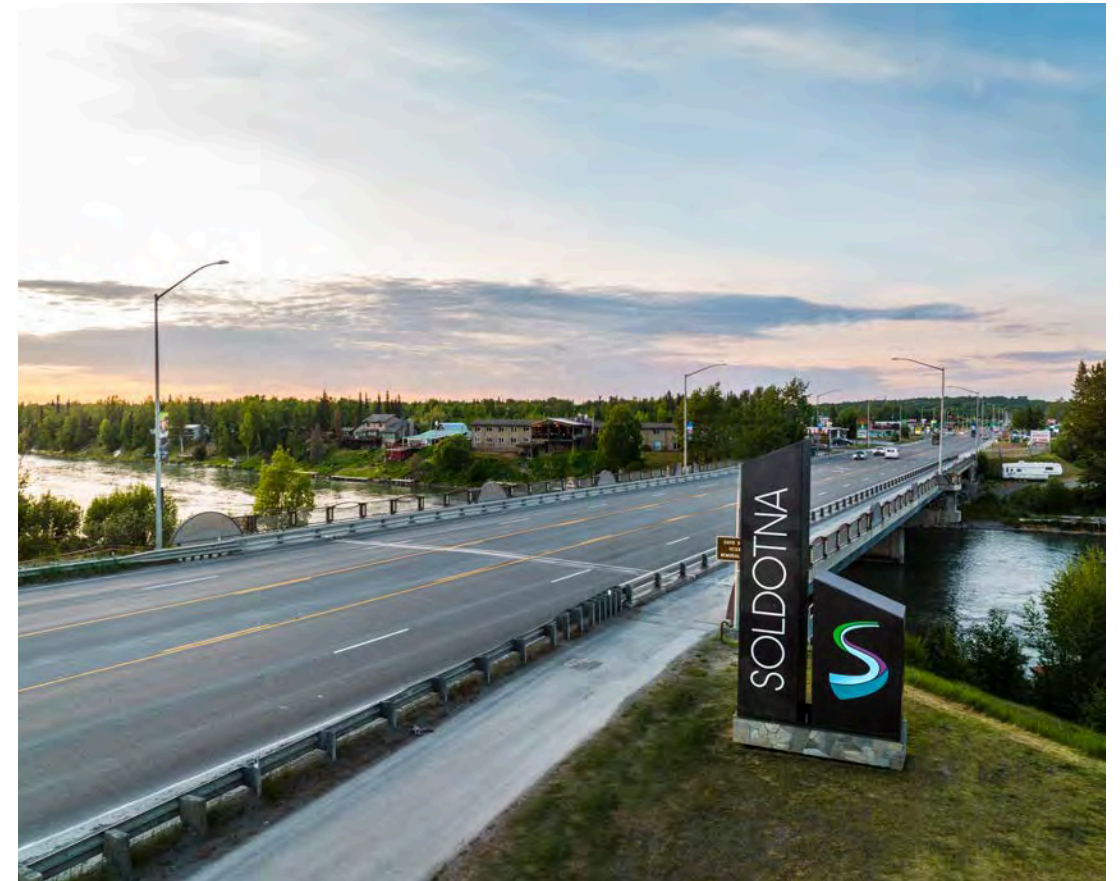
## CONS

- Extensive time and effort
- Potential risk of failure
- Reduces capacity to pursue other city priorities for investment

## Moving Forward:

- Assess City appetite for concept
- Conduct feasibility study
- Seek seed grant funding

Implementation plan can provide additional steps if the city wants to pursue the market hall concept



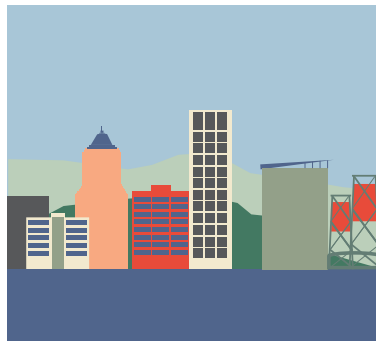
Source: City of Soldotna Facebook Page

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# APPENDIX B: BUILD THE VISION

## B.1 Preliminary Development Concepts

Document: Preliminary Development Concepts, FIRST FORTY FEET

Description: Summary of the project objectives, vision, and guiding principles that informed a set of “big ideas” for future development within the project area. Concepts include mobility, land uses, development scenarios and the supporting riverfront public use areas amenities that are essential to attract investment and establish downtown as a one-of-a-kind destination.

## B.2 Utilities Impacts Analysis

Document: Utilities Impacts Analysis Memo; Kinney Engineering

Description: Assessment of the current utilities (water, sewer, storm, gas, electric and communications) serving the Project area, identifies utilities in need of upgrade, and new utilities to support planned future development.

## B.3 Traffic and Safety Impacts Analysis

Document: Traffic and Safety Impacts Analysis Memo; Kinney Engineering

Description: Assessment of the preliminary development concepts for land uses and mobility improvements to determine potential impacts to traffic operations, Sterling Highway access and pedestrian and bicycle circulation. Provides a summary of the main benefits or impacts.

## B.4 Market Hall Case Studies

Document: Market Hall Case Studies; ECONorthwest, Economics and Research Consultant

Description: Memo showcasing three case studies that have varying governance and operations structures, varying public investment, and different missions. These case studies demonstrate a range of what the City might want to consider and can help the City identify which elements they like from each.

## B.5 Market Hall Assessment

Document: Market Hall Assessment Presentation; ECONorthwest, Economics and Research Consultant

Description: Slideshow presentation showcasing three case studies, their takeaways and considerations for Soldotna. Provides results of stakeholder interviews and recommendations for the Market Hall’s potential offerings, critical elements, potential tenant mix, partners and programming for the City to consider.

## **B.6 Development Feasibility**

**Document: Soldotna Riverfront Redevelopment, Feasibility Analysis Results; ECONorthwest, Economics and Research Consultant**

**Description: Feasibility study on four development types based on the preliminary development concepts and discussions with the City. These development types include mixed-use, multifamily, townhomes, and hotel. The study provides insights into the feasible scale and types of development for the initial “catalytic” phase, which is intended to kick-start future development.**



DATE: October 17, 2023  
TO: John Czarnecki, City of Soldotna  
CC: Jason Graf, First Forty Feet  
FROM: Nicole Underwood, Michelle Anderson, Bob Whelan, and Cadence Petros, ECONorthwest  
SUBJECT: Soldotna Riverfront Redevelopment, Feasibility Analysis Results - FINAL

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The City of Soldotna aims to transform an 85-acre downtown area into a vibrant mixed-use, waterfront, appealing to both locals and visitors. To achieve this vision, the City has partnered with a team of consultants led by First Forty Feet to create a Master Plan, which will guide future development. While the initial market analysis identified demand for various amenities including retail, restaurants, lodging, and housing, it is essential to note that this analysis did not assess the financial feasibility of constructing buildings to accommodate these uses.

It is important to understand that the presence of demand for these amenities, as identified in the market analysis, does not necessarily translate to people being able or willing to pay the necessary amounts to build and support new development. Even if there is a demand for a particular amenity, it may not materialize if businesses cannot afford the rent needed to support the costs of a newly developed space.

The Master Plan provides a long-term vision for the waterfront redevelopment project. ECONorthwest, a sub-contractor working with First Forty Feet, has been tasked with exploring catalytic opportunities in the near term. During this process, several crucial questions need answering, including: What scale of development is currently feasible in the project area, and what level of City support will be required to facilitate development that is not-quite financially viable without City participation?

To address this, ECONorthwest conducted a high-level feasibility study on four development types based on the Master Plan and discussions with the City. These development types include mixed-use, multifamily, townhomes, and hotel. The purpose of this study is to provide insights into the feasible scale and types of development for the initial “catalytic” phase, which is intended to kickstart future development of the desired scale. It is important to note that the findings from this study do not preclude the possibility of future phases of development achieving the scale that may be currently infeasible. On the contrary, the catalytic phase is intended to stimulate future development at the desired scale.

---

Why is development feasibility and pro forma analysis important?

Development can be costly and risky. Getting funding to construct new development requires lenders and investors to be reasonably confident they will earn enough financial return to justify the risks.

Economic or market feasibility is generally assessed by comparing the expected revenues (home sales, net income from rents, room rates) against the costs of development. If a development is not feasible, it will not be built. While some of the factors that determine market feasibility are outside a jurisdiction’s direct control (e.g., labor and materials costs, interest rates, market rents), local jurisdictions can provide incentives (such as tax exemptions, land donations); or adjust building, utility, and zoning fees, zoning programs, and other regulations that can have a substantial impact on whether development could be feasible or not.

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## Methods and Data

Although we conducted a quantitative feasibility analysis, observations of new construction for these uses are limited in Soldotna and on the Kenai Peninsula as a whole. Limited observations mean less data to inform a quantitative analysis. We therefore relied equally on a qualitative analysis (e.g., interviews with stakeholders) to inform our recommendations.

Given the limited local observations that align with the scale of development outlined in our Master Plan, we needed to expand our review scope to identify comparable benchmarks (rents and sales prices) for new residential and mixed-use developments to include the broader Kenai Peninsula area and Anchorage. This broader perspective is a common practice when a city seeks to develop projects for which there are limited local examples. For the hotel sector, our data encompasses the entire Peninsula, reflecting the fact that tourists generally explore the entire Peninsula during their visits, making the specific location of their stay less critical. Therefore, Soldotna's competitive positioning within the Peninsula as a whole becomes a key consideration.

It is also important to highlight that some of our assumptions are based on industry standards. We derived operating costs for hotels from Anchorage due to data availability, while construction costs are based on national averages with an Alaska-specific multiplier to account for the unique building conditions in the state. Additionally, industry standards were applied to factors such as fees and operating costs, adjusted to align with the Alaskan context. For more detailed information on data and methods please refer to Appendix A.

## Recommendations and Findings

Achieving a balance between fostering new development that yields higher rents and ensuring affordability and accessibility for existing residents is paramount. The success of this project hinges on its ability to benefit current Soldotna residents as well as new residents and tourists. Key findings are included below.

- Mixed use and multifamily are *currently* not feasible.
- Townhomes are more feasible, especially with lower cost land.
- A hotel could be feasible but would need enhancements such as riverfront views, a restaurant/bar in the hotel, or broader riverfront redevelopment that enhances the attractiveness of the area.
- City participation and phasing will be necessary to stimulate desired development and ensure affordability and accessibility for Soldotna residents.

Proposed phasing that balances attracting private market investments and preserving affordability for residents is included in the Conclusion and Next Steps. Additional details on implementation will be included in the Master Plan, the next phase of this project.

# Residential and Mixed-Use Feasibility Analysis

ECONorthwest completed a financial analysis for residential and mixed-use development that models a developer’s decision-making process and cash flow equation for multiple prototypical developments, or *prototypes*. We created a pro forma model to test the financial feasibility to understand how the City could incentivize housing production. We drew our initial market and construction cost insights from sources such as Costar, Redfin, and Craftsman, and then vetted those assumptions with local developers and brokers. Ultimately, this type of assessment will help the City understand the likelihood of developers producing residential and mixed-use development under different scenarios.

## Market Analysis

The market analysis showed demand for retail and restaurant space as well as housing for both ownership and rental. However, it raised questions of whether current market rents in Soldotna could sustain new development. Stakeholder interviews echoed this concern, highlighting worries about paying higher rents for commercial space and rental housing. The market analysis also highlighted that the project area lacks entertainment, services, and retail options which could make it more challenging to attract mixed-use and higher end development.

## What types of development did we analyze?

To begin, ECONorthwest modeled three prototypes: townhomes, multifamily apartments, and mixed-use apartments (with ground-floor retail), as shown in Exhibit 1. We based the prototypes loosely off various, recent developments on the Kenai Peninsula and in Anchorage. Some recent development that informed these prototypes are shown in Exhibit 2. Though the scale of development ranges substantially in these areas, we triangulated an approximate prototype development that might be possible in Soldotna and could deliver on City goals.

### Exhibit 1. Development Prototypes Evaluated

Source: ECONorthwest

#	Type	Description	Tenure
1	Townhomes	2-story with garage	Ownership
2	Multifamily Apartments	3-story with surface parking	Rental
3	Mixed-Use Apartments	3-story with surface parking and retail	Rental

### Exhibit 2. Comparable Developments

Source: Redfin, Loopnet, Costar, Apartments.com

Townhomes	Multifamily	Mixed-Use
		
Anchorage	Seward	Anchorage

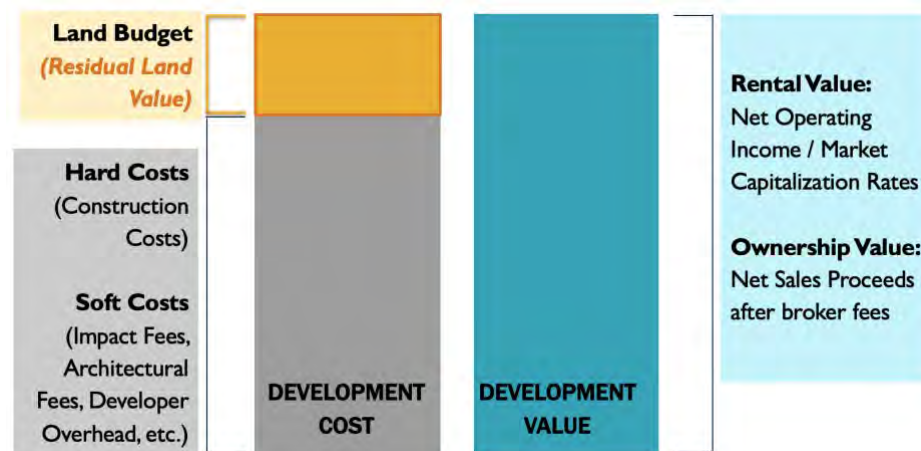
# Financial Analysis

## How do we measure development feasibility for residential and mixed-use?

To model development feasibility, we employed a pro forma model and used a residual land value (RLV) metric, which measures the land budget a developer would be left with after accounting for potential development costs and revenues.

**Exhibit 3: Example of Feasible Development using Residual Land Value (RLV) Model**

Source: ECONorthwest.



If the RLV is equal to or above land prices in the potential development area, the development is considered feasible at market rate. If the RLV is zero dollars, the development could be feasible if the land were donated for free. However, if the RLV is less than zero, the development is likely infeasible unless a developer receives additional subsidies or incentives, including free land. Please note that results from this method describe a general analysis of prototypes and does not consider the many potential unique conditions that could be factors in development feasibility (e.g., increased predevelopment costs, low land basis from longtime land ownership). For these reasons, residual land value analyses should be thought of as a strong indicator of the relative likelihood of development, rather than an absolute measure of return to the investor or developer.

### Baseline Pro forma

In our feasibility analysis, we used key financial data like rent, operating costs, and development expenses for each prototype. To evaluate rental prototypes, we determined the leasable square footage, calculated revenue, deducted vacancy and operating costs (such as taxes, insurance, maintenance, management, select utilities) and arrived at the annual net operating income (NOI). For the ownership prototype, we calculated gross sales price and subtracted commissions.

We calculated development costs by applying the cost per square foot values to different product types (e.g., residential, retail) and adding parking costs. We then summed those values to a total hard cost and calculated the soft cost, contingency, and developer fees to arrive at the total development cost.

To evaluate rental prototypes, we used a debt service coverage ratio (DSCR) to arrive at the supportable land budget (residual land value). DSCR, a financial indicator frequently used by lenders, gauges available cash flow for loan payments and potential profit. This ratio, expressed as net income (after vacancy and operating expenses like property taxes) relative to debt payment, ensures a revenue buffer to minimize the risk of default and foreclosure (i.e., 1.25 DSCR).

For the ownership prototype, we determined the land budget by subtracting total development costs from gross sales less commission and a spread on cost to account for profit. Both rental and ownership prototypes were subjected to a calculation dividing the total land budget by site square footage, arriving at a residual land value per square foot. See Exhibit 4 for detailed assumptions.

#### Exhibit 4. Assumptions for Development Prototypes Evaluated

Source: ECONorthwest based on market research

Assumption	Townhomes	Multifamily Apartments	Mixed-Use Apartments
Total units	4	60	65
Lot size	10,000 sf	65,000 sf	65,000 sf
Retail area	N/A	N/A	5,000 sf
Unit mix	100% 3-bedroom	20% studio, 45% 1-bedroom, 35% 2-bedroom	20% studio, 45% 1-bedroom, 35% 2-bedroom
Average unit size	1,750 sf	690 sf	690 sf
Average market rent per month*	N/A	\$1,200 (\$1.75 per sf)	\$1,250 (\$1.80 per sf)
Average sales price*	\$615,000 (\$350 per sf)	N/A	N/A
Vacancy expense	N/A	10%	10%
Operating expenses per unit	N/A	\$2,400	\$3,300
Construction cost per square foot	\$190	\$250	\$250
Total construction cost	\$1,650,000	\$16,480,000	\$19,550,000
Debt service coverage ratio	N/A	1.25	1.25
Spread on cost	10%	N/A	N/A
Residual land value	\$95,000	(\$2,150,000)	(\$2,640,000)
Residual land value per square foot	\$9	(\$33)	(\$41)

\*This assumption is inclusive of modest market escalation during construction

## Understanding the price of land in Soldotna

Predicting a price that a landowner would sell property for development is an imperfect science – each landowner has reasons to sell or hold their land. Some property owners are willing to develop their land without selling. For the purposes of this analysis, we assumed the value of the property (i.e., the price of the land at which an owner would be willing to sell) could be observed through assessed values according to the Kenai Peninsula Borough 2023 assessor data (accessed via the KPB GeoHub). Therefore, this memo compares the feasibility of housing development to current average assessed values, which may present more favorable feasibility results depending on market dynamics.

We identified vacant and improved land in Soldotna according to use type in the assessor data. Most of the parcels are considered improved – approximately 72% of Soldotna is improved. In these cases, redevelopment will not only need to generate enough revenue to cover the costs to build and provide a return to financial partners, but it will also need to generate more revenue than an existing use. The price for improved land is substantially higher than vacant land – improved land averaged approximately \$17 per square foot of land and vacant land averages approximately \$3 per square foot of land. These values are based on Soldotna properties.

In the riverfront redevelopment area specifically, there is a mix of vacant and improved land. We therefore compare the feasibility results to the average value of vacant land (on the low end) and improved land (on the high end). On column charts showing feasibility results, two dashed lines are shown to represent this range of average land value (per square foot of land). These dashed lines can be viewed as a hurdle for development to exceed – the financial feasibility (the residual land value) must be at least somewhere between these lines, if not above the average improved land line.

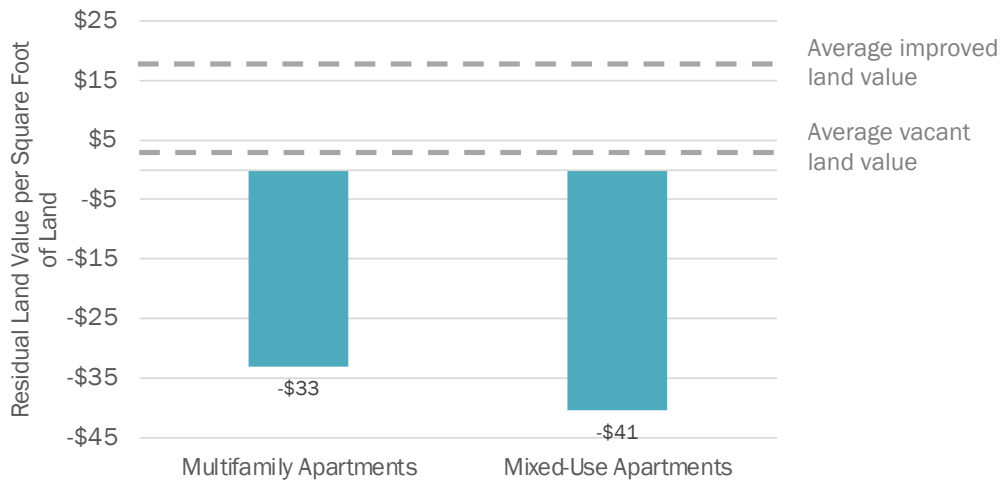
## Findings and Considerations

### Current rents do not support mixed-use or multifamily development.

Average observed rents on the Kenai Peninsula, and even as far as Anchorage, are less than \$2 per square foot for recent construction. Most of the observed comparable developments are achieving rents closer to \$1.50 per square foot. Assuming rents in this range, multifamily and mixed-use developments are not financially feasible as shown in Exhibit 5. When RLV is negative, which is the case here, a developer would need the land for free and a subsidy to justify development.

### Exhibit 5. Multifamily and Mixed-Use Apartment Results

Source: ECONorthwest



Based on our sensitivity analysis, rents would likely need to increase substantially, to at least \$2.30 per square foot, for mixed-use or multifamily development to be financially feasible.

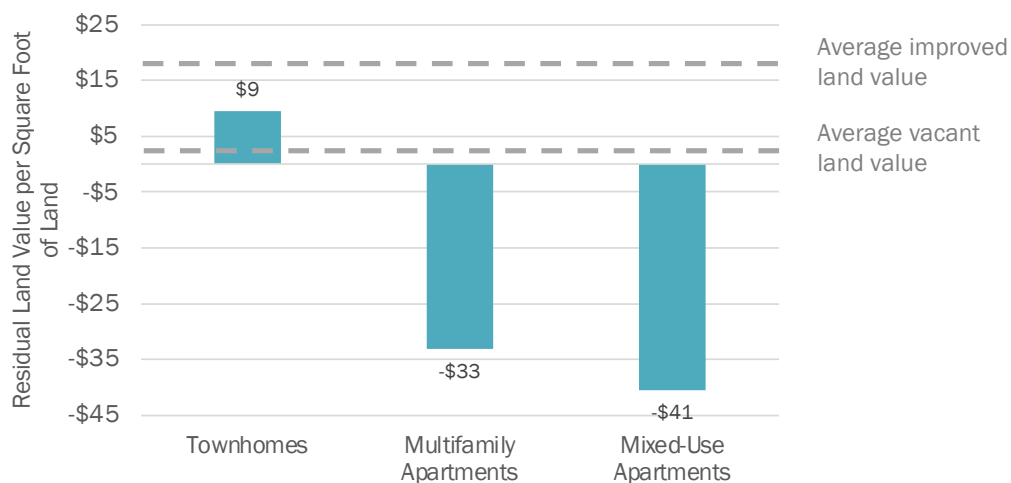
### Townhomes are more feasible, especially with lower cost land.

Relative to the apartment prototypes, townhomes are substantially more feasible. Average observed sales prices for new construction townhomes are around \$250 to \$325 per square foot in Soldotna, Kenai, and Anchorage. Townhomes in Homer are selling for even higher, with a couple currently listed around \$1 million per unit.

Assuming the average comparable sales price, this prototype achieves a positive residual land value of approximately \$9 per square foot of land meaning that townhomes likely do not need an additional subsidy if land is available at this price. The City could offer land at this price to help catalyze new housing development.

### Exhibit 6. Comparison of Townhome Results to other Prototypes

Source: ECONorthwest



There are ways to make development more feasible.

- **The City could offer land for free, as part of a development agreement, to attract residential developers.** Multifamily / mixed-use development is far from feasible, but free land will help if conditions change or if paired with other incentives. Donated land can be catalytic for townhome development. Subsidizing cost of land signals to development partners the City is invested in stimulating development.
- **Advertise fast-track permit review time for development proposals in this area.** Faster permit review can reduce costs and risk and increase feasibility.

## Soldotna Hotel Feasibility Analysis

ECONorthwest completed a financial analysis for a hotel development in Soldotna. We modeled the baseline cash flows for a new hotel from construction through its first 15 years of operations. It is a baseline because we modelled a basic hotel. We made assumptions using limited data on the market and construction costs. Also, we did not include potential enhancements that may improve future cash flows.

The result of our analysis is a baseline financial forecast or pro forma. Investors often use pro formas to decide whether to build a new hotel. It also helps us understand the prospects for a new hotel in the redevelopment area.

Feeding into the pro forma is an analysis of the local hotel market. For this, we used historical market data for the Kenai Peninsula. The data originate from Costar. They, through their subsidiary, STR Global, obtain operating data from hotels.

### Market Analysis

The data show that the hotel market in the Kenai Peninsula rebounded strongly after the COVID-19 pandemic. Both room rates and occupancy rates rose. However, recent uptrends are not predictive of higher future rates. Markets are dynamic. Higher room rates bring in higher profits. The industry responds by building more rooms. This causes occupancy rates (number of room nights sold as a percentage of room nights available) to decline. Competition compels hoteliers to offer lower rooms rates to attract more guests. The average daily room rate (ADR) in the market drifts lower. ADR is the average room rate charged before taxes and amenities. This process takes time. While ADRs change daily, it can take years to build a new hotel so that supply adjusts. That timing difference is why the hotel business is cyclical. Currently, in the Kenai Peninsula, we are amid an upcycle.

While trends are not predictive, an analysis of historical hotel data can be. We use that data to find the level at which the long-run supply and demand for hotel rooms are in balance. It is called the natural occupancy rate. Natural occupancy rates vary by market based on factors like climate and visitor mix. When doing a forecast looking out many years, it is prudent to assume the market will trend towards the natural occupancy rate.



In the market analysis, ECONorthwest estimated the historical ADRs and occupancy rates of local hotels. ECONorthwest’s analysis shows the Kenai Peninsula market has an annual average natural occupancy rate of 66.2 percent at a real ADR of \$169.40.<sup>1</sup> At those rates, there is no undue upward or downward pressure on room rates (excluding effects of inflation). Currently, according to Costar, the market is running at 68.6 percent occupancy and an ADR of \$180.<sup>2</sup> It is higher because the market is in the middle of an upcycle. Conditions favor the addition of some more hotel rooms.

Based on this analysis, we estimate the market can absorb 62 more hotel rooms and remain suitably profitable. The addition would bring the long-term supply and demand of the market in balance.<sup>3</sup> Therefore, we built a pro forma for a 62-room hotel in Soldotna.

## Financial Analysis

### How do we measure development feasibility for hotels?

To gauge the feasibility of hotel development, we use the internal rate of return (IRR). An IRR is the compound annual rate of return an investor should expect to make on the hotel project over many years. If the calculated IRR meets or exceeds the required rate of return, the development is deemed feasible; otherwise, additional financial support may be needed. This IRR-based analysis provides an understanding of potential returns and overall project viability.

The required rate of return is influenced by factors like investment risk, market conditions, and investor expectations. It reflects the minimum acceptable return for the project and typically considers aspects such as cost of capital, anticipated inflation, and risk level in comparison to alternative investments.

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Why use IRR instead of Residual Land Value (RLV) for hotels?

A cash flow model that solves for an IRR is a more robust analysis of feasibility than RLV, but it requires additional assumptions. Unlike residential and mixed-use development, hotels have a longer stabilization period to achieve their desired occupancy rate. Hotels also have more complex operating costs with more variables. A cash flow model that results in an IRR allows us to better approximate these conditions.

A pro forma that solves for an RLV is often a first step in gauging initial feasibility for development like residential and mixed use. Based on initial findings a developer may then pursue the more robust IRR analysis later.

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<sup>1</sup> \$169 is expressed in January 2023 dollars. ADRs of past months were adjusted for inflation in the analysis.

<sup>2</sup> We caution that too few hotels participated in Costar’s survey to provide us with statistically significant results. However, while the Costar survey data had limitations in terms of statistical significance, conversations with city staff and relevant stakeholders, along with data from sources like Placer.ai, confirmed a growing trend in tourism and increased hotel occupancy and room rates.

<sup>3</sup> This is based on market data through January 2023. However, the 35-year demand growth rate was 1.7 percent. Therefore, each year the market would need an additional 26 hotel rooms to remain in balance. That assumes demand grows at the historical rate. In addition, old hotel rooms may be removed in the market because of closures or conversions. These too would need to be replaced.

Developing a brand-new hotel is risky. Investors face challenges related to construction, uncertain timing, cost overruns, and the complexities of starting, staffing, and making a new hotel profitable. For these ventures, an appropriate IRR is around 14% (currently) although some hoteliers may be satisfied with less. A quick rule of thumb for estimating good returns is to double the mortgage rate.

**Baseline Pro forma**

Our financial analysis starts with an estimate of the cost to open. These costs are based on constructing an upper midscale to upscale hotel with 62 rooms. This is based on construction data for Alaska and information from comparable hotel developments nationally. It is important to note that there is great variability in opening costs. Local conditions, the style of the hotel, the availability of construction supplies and labor, and shipping costs all affect costs. Our estimate serves as a starting point. Ultimately, the cost may be substantially different than shown below in Exhibit 7.

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Calculating IRR

The IRR is the value that makes the sum of the future cash flows, when adjusted for time and interest rates, equal to the initial investment. This is essentially finding the interest rate that makes the project's cash inflows and outflows balance out.

Since this formula involves solving for an unknown rate (IRR), it's often more convenient to use financial calculators, software, or spreadsheet functions to calculate IRR rather than solving it manually.

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**Exhibit 7. Cost to Open the Soldotna Hotel**  
 ECONorthwest analysis utilizing HVS Hotel Cost Estimating Guide (2021)

Component	Cost
Land	\$ 1,496,082
Building site & improvements	\$ 12,452,397
OSE ( Operating supplies and equipment)	\$ 2,102,604
FFE (Furniture, fixtures & equipment)	\$ 1,763,126
Preopening & working capital	\$ 549,320
Developer fees	\$ 519,310
<b>Cost to open</b>	<b>\$ 18,882,839</b>

We forecast the cash flow for the hypothetical hotel using industry average operating costs for hotels in Alaska. The data for this came from STR Global. The number of participants captured in the STR data were sufficient to assure a statistically significant result. The participants were branded hotels in the mid to upscale categories. A branded hotel is one that operates under a major flag, such as Marriott. In exchange for branding, the hotel operator pays management and franchise fees. They receive marketing support, access to hotel loyalty programs, training, and other forms of support in exchange.

The pro forma covers the construction period (2025) and 15 years of operations (2026 – 2040). The first eight years of operations are shown in Exhibit 8. Note that the forecast include inflation. ECONorthwest projects inflation of 4.2 percent in 2025 with it gradually falling to 3.4 percent per year in later years. Room sales at new hotels typically take 36 months to stabilize; starting off slow and gradually building. The pro forma assumes the Soldotna hotel is branded and reaches a stabilized occupancy rate of 66.2 percent in the third year. We assume a room rate of \$169.40 in 2023 dollars, which is adjusted for inflation in the pro forma. The ramp up explains why the expected cash flow or “earnings before interest, taxes, depreciation, and amortization” (EBITDA) rises quickly between 2026 and 2028, but after the third year merely rises with inflation.

### Exhibit 8. Operating Cash Flow Projection, 2026-2033

ECONorthwest analysis utilizing STR and Costar data

	2026	2027	2028	2029	2030	2031	2032	2033
<b>Revenue:</b>								
Room sales	\$ 2,237,064	\$ 2,741,761	\$ 3,120,302	\$ 3,216,053	\$ 3,323,790	\$ 3,435,137	\$ 3,559,926	\$ 3,669,147
Hotel F&B	\$ 136,580	\$ 167,394	\$ 190,505	\$ 196,351	\$ 202,929	\$ 209,727	\$ 217,346	\$ 224,014
Other operating departments	\$ 39,604	\$ 48,539	\$ 55,241	\$ 56,936	\$ 58,843	\$ 60,815	\$ 63,024	\$ 64,957
Misc. income	\$ 10,850	\$ 13,298	\$ 15,134	\$ 15,599	\$ 16,121	\$ 16,662	\$ 17,267	\$ 17,797
<b>Total Revenue</b>	<b>\$ 2,424,098</b>	<b>\$ 2,970,992</b>	<b>\$ 3,381,182</b>	<b>\$ 3,484,939</b>	<b>\$ 3,601,683</b>	<b>\$ 3,722,341</b>	<b>\$ 3,857,563</b>	<b>\$ 3,975,915</b>
<b>Operating Costs:</b>								
Departmental	\$ 569,697	\$ 698,224	\$ 794,624	\$ 819,009	\$ 846,445	\$ 874,801	\$ 906,580	\$ 934,395
Undistributed	\$ 1,100,777	\$ 1,138,431	\$ 1,176,823	\$ 1,216,253	\$ 1,256,998	\$ 1,299,107	\$ 1,342,627	\$ 1,387,605
<b>Total operating expenses</b>	<b>\$ 1,670,474</b>	<b>\$ 1,836,655</b>	<b>\$ 1,971,447</b>	<b>\$ 2,035,262</b>	<b>\$ 2,103,443</b>	<b>\$ 2,173,908</b>	<b>\$ 2,249,207</b>	<b>\$ 2,322,000</b>
<b>Fixed Charges:</b>								
Management fees	\$ 80,022	\$ 98,076	\$ 111,617	\$ 115,042	\$ 118,896	\$ 122,879	\$ 127,343	\$ 131,250
Fixed charges	\$ 134,387	\$ 138,984	\$ 143,671	\$ 148,485	\$ 153,459	\$ 158,600	\$ 163,913	\$ 169,404
<b>Total operating expenses</b>	<b>\$ 214,409</b>	<b>\$ 237,060</b>	<b>\$ 255,288</b>	<b>\$ 263,527</b>	<b>\$ 272,355</b>	<b>\$ 281,479</b>	<b>\$ 291,256</b>	<b>\$ 300,654</b>
<b>EBITDA</b>	<b>\$ 539,215</b>	<b>\$ 897,277</b>	<b>\$ 1,154,447</b>	<b>\$ 1,186,150</b>	<b>\$ 1,225,885</b>	<b>\$ 1,266,954</b>	<b>\$ 1,317,100</b>	<b>\$ 1,353,261</b>

Using the costs to open (Exhibit 7) and the operating cash flow model in Exhibit 8 (extended out to 2040) and a terminal value discount rate of 7 percent, we calculated the that the IRR is 7.3 percent.<sup>4,5</sup> We consider this a baseline pro forma. With enhancements and changes in assumptions, higher rates of return are potentially achievable.

## Findings and Considerations

While a new hotel would be positive cash flow positive, a low rate of return may deter developers.

We conclude from our market and financial research that a new hotel in Soldotna would be cash flow positive once operating. However, development costs are high, and the IRR is 7.3 percent as a result. This return is lower than would be considered ideal (14%).

<sup>4</sup> The terminal value assumes the hotel will continue operating past the 15<sup>th</sup> year. This approach acknowledges that many assets have enduring worth beyond the immediate timeframe under consideration. The terminal value, therefore, captures the long-term perspective by estimating the potential future earnings or resale value of the investment.

<sup>5</sup> The seven percent discount rate is based on the “investment rate” which is the average long-term rate of return on a mix of corporate and noncorporate assets. This is generally considered a leading discount rate for conducting cost-benefit analysis.

## Enhancements that may boost the IRR

While the IRR is lower than one would hope, it is based on conservative assumptions. Further, there are possibilities that could work in Soldotna's favor such as:

- Our analysis does not include cash flows from a bar and restaurant. These may be substantial. Notable is that Alaskan liquor control rules would afford the hotel market power. That is economic-speak for an ability to operate with few competitors and thereby earn higher profit margins.
- Room demand is highly seasonal. A way to improve the profitability of a hotel in such a market is to design it in a way that allows you to close off a section of the building during the off-season and thereby save money on utilities and housekeeping.
- Ascertaining the actual cost of developing the hotel is critical. Modest reductions in the development costs would improve the IRR. We suggest reaching out to firms that have built comparable properties and are very familiar with the site in Soldotna for their estimates.
- We included management fees in our cash flow on the assumption that this would be a branded hotel. Under those circumstances the developer may have support including ready-to-use architectural plans, staff training, branded supplies, marketing support, software, and systems. These accelerate ramp-up and typically result in higher occupancy and room rates compared to unbranded competitors. The market on the peninsula is currently dominated by unbranded properties. The ADRs and occupancy rates forecast for Soldotna are based largely on those unbranded properties.
- We also need to emphasize that the broader development of the waterfront will enhance the attractiveness of Soldotna as a tourist destination. If successful, the hotel will likely enjoy higher occupancy and room rates than forecast here. If the hotel had riverfront views, it could also charge more. Premium rates would directly flow to the bottom line.

For example, raising the ADR from \$169 to \$199 (2023 dollars) and the occupancy rate by another 2 percent, all possible with a more attractive than average property, the IRR would rise to 12%. Add a bar and restaurant for another \$125,000 in EBITDA and the project would nearly double the IRR forecast in the baseline pro forma.

## Conclusion and Next Steps

Undoubtedly, realizing the City's envisioned development scale in the redevelopment area presents substantial challenges. Currently, mixed-use and multifamily developments are not financially viable. Among residential options, townhomes are the most feasible, contingent on favorable land costs. A borderline feasible option is a hotel, particularly if the riverfront offers amenities that appeal to upscale hotels. This situation presents a dilemma. To stimulate desired development in the near term, it is likely the City will need to facilitate redevelopment through participating in public private partnerships (e.g., market hall, subsidized land costs for private development, etc.), constructing infrastructure improvements (e.g., streets and sidewalks, trails, and open space), and carefully considering the timing of both public and private investment.

Despite these challenges the City has options that it could pursue to bring its vision to life for the project area. We recommend a phased development approach as follows:

**Phase 1:**

- **Establish a market hall.** The City could focus on developing a market hall which would support the community’s desire for affordable retail/restaurant space for local businesses that the private market cannot support in the near term. This strategic move could lay the groundwork for future private development phases by building and supporting a pipeline of retail businesses to tenant new development and creating a “place” that can serve as a focal point of activity to stimulate additional development in later phases.
- **Encourage townhome development.** Townhomes are the most feasible residential type, offering a promising means to reinvigorate the area through private investment.
- **Partner to develop affordable multifamily housing.** Private three-story multifamily development is unlikely in the current market. The City could instead pursue an affordable multifamily development, which does not rely on market debt and equity like market rate apartment developments. This approach could help the City begin achieving the Master Plan’s desired density in the near term rather than waiting for later phases assuming market conditions will change. It will also provide needed affordable housing for residents.
- **Improve trails, streets, and public space.** Trail, street, and public space enhancements will serve as foundational elements for subsequent stages of development by creating developable parcels near public amenities.

**Phase 2:**

- **Introduce a hotel.** As area improvements take shape, a hotel becomes a logical progression. These enhancements assure upscale hotel developers that the necessary amenities for long-term success are in place.
- **Adaptive reuse.** Consider ways to enhance buildings that already exist. It is likely that larger scale development may not be feasible right away. Adaptive reuse could be one way to continue the momentum of redevelopment in a more cost-effective way.

**Phase 3:**

- **Three-story mixed-use development.** Initial investments are designed to enhance future phases by enabling developers to command higher rents, potentially making future stages more feasible. Balancing affordability with redevelopment remains a crucial consideration.

ECONorthwest will provide additional details on implementation as a part of the final Master Plan. This approach and phasing could shift after additional discussion with the City.

## Appendix A. Assumptions

ECONorthwest completed a financial analysis for residential and mixed-use development that models a developer’s decision-making process and cash flow equation for multiple prototypical developments, or *prototypes*. We created a pro forma model to test the financial feasibility to understand how the City could incentivize housing production. We drew our initial market and construction cost insights from sources such as Costar, Redfin, and Craftsman, and then vetted those assumptions with local developers and brokers. Ultimately, this type of assessment will help the City understand the likelihood of developers producing residential and mixed-use development under different scenarios.

The table below show the details of the pro forma model.

### Exhibit 9. All Pro Forma Assumptions

Source: ECONorthwest, CoStar, Redfin, Craftsman, Stakeholder Interviews

Assumption	Townhomes	Multifamily Apartments	Mixed-Use Apartments
<b>Building program</b>			
Total units	4	60	65
Lot size	10,000 sf	65,000 sf	65,000 sf
Retail area	N/A	N/A	5,000 sf
Unit mix	100% 3-bedroom	20% studio, 45% 1-bedroom, 35% 2-bedroom	20% studio, 45% 1-bedroom, 35% 2-bedroom
Average unit size	1,750 sf	690 sf	690 sf
<b>Revenue / Operating Assumptions</b>			
Average market rent per month*	N/A	\$1,200 (\$1.75 per sf)	\$1,250 (\$1.80 per sf)
Average sales price*	\$615,000 (\$350 per sf)	N/A	N/A
Vacancy expense	N/A	10%	10%
Operating expenses per unit	N/A	\$2,400	\$3,300
Retail rent per sf	N/A	N/A	\$18 per year / \$1.50 per month
<b>Development Costs</b>			
Construction cost per sf	\$190	\$250	\$250
Parking garage cost per stall	\$25,000	N/A	N/A
Surface parking cost per stall	N/A	\$7,000	\$7,000
Total hard cost	\$1,140,000	\$12,580,000	\$14,920,000
Other development costs	Soft costs: 20%; Contingency: 4%; Developer fee: 5%		
Total development cost	\$1,650,000	\$16,480,000	\$19,550,000
<b>Return Assumptions and Results</b>			
Debt service coverage ratio	N/A	1.25	1.25
Spread on cost	10%	N/A	N/A
Residual land value	\$95,000	(\$2,150,000)	(\$2,640,000)
Residual land value per sf	\$9	(\$33)	(\$41)

\* This assumption is inclusive of modest market escalation during construction

## Appendix B. Hotel Assumptions

ECONorthwest completed a financial analysis for a hotel development in Soldotna. We modeled the baseline cash flows for a new hotel from construction through its first 15 years of operations. This model serves as a baseline representing a basic hotel. Feeding into the pro forma is an analysis of the local hotel market. For this, we used historical market data for the Kenai Peninsula which originate from Costar. They, through their subsidiary, STR Global, obtain operating data from hotels. We use industry standards and current market conditions to determine development costs and required rate of return.

The table below shows the details of our assumptions.

### Exhibit 10. Baseline Pro Forma Assumptions for Hotel

Source: ECONorthwest, Costar, STR Global, HVS

Note: All costs are adjusted for inflation. ECONorthwest projects inflation of 4.2 percent in 2025 with it gradually falling to 3.4 percent per year in later years.

Variable	Assumption
Hotel scale	Upper mid-scale to upscale
Room count	62
Average daily room rate (ADR) (Jan 2023 \$)	\$169.40
Construction year	2025
Opening year	2026
Last operating year of forecast	2040
Net Occupancy Rate (NOR)	66.2%
Occupancy rate ramp-up year 1	.77
Occupancy rate ramp-up year 2	.91
Occupancy rate ramp-up year 3	1.00
CPI January 2023	300.5
Terminal value discount rate	7%
Required IRR	14%
<b>Development Costs</b>	
*Based on HVS Hotel Cost Estimating Guide 2021 and 1.26 construction cost escalation for Alaska	
Land	\$1,496,082
Building site & improvements	\$12,452,397
OSE (Operating supplies and equipment)	\$2,102,604
FFE (Furniture, fixtures, and equipment)	\$1,763,126
Preopening & working capital	\$549,320
Developer fees	\$519,310
<b>Operating Costs and Revenues</b>	
*Based on STR P&L 2022/2021 data for Anchorage	
Operating costs	Varies by year due to inflation and ramp-up
Fixed charges	Varies by year due to inflation and ramp-up
Revenue (aside from room sales)	Varies by year due to inflation and ramp-up
<b>Results - Projected IRR</b>	
Projected IRR w/baseline assumptions	7.3%
w/higher room rate (\$199.40) and occupancy (68.2%)	12%
w/higher room rate and occupancy and restaurant w/\$125,000 EBITDA	13%

# Soldotna Downtown Riverfront Redevelopment Plan Appendices

## **APPENDIX A: PROJECT INITIATION**

- A.1 Environmental Review
- A.2 Market Analysis
- A.3 Transportation Conditions Assessment
- A.4 Parks and Trails Considerations

## **APPENDIX B: BUILD THE VISION**

- B.1 Preliminary Development Concepts
- B.2 Utilities Impacts Analysis
- B.3 Traffic and Safety Impacts Analysis
- B.4 Market Hall Case Studies
- B.5 Market Hall Assessment
- B.6 Development Feasibility Analysis

## **APPENDIX C: MASTER PLAN**

- C.1 Development Summary
- C.2 Business Case- 20-Year Build-out
- C.3 Development Strategy
- C.4 Streets, Sterling Trail and Utilities Cost Estimate
- C.5 Plazas and Parks Cost Estimate

## **▶ APPENDIX D: COMMUNITY ENGAGEMENT**

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- D.1 Community Engagement Plan**
- D.2 Project Advisory Committee Plan**
- D.3 Engagement Milestone #1 Objectives and Vision**
- D.4 Engagement Milestone #2 Preliminary Concepts**
- D.5 City Council Work Sessions**

## **APPENDIX E: DRAFT MIXED USE ZONING**

- E.1 Draft Downtown Riverfront Mixed-Use District



# APPENDIX D: ENGAGEMENT

## D.1 Community Engagement Plan

**Document:** Soldotna Riverfront Redevelopment Project: Engagement Plan. FIRST FORTY FEET

**Description:** *The plan identifies the Project's engagement goals and objectives, key engagement milestones, the outreach strategy, method of stakeholder identification, engagement methods, and the role of decision-makers in the project process.*

## D.2 Project Advisory Committee Plan

**Document:** Soldotna Riverfront Redevelopment Project: Project Advisory Committee- Roles & Responsibilities; FIRST FORTY FEET

**Description:** *The plan sets the expectations for the project advisory committee including roles, responsibilities and a schedule of project advisory committee meetings.*

## D.3 Engagement Milestone #1: Project Initiation- Objectives and Vision

**Document:** Project Handout; Engagement Boards for Display at the Community Workshop; Engagement #1 Feedback Form; and Engagement Results for sessions with the community and the Chamber of Commerce. FIRST FORTY FEET

**Description:** *Various engagement materials including an overall project handout, describing the project objectives, project area map and project timeline; large format boards illustrating the project area and timeline, elements that shape community identity, the places where people gather today and types of places they would like to see in the future, the challenges to walking and biking in the downtown and type of facilities to be considered in the project. A project feedback form was used to gather feedback on places and attributes of Soldotna that people value, the types of desirable future uses and riverfront activities in the project area, and opportunities and challenges related to riverfront access and general walk and bike conditions in and around the downtown. A summary of engagement results are tallied for each question posed during a community workshop and Chamber of Commerce luncheon.*

## D.4 Engagement Milestone #2: Build the Vision- Preliminary Development Concepts

**Document:** Project Handout; Engagement Boards for Display at the Community Workshop; Engagement #2 Feedback Form; and Engagement Results for sessions with the community and the Kenai River Fish Habitat Symposium. FIRST FORTY FEET

**Description:** *Various engagement materials including an overall project handout, describing the project objectives, project area map, project timeline and the "big ideas" for future redevelopment; large format boards illustrating the project area and timeline, the vision for downtown redevelopment, and preliminary concepts for parks, plazas and trails, riverfront and highway development and new and enhanced streets and trail connections.. A project feedback form was used to gather feedback on the project vision and preliminary development concepts. A summary of engagement results are tallied for each question posed during a community workshop and at the Kenai River Fish Habitat Symposium.*

## D.5 City Council Work Sessions

**Document:** The Big Ideas and Preliminary Concepts, Market Hall Options and Development Feasibility, and Downtown Riverfront Redevelopment Plan Elements slideshow presentations. FIRST FORTY FEET and ECONorthwest.

**Description:** *Presentations were a part of work sessions with the City Council and project advisory committee, to review and discuss: preliminary concepts and the results of the Engagement #1 sessions, development feasibility analysis, and the preferred plan elements and development strategy.*

# ENGAGEMENT PLAN

## I. INTRODUCTION:

Soldotna seeks to redevelop an 85-acre portion of downtown— currently a mix of auto-orientated businesses along the busy Sterling Highway along with underutilized and undeveloped properties located between the Sterling Hwy and the world-renowned Kenai River. The Riverfront Redevelopment Plan is intended to be transformative and will provide a strategy to guide the City’s long-term economic development goals—seeking to foster new investment and partnerships, create jobs, and improve the quality of the built environment for residents and visitors.

The Soldotna Riverfront Redevelopment Project will include a market analysis of existing and future development potential, public and stakeholder engagement, conceptual planning, property appraisal, environmental review of a catalyst site, feasibility analysis and implementation plan, and the development of a master plan document consolidating all work products, findings, and recommendations.

Public input will inform the Soldotna Riverfront Redevelopment Project’s master plan process. It will also help decision-makers shape the project to meet the needs of the communities it would serve.

Public engagement will consist of public and stakeholder meetings, to share information, gauge opinions, and to refine goals and objectives. The engagement plan highlights the type of engagement activities, outreach methods and feedback gathering to occur within two major project milestones.

## II. ENGAGEMENT GOAL and OBJECTIVES

The following engagement goals and objectives support the Project in informing, gathering input and using input from stakeholders regarding opportunities and challenges to redevelopment, to shape conceptual planning and a preferred master plan for the project area.

### A. Engagement Goals

Public participation is based on the belief that those who are affected by a decision have a right to be involved in the decision-making process.

- Promote sustainable decisions by recognizing and communicating the needs and interests of all participants, including decision makers.
- Seek out and facilitate the involvement of those potentially affected by or interested in a decision.
- Provide participants with the information they need to participate in a meaningful way.
- Communicate to participants how their input affected the decision.

### B. Engagement Objectives

- **Communicate with neighboring residents, businesses, community groups/organizations and schools** in a proactive and timely manner:
  - Ensure that neighbors and interested stakeholders are clear about the project timeline and invited to mark major milestones.
  - Provide regular Project progress updates, increasing awareness of work happening “behind the scenes” or in ways that are less visible to community members.
  - Ensure that the community and affected stakeholders know how to communicate with the City, if they have questions
  
- **Build on earlier community engagement**, and recent efforts that has informed the Soldotna Riverfront Redevelopment Project including the City’s comprehensive plan (2011), Downtown Development Plan (2015), and the Soldotna Riverfront Options & Opportunities concept paper (2018).
  
- **Identify and engage decision-makers, stakeholders and the community** who are key to the critical issues that affect the project area on the conceptual planning, a preferred plan, and implementing master plan for the Project area.
  
- **Strengthen community and empower participants:** Through involvement in the Riverfront Redevelopment planning process, educate, embolden and enable citizens as advocates and ambassadors for the Project.
  
- **Engage the private sector:** Encourage accessibility and awareness of the shared vision and Soldotna’s commitment to the Riverfront Redevelopment so that private partners have the information they need to buy-in and invest.
  
- **Demonstrate how stakeholders and community feedback is being used to guide the Project** by ensuring concerns and aspirations are reflected in concepts developed and the preferred plan.

### III. PROJECT MILESTONES

Engagement milestones will provide an opportunity to gather a range of stakeholder and community perspectives to inform the Project’s community goals and objectives, conceptual planning and preferred plan, and implementing master plan. Stakeholders will be given the opportunity to provide input so that the design of public infrastructure provides the most benefit to the communities it will serve. Engagement is intended to occur within two project milestones.

**Engagement Milestone #1: Goals and Objectives** – Develop and provide information about the project, and opportunities and challenges for the Project area; gather stakeholder feedback on Project area-specific challenges and opportunities to identify community goals and objectives.

**Engagement Milestone #2: Conceptual Planning** – Develop and present preliminary concepts for the Project area and gather stakeholder feedback on extent to which the preliminary concepts address community identified goals and objectives.

**Engagement Milestone #3: Master Plan Adoption** – Develop and present Riverfront Redevelopment Master Plan for review and adoption.

Engagement sessions will include one-on-one or group interviews, community meetings, and feedback gathering utilizing surveys, evaluations, and comment forms.

## IV. OUTREACH STRATEGY

The Soldotna Riverfront Redevelopment Project outreach strategy identifies core actions for outreach, dissemination of project information, and key messaging for engagement success.

### A. Core Actions

1. **Reach out** to neighboring residents, businesses, organizations and schools in a proactive and timely manner; notify community of planned next steps.
2. **Invite community members to stay engaged** by signing up for email updates, attending public meetings and providing input, as appropriate.
3. **Provide responsive information** that addresses community questions about the project including how to notify the City of concerns

### B. Key Messaging

- **The Soldotna Riverfront Redevelopment as a community project:** Highlight the ways that the plan is guided by shared values and robust community input. What values are guiding current and upcoming work?
- **Commitment to a shared vision:** Make it clear that the plan and vision created by the community will be implemented with fidelity. How is current work planning for community benefits?
- **Emphasize shared benefits:** Continually emphasize how the project will benefit the entire community, including those who live in the area now. How will the project improve livability for current and future residents?

## IV. OUTREACH CONTENT AND MATERIALS SUPPORT

First Forty Feet will provide outreach and project status content and materials to support the City of Soldotna in communications and outreach. The City of Soldotna email lists, City website, direct mailings and paid advertisement are(?) sources for disseminating Project information and supplementing engagement efforts.

Project-specific outreach content, and materials, for use by the City on the Project website and established City of Soldotna communications channels will consist of the following:

- **Project Orientation:** project overview and graphics depicting the project area, process and timeline for use on the Project website and established communications channels.
- **Goals and Objectives Milestone:** Summary of Project area redevelopment opportunities and challenges to be addressed and outcome of feedback gathered.

- **Conceptual Planning Milestone:** Summary of Redevelopment concepts, potential community benefits and outcome of feedback gathered.
- **Riverfront Redevelopment Master Plan:** Summary of Master Plan elements and implementing measures.

Engagement outreach/presentation materials and deliverables will be prepared and suitable across in-person and on-line platforms.

## V. STAKEHOLDER IDENTIFICATION

The Soldotna Riverfront Redevelopment Project is an opportunity for the City of Soldotna to partner with the community, organizations, agencies and the private sector to bring new investment to the Project area and ensure that new development provides benefits and opportunities to a broad range of residents and businesses now and into the future.

### A. Decision-making and Technical Advisors

The following stakeholders are identified for engagement to provide direction, build excitement, be inclusive, form/strengthen strategic partnerships and promote the Riverfront Redevelopment Project's benefits.

- **Advisory Committee**  
The City will establish an Advisory Committee consisting of Project area property owners and businesses, and financial institutions, business and events organizations representatives who will meet periodically to review, provide insight and guidance for Conceptual Planning, a Preferred Plan, and final Master Plan document.
- **City Council**  
The City Council will be briefed on the project to review and provide guidance for Conceptual Planning, a Preferred Plan, and final Master Plan document.
- **Commissions and Committees**  
Commissions can provide insight and guidance for preliminary and preferred concepts with unique perspectives, local knowledge, and a commitment to advocacy for the Project.
- **Public Agencies**  
The City has a number of relevant public agencies to provide education, promote economic development, housing affordability and services to seniors, people with disabilities, veterans and other at-risk populations. FFF will consult with the City to determine public agencies for potential engagement such as:
  - Alaska Department of Transportation
  - Kenai Peninsula Borough
  - Kenai Peninsula Borough School District
  - Kenai Peninsula College

### B. Community Based Organizations and Strategic Partners:

Targeted engagement with CBO's and other strategic partners will ensure community responsive processes and outcomes. City of Soldotna to provide a list of appropriate CBO's for potential engagement.

- **Affected Property Owners and Businesses:**  
Affected owners, businesses and business organizations should be at the planning table to identify and address potential impacts of design refinements and infrastructure phasing as well as, opportunities for redevelopment and investment in the Redevelopment Area.
- **Community members and residents:**  
Includes neighborhood associations, residents, and churches etc. City of Soldotna to determine geographic area for engaging/informing residents.

## VII. ENGAGEMENT METHODS

The Soldotna Riverfront Redevelopment Project Engagement Process will include in-person one-on-one or group meetings, large-format community meetings and feedback gathering utilizing surveys, evaluations, and comment forms for use in on-line and in-person engagement.

### A. In-Person Engagement

- **City Council Updates**  
The COS will provide regular updates to City Council. The Consultant Team will support the COS as needed.
- **Stakeholders and Community Based Organizations Groups Outreach**  
To build a shared vision for the project area the COS will make presentations or provide materials to local stakeholders and community-based organizations to inform their members about the project, timeline and opportunities for engagement.
- **Project Advisory Committee-**  
Project Advisory Committee meetings will be a key engagement strategy. These gatherings are intended to be a continuation of previous engagement efforts that included a select group of external and internal partners to learn about the project and dive deeper into specific Engagement Topics affecting the Project area.
- **Community Events**  
Community Events are a forum for the COS and project team to share project information with the public and obtain input on challenges and opportunities, conceptual planning and a master plan for redevelopment of the Project Area.

The COS will decide the level of staffing needs including the opportunity to reach a broad range of communities, expected attendance, timing of the event and its location, to ensure a reasonable use of resources. Community Events will be held at accessible locations. Agendas, information packets, presentation exhibits, and meeting summaries will be posted on the website and disseminated through COS approved channels.

### B. On-Line Engagement

- **Website**

The project website is hosted on the City of Soldotna website and managed by the City. The project team will generate web content for engagement, including frequently asked questions and online engagement activities. The website will serve as an information resource and will provide a project overview, updates at key milestones and documents such as the schedule, public engagement calendar and graphics. The website may also include a sign-up form for email updates.

- **Surveys, Evaluations, and Comments**

The project may utilize three tools for gathering feedback during engagement sessions:

1. Survey questions gather insights on the preferred type and value of the Riverfront Redevelopment land use, development, and transportation concepts and scenarios.
2. Guiding Principles, Goals & Objectives evaluation criteria measure planning and scenarios performance.
3. Comments identify potential challenges and opportunities to be addressed.

Surveys, evaluations and comments allow people with a few minutes to spare an opportunity to learn about a specific project topic and provide input in a variety of multiple choice, short answer and ranking questions. These surveys, evaluation and comments will both inform the public and gather necessary information to make decisions. Surveys, evaluations and comments will be available online to allow stakeholders and the public to provide input as needed.

- **E-Newsletter**

Email updates may be distributed by the COS at project milestones. Email updates will announce opportunities to get involved and share links to surveys and recent engagement summaries.

- **Social Media**

The popularity and accessibility of social media enables users to receive up-to-date information immediately. Social media channels may be used as a tool to help share information throughout the project and accounts such as the COS Facebook, and other accounts will expand the reach of the Riverfront Redevelopment Project among its followers. This allows information about the Project to reach a broader portion of the public, including underrepresented communities. Individuals who may not want to engage or be able to participate via traditional public engagement methods can still be a part of the engagement process if they use social media.

# VIII. DECISION-MAKING PROCESS

## A. Public Input Documentation

The project team will share summaries of engagement efforts and input received with the Project Management Team (consisting of City of Soldotna and First Forty Feet Team representatives) and city council to help make key project decisions. Comments emailed or mailed to COS outside of a specific engagement event will also be included in the summaries. These summaries may take the form of a list of major themes discussed, verbatim input or infographics depending on the content and depth of input collected. Summaries of engagement efforts and input received will be posted on the COS website at project milestones and leading up to project decisions, to demonstrate that the input has been recorded and provided to decision makers and the community.

## B. Decision Makers

The decision-making process is led by the following groups that are informed by input gathered from public engagement efforts.

- **City Of Soldotna**

The Soldotna Riverfront Redevelopment Project will be organized and managed by a Project Management Team (PMT) comprised of John Czarnezki (JC) (Planning & Economic Development Director), Stephanie Queen (SQ) City Manager, Laura Rhyner (Assistant to the City Manager), Jennifer Hester (JH) (Associate Planner), and the Consultant Team (CT) includes key personnel from First Forty Feet, EcoNW, Greenworks and Kinney Engineering. The CT is led by the prime consultant, First Forty Feet (FFF).

- **Technical Advisory Group**

The Technical Advisory Group comprised of planning and public works staff from the City of Soldotna and as needed Agency partners (Kenai Peninsula Borough, ADOT, et. al.) as identified by COS, will provide technical input on issues including design, planning, environmental, phasing, and funding of the Project. Technical Advisory Committee members will review technical documents and make recommendations to the Project Management Team.

- **City Council**

The City Council will provide recommendations to the PMT on project decisions using input and findings from council meetings, technical analyses and public engagement findings.

- **Advisory Committee**

The Project Advisory Committee (PAC) will meet periodically through group meetings where they will explore topics and project deliverables and provide guidance and insight with representatives from the COS and Project Consultant Team during the project milestones— Goals and Objectives Identification and Conceptual Planning and Master Plan documentation.



# APPENDIX D: ENGAGEMENT

## D.1 Community Engagement Plan

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Document: Project Handout; Engagement Boards for Display at the Community Workshop; Engagement #1 Feedback Form; and Engagement Results for sessions with the community and the Chamber of Commerce. FIRST FORTY FEET

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## D.4 Engagement Milestone #2: Build the Vision- Preliminary Development Concepts

Document: Project Handout; Engagement Boards for Display at the Community Workshop; Engagement #2 Feedback Form; and Engagement Results for sessions with the community and the Kenai River Fish Habitat Symposium. FIRST FORTY FEET

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Description: *Presentations were a part of work sessions with the City Council and project advisory committee, to review and discuss: preliminary concepts and the results of the Engagement #1 sessions, development feasibility analysis, and the preferred plan elements and development strategy.*

# Project Advisory Committee

## I. Introduction

The Soldotna Riverfront Redevelopment Project will utilize a representative Project Advisory Committee (PAC) consisting of members representing property ownership, and businesses in the Project area, those involved in Downtown business, outdoor recreation and tourist advocacy organizations/group as well as others interested in area redevelopment (Kenai Peninsula Borough, banking, attorney, architect, homeowners, neighbors, etc.). The PAC will advise City of Soldotna (COS) staff and the consultant team as they identify issues, develop and refine concepts into recommendations, and guide the development of a Master Plan. Members will be expected to make an approximately 12-month commitment to the Project process.

Committee members will be asked to share their advice, insight and expertise with fellow PAC members, COS and consultant team as well as their broader communities. Although the PAC is an advisory group and is not expected to come to a consensus on all matters, members will be expected to be fair-minded and listen respectfully as others express their opinions and perspectives.

Staff will also consult technical advisors from City departments and Agencies with jurisdiction within the Project area. These discussions will be shared with the PAC.

Public engagement will consist of public and stakeholder meetings, to share information, gauge opinions, and to refine goals and objectives. The engagement plan (separate document) highlights the type of engagement activities, outreach methods and feedback gathering to occur within two major project milestones.

## II. Roles

The PAC will advise and make recommendations to Project staff, and the consultant team who are committed to ensuring PAC discussions and proposals are accurately recorded and made available to the community. The consultant team in coordination with Staff will formulate concepts, refinements and a master plan using PAC input, City Council guidance, feedback from the broader community, as well as direction from the Comprehensive Plan and other adopted City policies and plans. The City Council, through a public process, will make the final decisions and recommendations for Master Plan adoption. The Master Plan and Engagement Summary will include information about the PAC meetings and discussions as well as how these meetings informed the Master Plan.

## II. Responsibilities

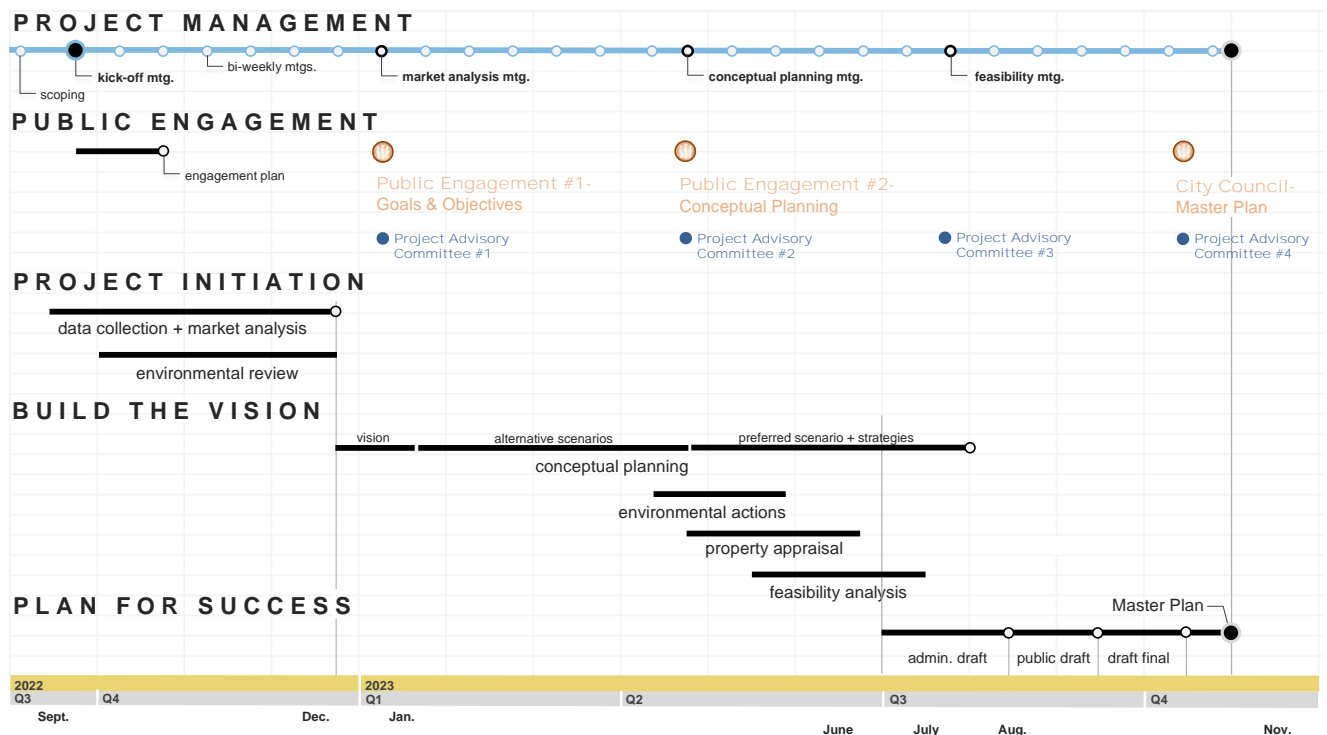
Ideally, committee members should both share their expertise and serve as conduits of information to and from their organizations and networks. In addition to acting as conduits to the larger communities of stakeholders, PAC members will be asked to participate in scheduled meetings and events during this 12-month project:

**PAC meetings.** The PAC will meet up to four times over the the 12-month project schedule. (See Project Schedule below.) Beyond attending these meetings, members may be asked to review materials prior to meetings. Meetings will be facilitated by the consultant team and City staff and held at City Hall during key project Milestones, lasting approximately 90-minutes.

**Public events.** City staff and the consultant team will be running a parallel public involvement process to gather broad community feedback with public events and discussions scheduled at key milestones over the course of the project. PAC members will be encouraged to attend these events to help share conversations the PAC has had and to listen to input from event attendees.

**City Council.** PAC members will be encouraged to attend the City Council adoption meeting scheduled for fall 2023.

## III. Schedule



# APPENDIX D: ENGAGEMENT

## D.1 Community Engagement Plan

Document: Soldotna Riverfront Redevelopment Project: Engagement Plan. FIRST FORTY FEET

Description: *The plan identifies the Project's engagement goals and objectives, key engagement milestones, the outreach strategy, method of stakeholder identification, engagement methods, and the role of decision-makers in the project process.*

## D.2 Project Advisory Committee Plan

Document: Soldotna Riverfront Redevelopment Project: Project Advisory Committee- Roles & Responsibilities; FIRST FORTY FEET

Description: *The plan sets the expectations for the project advisory committee including roles, responsibilities and a schedule of project advisory committee meetings.*

## D.3 Engagement Milestone #1: Project Initiation- Objectives and Vision

**Document: Project Handout; Engagement Boards for Display at the Community Workshop; Engagement #1 Feedback Form; and Engagement Results for sessions with the community and the Chamber of Commerce. FIRST FORTY FEET**

**Description:** *Various engagement materials including an overall project handout, describing the project objectives, project area map and project timeline; large format boards illustrating the project area and timeline, elements that shape community identity, the places where people gather today and types of places they would like to see in the future, the challenges to walking and biking in the downtown and type of facilities to be considered in the project. A project feedback form was used to gather feedback on places and attributes of Soldotna that people value, the types of desirable future uses and riverfront activities in the project area, and opportunities and challenges related to riverfront access and general walk and bike conditions in and around the downtown. A summary of engagement results are tallied for each question posed during a community workshop and Chamber of Commerce luncheon.*

## D.4 Engagement Milestone #2: Build the Vision- Preliminary Development Concepts

Document: Project Handout; Engagement Boards for Display at the Community Workshop; Engagement #2 Feedback Form; and Engagement Results for sessions with the community and the Kenai River Fish Habitat Symposium. FIRST FORTY FEET

Description: *Various engagement materials including an overall project handout, describing the project objectives, project area map, project timeline and the "big ideas" for future redevelopment; large format boards illustrating the project area and timeline, the vision for downtown redevelopment, and preliminary concepts for parks, plazas and trails, riverfront and highway development and new and enhanced streets and trail connections.. A project feedback form was used to gather feedback on the project vision and preliminary development concepts. A summary of engagement results are tallied for each question posed during a community workshop and at the Kenai River Fish Habitat Symposium.*

## D.5 City Council Work Sessions

Document: The Big Ideas and Preliminary Concepts, Market Hall Options and Development Feasibility, and Downtown Riverfront Redevelopment Plan Elements slideshow presentations. FIRST FORTY FEET and ECONorthwest.

Description: *Presentations were a part of work sessions with the City Council and project advisory committee, to review and discuss: preliminary concepts and the results of the Engagement #1 sessions, development feasibility analysis, and the preferred plan elements and development strategy.*



SOLDOTNA

# RIVERFRONT REDEVELOPMENT PROJECT

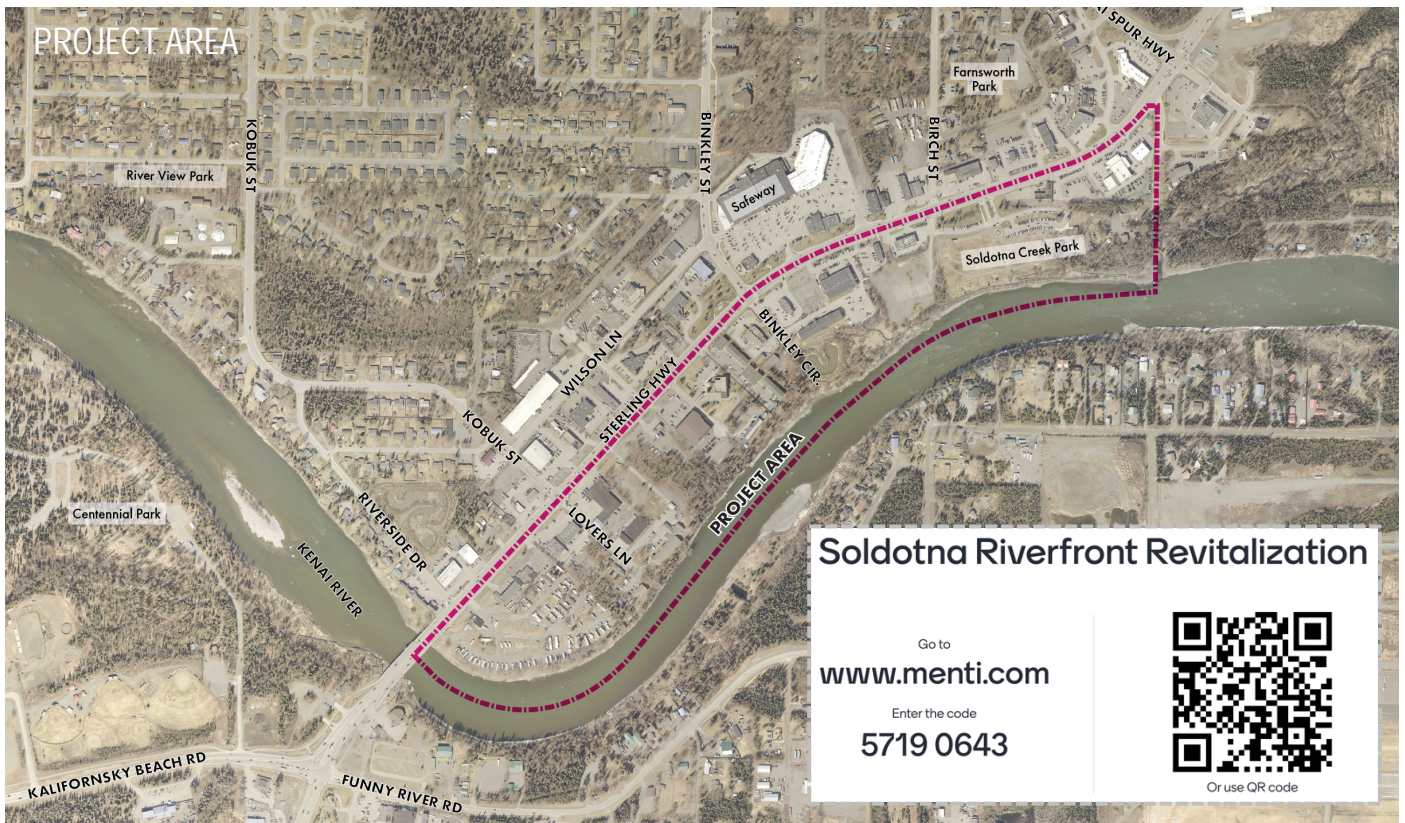
The City of Soldotna seeks to work with land and business owners, residents and community partners to **redevelop an 85-acre portion of downtown**— currently a mix of auto-orientated businesses along the busy Sterling Highway along with underutilized and undeveloped properties located between the Sterling Hwy and the world-renowned Kenai River.

The Kenai River is envisioned as the centerpiece of a walkable, connected downtown and plays a vital role in the local and regional economy of the central peninsula

The Riverfront Redevelopment Plan is intended to **be transformative and a strategy to guide the Downtown's long-term economic development goals**—seeking to foster new investment and partnerships, create jobs, and improve the quality of the built environment for residents and visitors.

Portland, Oregon firm First Forty Feet has assembled a multi-disciplinary team that is well-positioned to partner with the City to:

- » Create a **one-of-a-kind riverfront experience** that attracts locals and tourists with shopping, dining, & lodging in a walkable environment.
- » Highlight and **incorporate the Kenai River** with the Downtown.
- » Remedy environmental issues on a 10-acre brownfield site to **promote riverfront investment**.
- » **Identify critical infrastructure**, including roads, water, sewer, and energy investments necessary to support redevelopment.
- » Increase the inventory of developable commercial land to **support local businesses, business expansion and attract new entrepreneurs** to the community.
- » Identify opportunities for **public and private partnerships**.
- » Explore **options and strategies** for funding and implementation.



# PROJECT TIMELINE

## Project Initiation

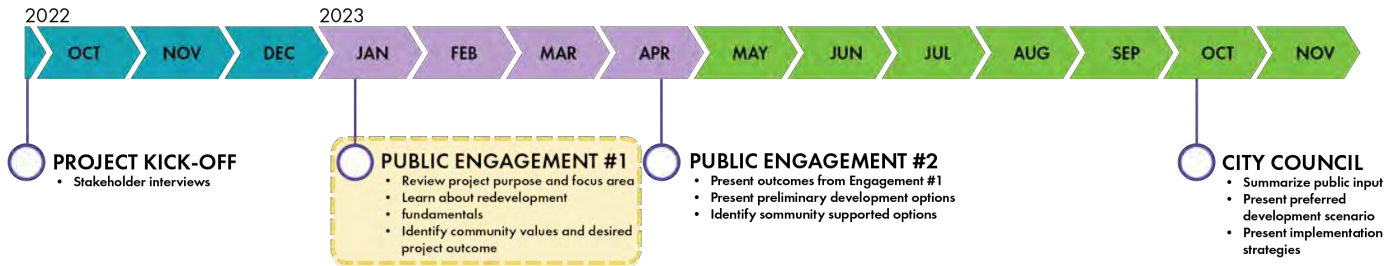
## Build the Vision

## Master Plan

Existing Conditions | Market Analysis | Environ. Review

Conceptual Master Planning | Preliminary Development Scenarios

Refined Master Plan | Preferred Development Scenario | Implementation Strategies



# PROJECT CONTACTS

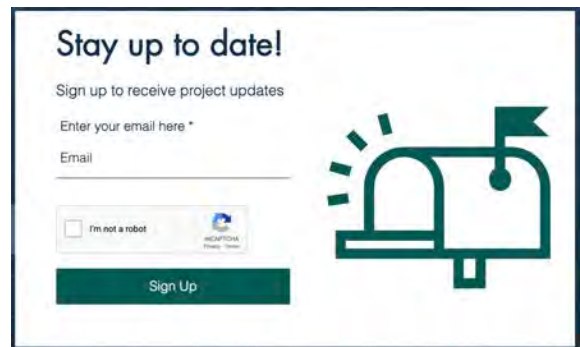
### City of Soldotna

John Czarnezki  
 Director of Economic Development and Planning  
 jczarnezki@soldotna.org  
 907.714.1246

### First Forty Feet (Consultant)

Jason Graf  
 Project Manager  
 jason@firstfortyfeet.com  
 503.890.6755

## Subscribe to Soldotna Riverfront Redevelopment









Visit the project webpage @ [www.soldotnariverfront.org/](http://www.soldotnariverfront.org/)

# Soldotna Riverfront Redevelopment

A plan to redevelop a portion of downtown and create a one-of-a-kind riverfront experience.



## Objectives

-  Create a **one-of-a-kind riverfront experience** with shopping, dining, and lodging in a walkable destination
-  Support **local businesses, business expansion and attract** new entrepreneurs
-  **Highlight and incorporate** the Kenai River with the Downtown
-  Identify opportunities for **public and private partnerships**
-  **Identify critical infrastructure** to support redevelopment
-  Explore **options and strategies** for funding and implementation

# Identity

## History

History begins with the **Dena'ina Athabaskan** people who have lived in and used the areas around the Kenai River for many thousands of years.

**Homesteaders** arrived in the late **1940's**. WWII veterans were encouraged to lay claim to Alaska's land.



**Sterling Highway, Kenai River Bridge, and Kenai Spur Highway** were constructed in the **1950's**.



Kenai River Bridge replaced and widened in 1965

New infrastructure resulted in increased settlement to the area. Development spurred along the highways.

In **1960** Soldotna became **incorporated**. The Kenai Peninsula Borough, college, and school district formed.



Business was booming by the **1970's**. The **Central Peninsula Hospital** opened as the first in the region.

1980

1988

1995

2011

2012

2015

Soldotna  
Creek Park  
deeded

Soldotna  
Comprehensive  
Plan

Soldotna  
Mainstreet  
Plan

Envision  
2030 Plan

Soldotna  
Creek Park  
updated

Downtown  
Improvement  
Plan



# Identity

## Location

**THE KENAI BEACH**  
Kenai Beach has stunning sunsets and views of the Aleutian Mountain Range. Beach goers can freely fish for marine life here.

**OLD TOWN KENAI**  
The Historic Old Town Kenai district features some of the oldest structures in Alaska. Chapels from the late 19th century still host services today.

**ANCHORAGE**

**CHUGACH STATE PARK**

**SEWARD HWY (NATIONAL SCENIC BYWAY)**

**CAPTAIN COOK STATE RECREATION AREA**

**CHUGACH NATIONAL FOREST**

**TSALTESHI TRAILS**

**KENAI**

**SOLDOTNA**

**STERLING HWY**

**SEWARD HWY (NATIONAL SCENIC BYWAY)**

**SEWARD HARBOR**

**KENAI RIVER**

**KENAI NATIONAL WILDLIFE REFUGE**

**WEDNESDAY MARKET**  
Award winning market with over 100 vendors in Soldotna Creek Park weekly from June to August.

**CARIBOU HILLS**

**THE SPIT: BOARDWALK**  
The Homer Spit is a strip of land jutting into the Kachemak Bay with boardwalks of shops, art galleries, restaurants and beaches.

**THE SPIT: HARBOR**  
The Homer Spit is the hub of local fishing activity, launching fishing charters into Kachemak Bay from the harbor.

**SEWARD**

**SEWARD HWY (NATIONAL SCENIC BYWAY)**

**KENAI FJORDS NATIONAL PARK**

**KACHEMAK BAY STATE PARK**

**KENAI FJORDS TOURS**  
Seward is the gateway to the Kenai Fjords and a main hub for cruises in Alaska. The iconic fjords have majestic views of landscape and wildlife, including humpback and killer whales.

**SEWARD HARBOR**  
A walkable string of shops, dining, tour companies, and lodging options along the harbor.

Soldotna is a **HUB** and **CENTER** for:



**GOVERNMENT**



**HEALTH**



**EDUCATION**



**RETAIL & SERVICES**



**NATURE & WILDLIFE**

# Identity

## Community Gathering

Where do you meet friends and family in the downtown?  
Place a ★.

Where is the 'heart' of downtown?  
Place a ♥.



Today, Soldotna has a wealth of community gathering places. In the future, downtown redevelopment can support new indoor and outdoor gathering places.



**FOOD & BEVERAGE**



**RETAIL**



**PARKS & NATURAL AREAS**



**SPORTS & RECREATION**



**CULTURAL FACILITIES**

# Place

## Public Spaces and Downtown Character

### Storefronts:



### Riverfront Dining:



### Riverwalk:



# Place

## Public Spaces and Downtown Character

**Landing Overlook:**



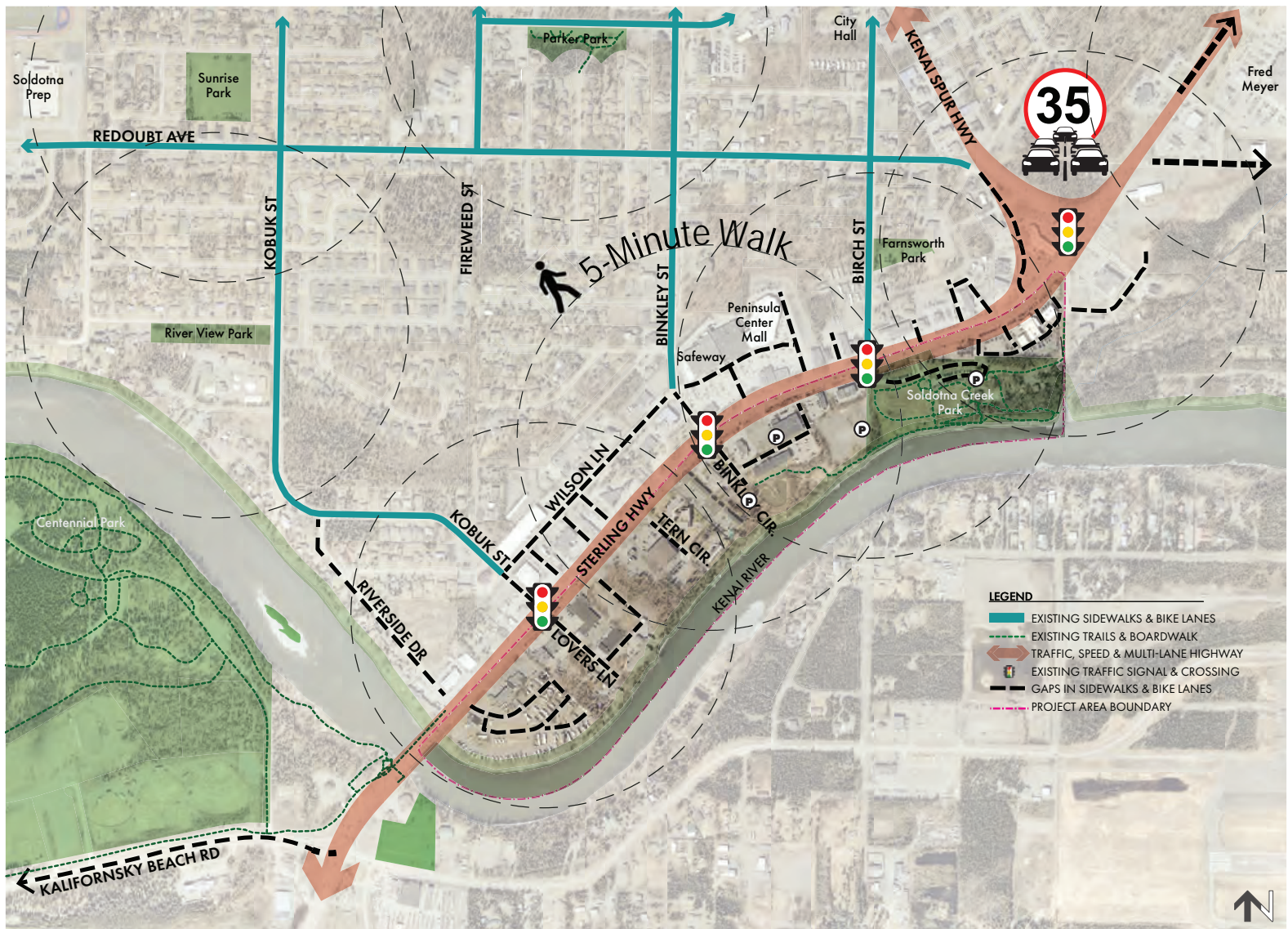
**Main Street:**



**Public Plaza:**



# Connected Challenges



## Many community destinations are within a short 5-minute walk or bike.



**Gaps** in sidewalks and bike lines must be eliminated to create stronger links between downtown shopping and dining and riverfront destinations like Soldotna Creek Park.



**Barriers** to walking and biking include multi-lane traffic, vehicle speed and limited signalized crossings of the Sterling Highway.



**Riverfront Trails & Boardwalks** are located on each end of the project area, however there are significant trail gaps and no areas to view the river between Soldotna Creek Park and the bridge.



**Parking** for events can exceed capacity at major destinations such as Soldotna Creek Park, while large parking lots are dispersed or are for private use only and may not be accessible by walking.

# Connected Opportunities

## Enhanced Crossings for Safer Intersections



## Safe and Protected Bikeways Encourage New Riders



## Overlooks and Landings Engage the River



## Wide & Comfortable Sidewalks Promote Walking

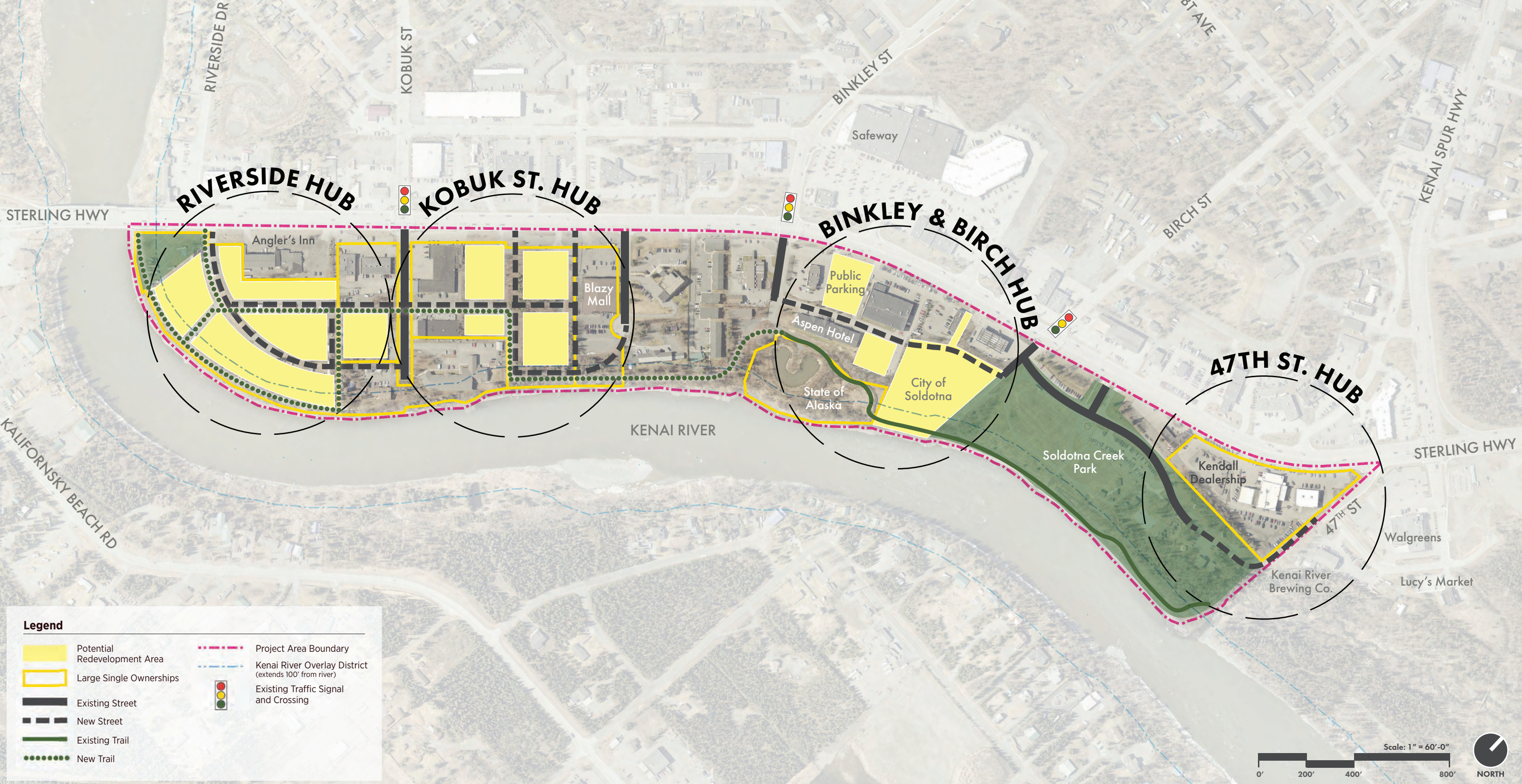


## River Access via Trails and Boardwalks



# Soldotna Riverfront Redevelopment Plan

Project Area



**Legend**

- Potential Redevelopment Area
- Large Single Ownerships
- Existing Street
- New Street
- Existing Trail
- New Trail
- Project Area Boundary
- Kenai River Overlay District (extends 100' from river)
- Existing Traffic Signal and Crossing

Scale: 1" = 60'-0"

0' 200' 400' 800'

NORTH

# RIVERFRONT REDEVELOPMENT PROJECT

## INTRODUCTION

Redevelopment of Soldotna’s downtown area is an opportunity to strengthen the heart of the community.

Your feedback is important to the project team in identifying community values and desired outcomes for potential redevelopment in the project area.

**Soldotna Riverfront Revitalization**

Go to  
**www.menti.com**

Enter the code  
**5719 0643**



Or use QR code

There are two options for providing feedback. 1. Scan the QR code with your phone or mobile device to complete the feedback form with the presentation. 2. Complete the questions in paper form below and on the following pages.

**Q1. Where do you like to meet family and friends in the downtown and riverfront area?**

**Q2. What two or three words best describe Soldotna?**

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_





## IDENTITY

Future redevelopment can support what is valued in the community----history, nature, gathering, active, art, & local.

### History

The downtown area has been shaped and influenced by the Kenai River, the early Homesteaders, and construction of the Sterling Highway.

### The Kenai Peninsula Hub

Soldotna’s central location on the peninsula and highway access has made it a center for government, healthcare, education and access to nature and wildlife. The downtown area serves as a major retail and services destination.

### Community

The downtown is a place where the community gathers anchored by Soldotna Creek Park and the riverfront serving as Soldotna’s “living room”, the addition of local breweries, shops, and restaurants and the soon to be built Soldotna Field House.

### Q.3 What are you most proud of about Soldotna?

#### Q.4 What makes Soldotna unique among other towns in the Kenai Peninsula?



### PLACE

Future redevelopment can support downtown as an 18-hour hub of activity. These hubs of activity such as dining, shopping and entertainment should be places that are walkable, have opportunities to engage the river and include indoor and outdoor spaces for gathering.

#### Hubs of Activity

Downtowns often have a variety of “places” where people want to be and are centered around, shopping, entertainment, recreation (indoor and outdoor), and culture (museums, centers, & libraries) or oriented to the river.

#### A “Main Street”

Many downtowns have a couple of blocks and a street address that is identifiable as the heart to the community and a destination for shopping, dining, entertainment (music venues and movie theaters), and culture (museums, and concert halls)

#### Engaging the river

Redevelopment can engage the river in several ways providing direct interaction with the river or views and overlooks to the river below and beyond.

#### Public gathering

Memorable downtowns have a variety of spaces to gather from parks (large and small), to plazas, and riverfronts that attract residents and visitors alike.

**Q.5 Where is the heart of Soldotna?**

**Q.6 What would you like to see in the downtown and riverfront area?**

**Q.7 Rank the most desirable downtown experiences? 1 being most desirable.**

- Shopping, dining, entertainment and cultural
- A Main Street
- Public gathering
- Riverfront engagement



## **CONNECTED**

Important features of a connected downtown and riverfront include streets, and trails providing safe, direct, and continuous access to destinations for all ages, abilities and users, whether you walk, bike, roll, or drive.

### **Sterling Highway Safety, Access, & Aesthetics**

The Sterling Highway is the primary traffic route through town, provides access to businesses and acts as a gateway or “front door” to Soldotna. Today, the highway can be a barrier for those walking and biking with limited street crossings, sidewalks next to busy traffic and no bicycle facilities. Future improvements could enhance the visual quality of the corridor, provide enhanced crossings, and a more comfortable environment for walking and biking.

### **New Street Connections**

New Streets can improve access to existing businesses and destinations and provide opportunities to support redevelopment areas oriented to the highway and the river.

### **Riverfront Connections**

The downtown riverfront consists of a riparian zone with gradual and steep slopes and public and private ownerships. Given these conditions there are a variety of ways to connect with the river such as with trails, boardwalks, overlooks and buildings oriented to the river.

### **Community Connections**

Kobuk Street, Birch Street, and Binkley Street are local streets that link to citywide destinations like parks, schools, employment areas and the downtown and riverfront area. Future street improvements can support safe and comfortable ways to walk, and bike as well as drive to these destinations.

**Q.8 What are safety, access, and visual challenges along Sterling Highway? Rate the challenges – 0-not a challenge and 10- very challenging.**

1. Vehicle speed	0	2	5	7	10
	-----	-----	-----	-----	-----
2. Traffic noise	0	2	5	7	10
	-----	-----	-----	-----	-----
3. Pedestrian crossings	0	2	5	7	10
	-----	-----	-----	-----	-----
4. Lack of bicycle routes	0	2	5	7	10
	-----	-----	-----	-----	-----
5. Lack of buffer between sidewalk and roadway	0	2	5	7	10
	-----	-----	-----	-----	-----
6. Light & landscaping	0	2	5	7	10
	-----	-----	-----	-----	-----
7. Winter maintenance	0	2	5	7	10
	-----	-----	-----	-----	-----

**Q.9 How desirable is walking and biking to downtown and riverfront destinations? Pick up to three.**

I frequently walk and bike to downtown destinations

I would walk or bike if there were safe options

I would walk short distances between downtown destinations

I prefer to drive to the riverfront and walk the trails & boardwalks

I prefer to drive a vehicle



## REDEVELOPMENT OPPORTUNITIES & CHALLENGES

**Q.10 What are the challenges to redevelopment?**

**Q.11 What are the opportunities for redevelopment?**

**Q.12 Do you have any additional comments to share with the project team?**



# TELL US ABOUT YOURSELF

(Optional)

**Q.13** What is the zip code of your home address? .....

**Q.14** Do you own a business, building, or land in the project area? .....

**Q.15** How often do you visit the downtown area between Kenai Spur Highway and the Kenai River Bridge?

- Daily
- Weekly
- Monthly
- Occasionally
- Rarely
- Never

**Q.16** For what purpose(s) do you visit the downtown area between Kenai Spur Highway and the Kenai River Bridge? Check all that apply:

- For my job/business
- Shopping
- Dining
- Entertainment
- Recreation
- Other:

**Q.17** Optional: Provide your name and the best way to contact you:

- Name: .....
- Mailing Address: .....
- City: .....
- State: .....
- Zip: .....
- Phone: .....
- Email: .....

**YES - I want to sign up to receive updates about the project.** (Be sure to provide your email address above.)

# *Poll Results - Chamber of Commerce Luncheon*

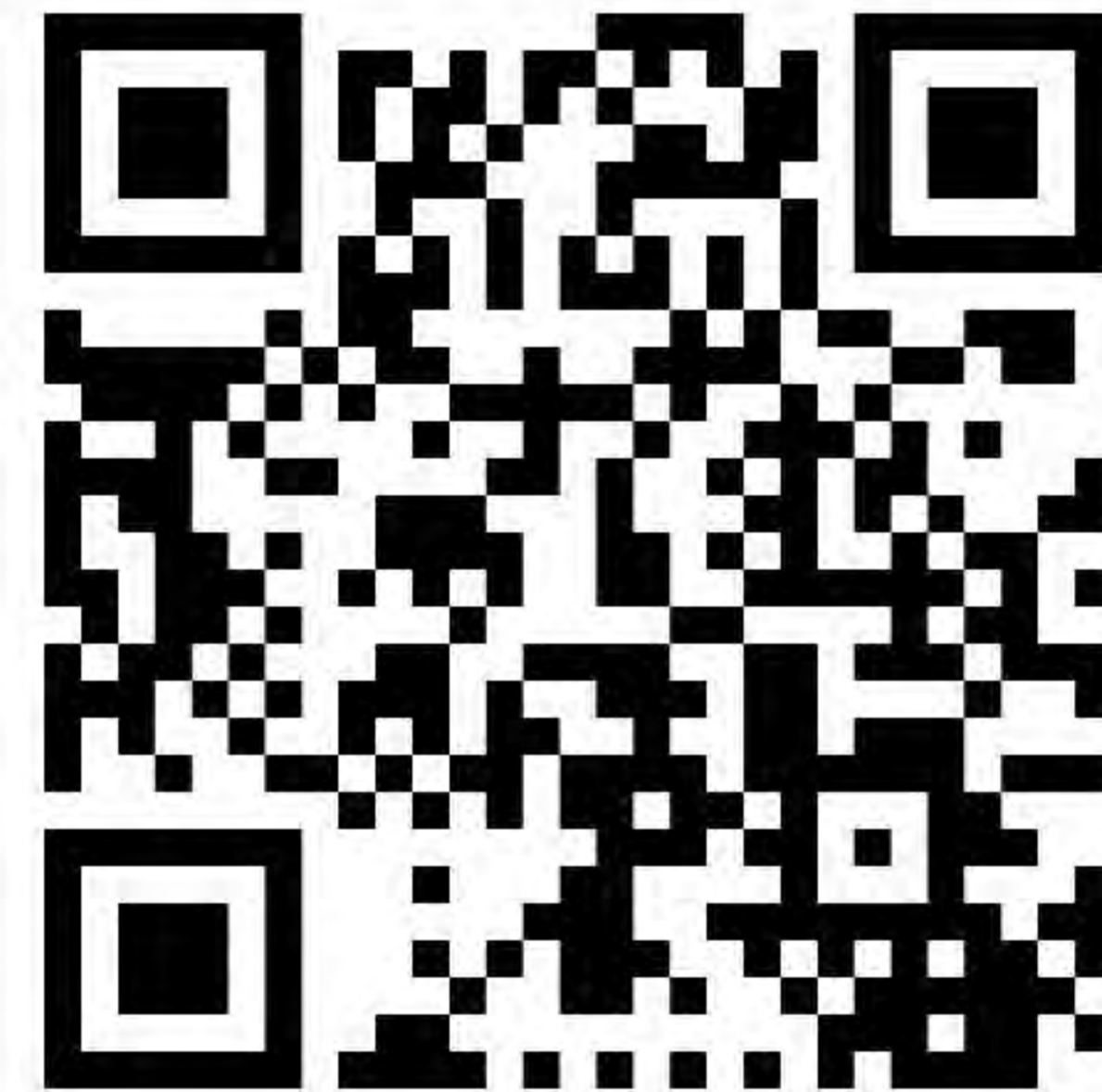


# Soldotna Riverfront Revitalization

Go to

**[www.menti.com](https://www.menti.com)**

Enter the code



Or use QR code



# What two or three words best describe Soldotna?



progressive  
my home for life  
friendly hometown  
healthy environment  
peaceful  
family  
budding  
healthy community  
friendly  
connected  
splendid  
growing  
tourist  
unique  
vibrant  
inviting  
local  
amazing people  
better than kendal  
family friendly  
fun  
hello  
community  
beautiful  
home  
engaging  
river  
river  
river  
bountiful  
energetic  
exciting  
unleash  
potential  
relaxing  
bustling  
rivercity  
cozy  
innovative  
awesome  
peaceful  
famous kendal river  
alluring



# Where do you like to meet family and friends in the downtown and riverfront area?

Kenai River brewing

Soldotna Creek Park

Soldotna Creek Park

Soldotna creek Park

The parks or restaurants.

Restaurant, cafe

Soldotna Creek Park

Soldotna creek park

Kenai river brewery

# Where do you like to meet family and friends in the downtown and riverfront area?

The bridge lounge because it's on the river

Park, Kenai River Brewery

Restaurant

Lucy's

Restaurant

Soldotna creek park

The Bridge Lounge

Kensi River Brewery

Soldotna Creek Park or Wednesday in the Park

# Where do you like to meet family and friends in the downtown and riverfront area?

Soldotna Creek Park

Restaurant

Indoor or outdoor restaurant WITH a bar.

Soldotna Creek Park or restaurant

krb

Soldotna Creek Park

Kenai River Brewery

No place shown

Breweries, Kenai River and Saint Elias

# Where do you like to meet family and friends in the downtown and riverfront area?

The park

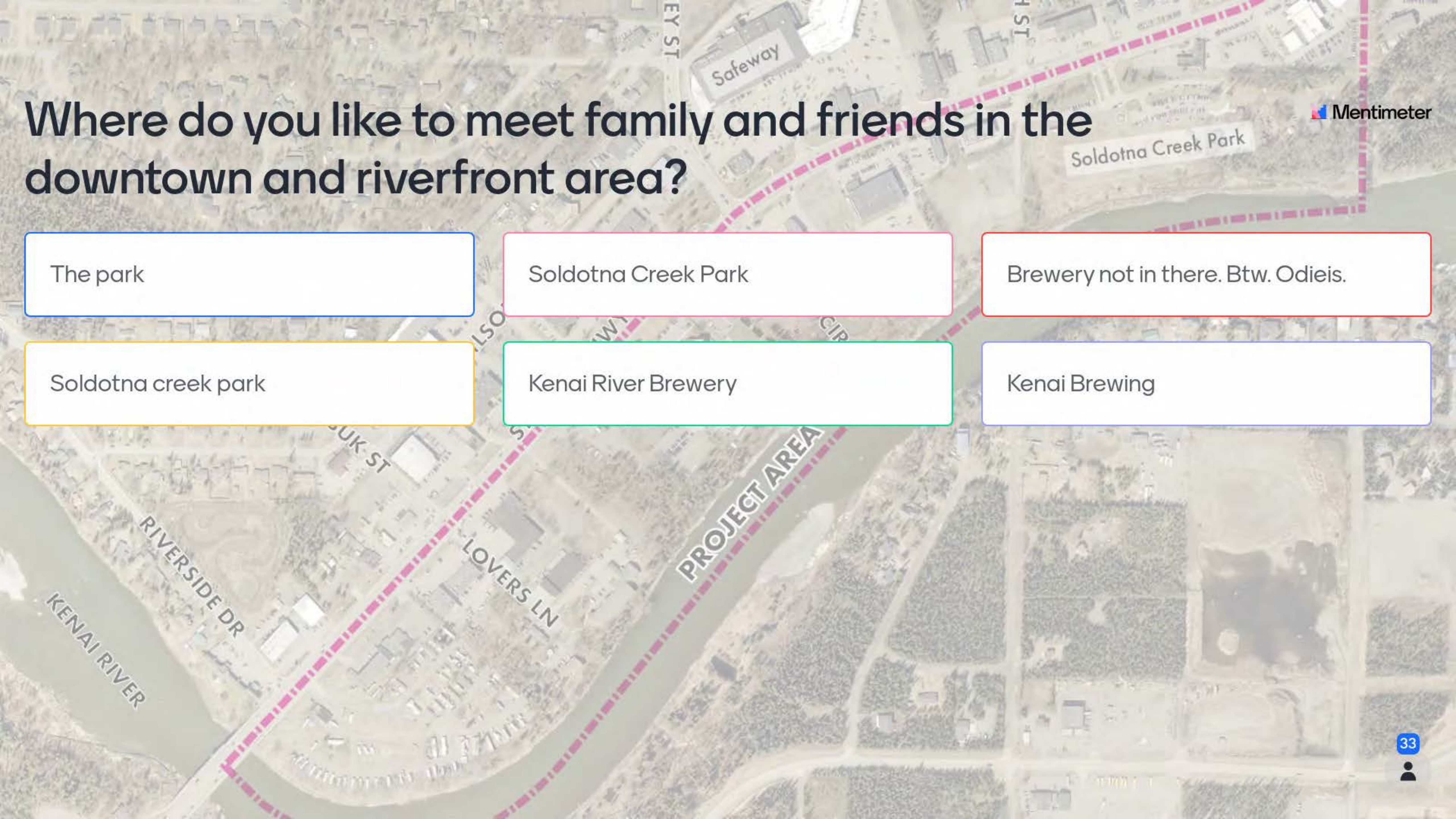
Soldotna Creek Park

Brewery not in there. Btw. Odieis.

Soldotna creek park

Kenai River Brewery

Kenai Brewing





# What are the top three challenges to redevelopment?





# What are the opportunities for redevelopment?

open the area to visitors  
engagement  
landowner support  
growth improve city  
access

# What questions do you have?

 Mentimeter





# *Poll Results - Community Open House 1*

# Soldotna Riverfront Revitalization

Go to

**[www.menti.com](https://www.menti.com)**

Enter the code



Or use QR code



# Where do you like to meet family and friends in the downtown and riverfront area?

Bridge Lounge

Kenai River Brewery

Soldotna Creek Park

Pizza boys

Brewery

Soldotna Creek Park

Kenai River Brewery

The Bridge Lounge

Bridge lounge



# Where do you like to meet family and friends in the downtown and riverfront area?

Soldotna creek park

Lucy's Market

Kenai River Brewery

Kenai River Brewing Company

Kaladi's

Kenai River Brewing

The Park

Kenai River Brewing

Soldotna creek park  
Odies Deli  
Lucy's Market  
Kenai River Brewing  
Pizza  
Boys Bridge Lounge



# Where do you like to meet family and friends in the downtown and riverfront area?

Kenai River Brewing

Kenai River Brewing, The Bridge, Odies, Soldotna creek park , Mykels

Bridge lounge, krbb

Odies

Soldotna creek park

Soldotna creek park

Kaladi Brothers Coffee

Lucy's Market or Kenai River Brewing

Kenai River Brewery

# Where do you like to meet family and friends in the downtown and riverfront area?

KR Brewery,, Odie's,,, SC Park

Krb

Soldotna creek park

Kenai river brewery

Kaladis , park, restaurant

Soldotna creek park.Fishing spots.

DQ

Soldotna creek park

KRB

# Where do you like to meet family and friends in the downtown and riverfront area?

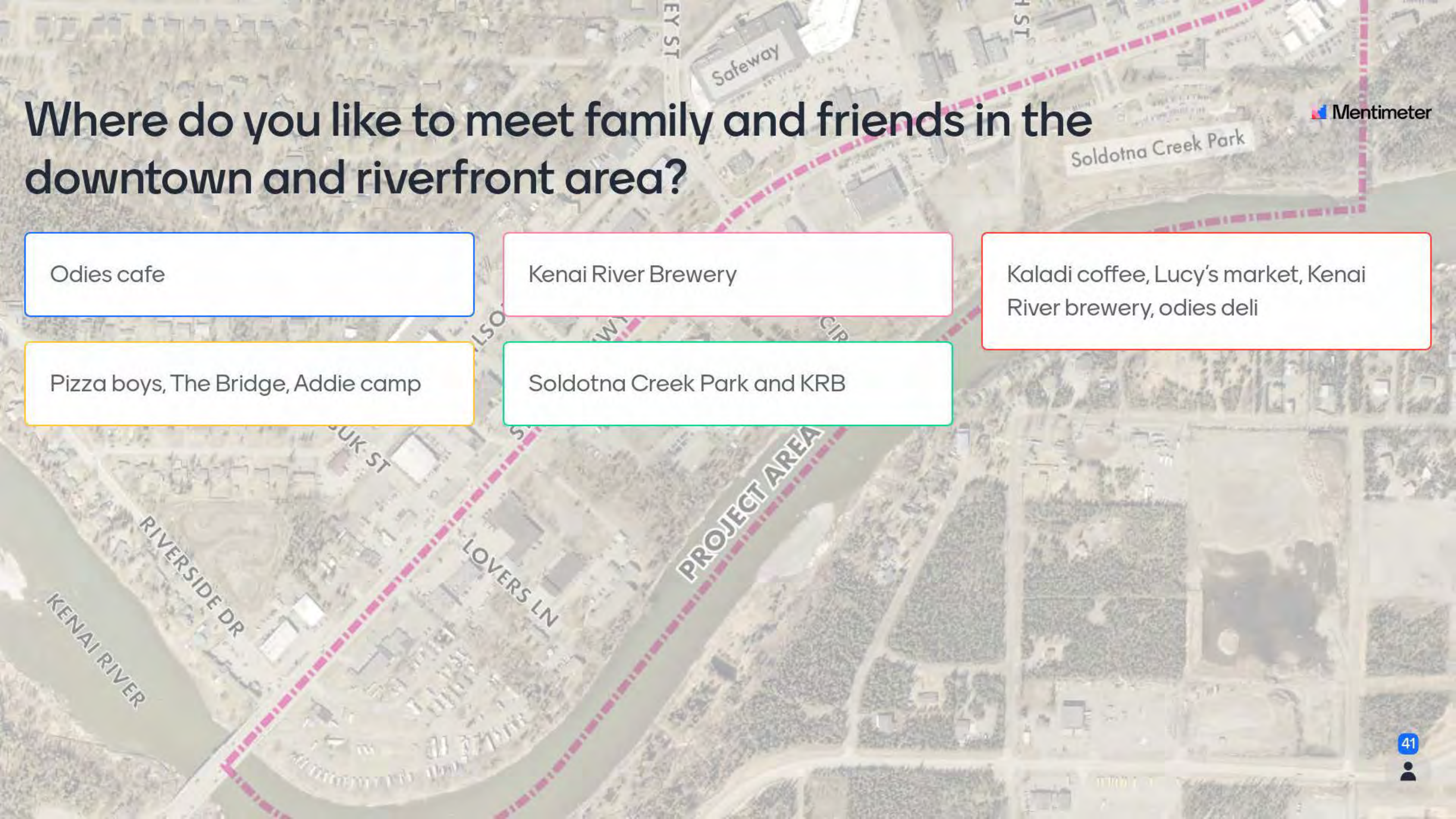
Odies cafe

Kenai River Brewery

Kaladi coffee, Lucy's market, Kenai River brewery, odies deli

Pizza boys, The Bridge, Addie camp

Soldotna Creek Park and KRB



# What are you most proud of about Soldotna?

Soldotna Creek Park

Kenai River Small town charm Local businesses

Our growth

Activities and community

Kenai Peninsula College

Strong community ties

Salmon

The City Manager and Council having open minds

Trail system



# What are you most proud of about Soldotna?

Friendliness of people

The growth and the connections that are being made

Our trails

Great place to fish!

It's my home

Supporting small local business

Good place to raise family

Schools

The people that make up this community

# What are you most proud of about Soldotna?

Continual improvement in quality of life

Growth focused on community spaces

Our people

It is a great place to raise children.

Fishery

Connection to the Kenai River

Small town feel

Respect for fish

Perseverance of small business

# What are you most proud of about Soldotna?

So much energy around new ideas and businesses.

Progressive

Community friendly

The people

Fishing

The incorporation of the Dena'ina culture and language at the park.

Community involvement and opportunity for Community recreation

The Community feel, chamber involvement , entrepreneurship, our river, local pride

recent years' growth in both thought and infrastructure

# What are you most proud of about Soldotna?

The green spaces throughout the city and incorporation of nature into the city landscape.

Place, place, place  
Development  
Kenai  
River

Fiscal management. Invests in the community citizens business natural areas uses taxes in a manner that benefits all

The people.

**What makes Soldotna unique among other towns on the Peninsula?**



# Where is the heart of your town?

Words from the word cloud include: soldotna creek park river, soldotna y, parks, local businesses, lucys market, the people, kaladis, kenai river, krb, trustworthy, tsalteshi, the river, trails, business, soldotna creek park, the park, lucys, people, river, sohi, the y, fred meyers, kaladi brothers, river city, the beauty, homes, peninsula center mall, the bridge, safeway, park, fred meyer.

# What would you like to see in the Downtown & Riverfront Area?

Restaurants

Walkable shopping and dining with view of the river

Good restaurants

More access to river

Wine bar

Riverfront dining

An actual downtown

Walkable access

Better walking

# What would you like to see in the Downtown & Riverfront Area?

Bike/walking path

A salmon education area. Fishing passage viewing

Bike rentals

Public river access

More dining choices

Walkable/accessible spaces

A fourth starbucks

Walking spaces  
Gathering spots  
Beauty & greenery

Easier access for walking around town



# What would you like to see in the Downtown & Riverfront Area?

Roller Rink

Walking access along river from Brinkley to the beidge

Local businesses and a walking area centered around viewing the river

A place to sit and take it all in

Parking

Bistros More food options Farm to table restaurants

Restaurants and shops, movie theater, awesome bowling alley with bar

More green space and green infrastructure

Ice cream parlor

# What would you like to see in the Downtown & Riverfront Area?

Clean riverwalk with dining and shopping opportunities

Walkable storefronts w/apartments above

Outdoor gathering -bars, restaurants

Casual meeting spaces, recreation space, beer gardens, walkability

Walkable, live and work in same area.

Activities for families and adults, not bar related

Restaurant with riverview

Walkable pathways along the river. A new visitor center that can serve as a gateway into the community and starting point for exploring on foot.

Shopping

# What would you like to see in the Downtown & Riverfront Area?

Entertaining venue

Connectivity w walkways

Small businesses, family friendly Recreation spots

Walking connection from Soldotna Creek Park to Bridge on the River

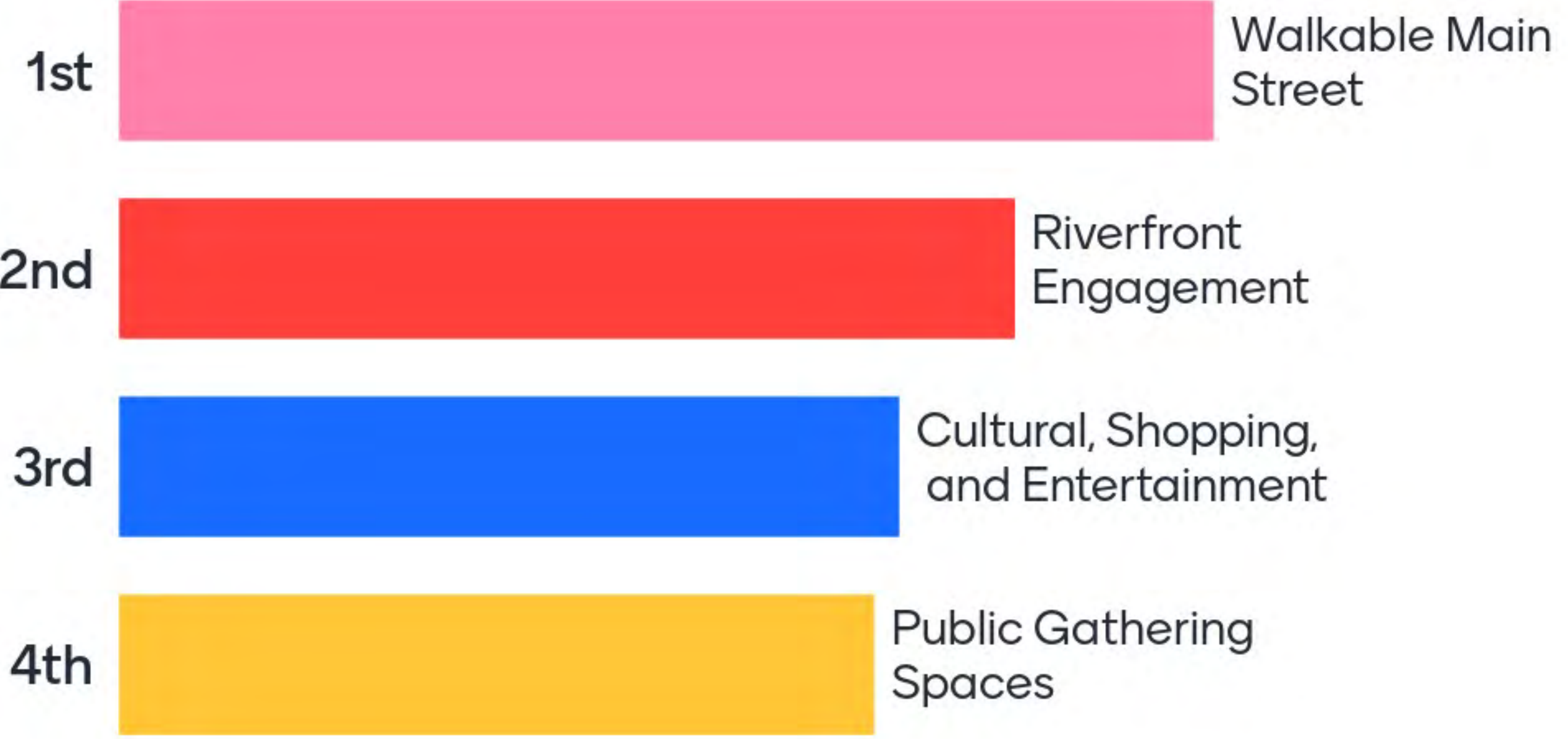
Walkable shops and local eateries

Walkable

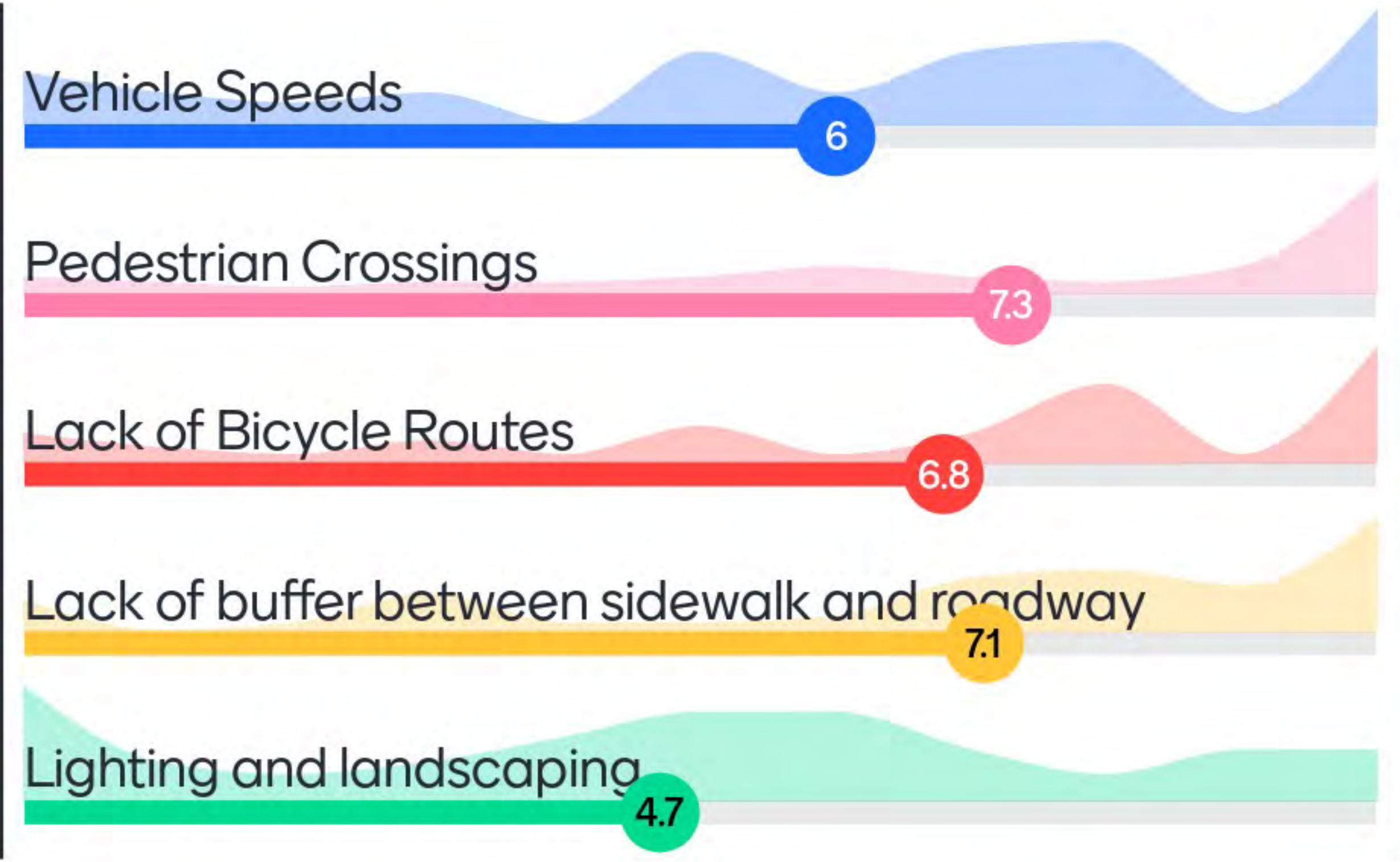
More classy establishments



# Rank the most desirable downtown experiences

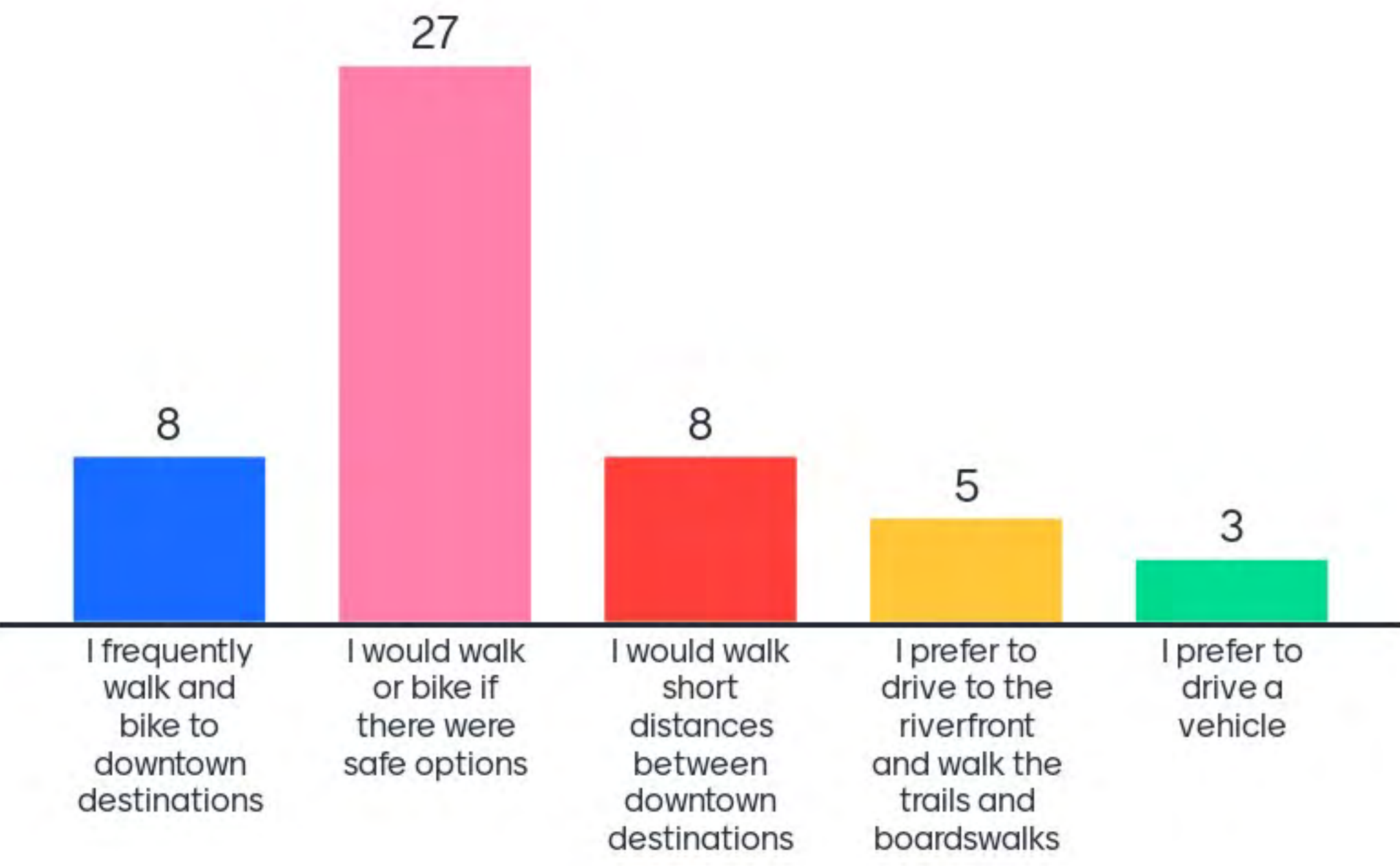


# What are safety, access, and visual challenges along Sterling Highway? Rate the challenges (0-no challenge- 10-very challenged)





# How desirable is walking and biking to downtown & riverfront destinations



**What are the top three  
challenges to  
redevelopment?**





# What questions do you have?



# APPENDIX D: ENGAGEMENT

## D.1 Community Engagement Plan

Document: Soldotna Riverfront Redevelopment Project: Engagement Plan. FIRST FORTY FEET

Description: *The plan identifies the Project's engagement goals and objectives, key engagement milestones, the outreach strategy, method of stakeholder identification, engagement methods, and the role of decision-makers in the project process.*

## D.2 Project Advisory Committee Plan

Document: Soldotna Riverfront Redevelopment Project: Project Advisory Committee- Roles & Responsibilities; FIRST FORTY FEET

Description: *The plan sets the expectations for the project advisory committee including roles, responsibilities and a schedule of project advisory committee meetings.*

## D.3 Engagement Milestone #1: Project Initiation- Objectives and Vision

Document: Project Handout; Engagement Boards for Display at the Community Workshop; Engagement #1 Feedback Form; and Engagement Results for sessions with the community and the Chamber of Commerce. FIRST FORTY FEET

Description: *Various engagement materials including an overall project handout, describing the project objectives, project area map and project timeline; large format boards illustrating the project area and timeline, elements that shape community identity, the places where people gather today and types of places they would like to see in the future, the challenges to walking and biking in the downtown and type of facilities to be considered in the project. A project feedback form was used to gather feedback on places and attributes of Soldotna that people value, the types of desirable future uses and riverfront activities in the project area, and opportunities and challenges related to riverfront access and general walk and bike conditions in and around the downtown. A summary of engagement results are tallied for each question posed during a community workshop and Chamber of Commerce luncheon.*

## **D.4 Engagement Milestone #2: Build the Vision- Preliminary Development Concepts**

**Document: Project Handout; Engagement Boards for Display at the Community Workshop; Engagement #2 Feedback Form; and Engagement Results for sessions with the community and the Kenai River Fish Habitat Symposium. FIRST FORTY FEET**

Description: *Various engagement materials including an overall project handout, describing the project objectives, project area map, project timeline and the "big ideas" for future redevelopment; large format boards illustrating the project area and timeline, the vision for downtown redevelopment, and preliminary concepts for parks, plazas and trails, riverfront and highway development and new and enhanced streets and trail connections.. A project feedback form was used to gather feedback on the project vision and preliminary development concepts. A summary of engagement results are tallied for each question posed during a community workshop and at the Kenai River Fish Habitat Symposium.*

## D.5 City Council Work Sessions

Document: The Big Ideas and Preliminary Concepts, Market Hall Options and Development Feasibility, and Downtown Riverfront Redevelopment Plan Elements slideshow presentations. FIRST FORTY FEET and ECONorthwest.

Description: *Presentations were a part of work sessions with the City Council and project advisory committee, to review and discuss: preliminary concepts and the results of the Engagement #1 sessions, development feasibility analysis, and the preferred plan elements and development strategy.*



# RIVERFRONT REDEVELOPMENT PROJECT

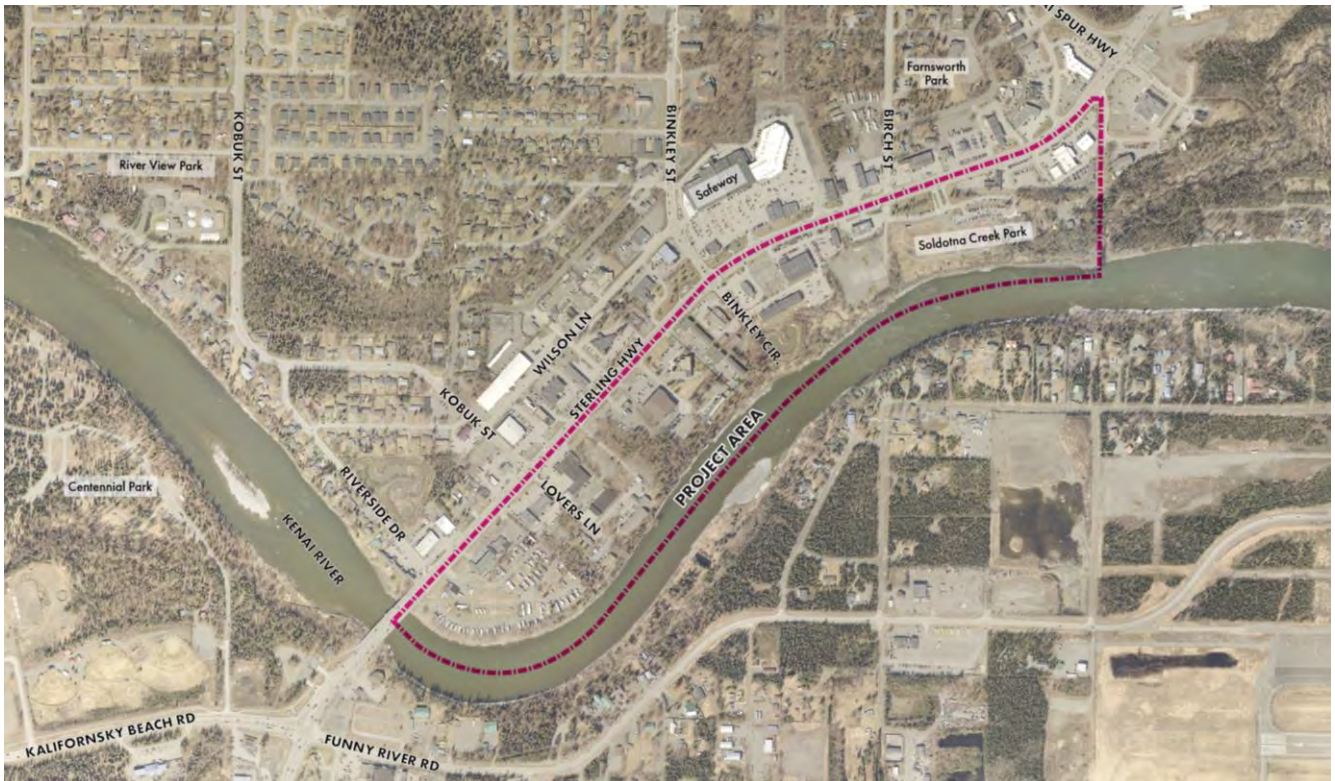
The City of Soldotna seeks to work with land and business owners, residents and community partners to redevelop an 85-acre portion of downtown— currently a mix of auto-orientated businesses along the busy Sterling Highway along with underutilized and undeveloped properties located between the Sterling Hwy and the world-renowned Kenai River.

The Kenai River is envisioned as the centerpiece of a walkable, connected downtown and plays a vital role in the local and regional economy of the central peninsula

The Riverfront Redevelopment Plan is intended to be transformative and a strategy to guide **the Downtown's** long-term economic development goals—seeking to foster new investment and partnerships, create jobs, and improve the quality of the built environment for residents and visitors.

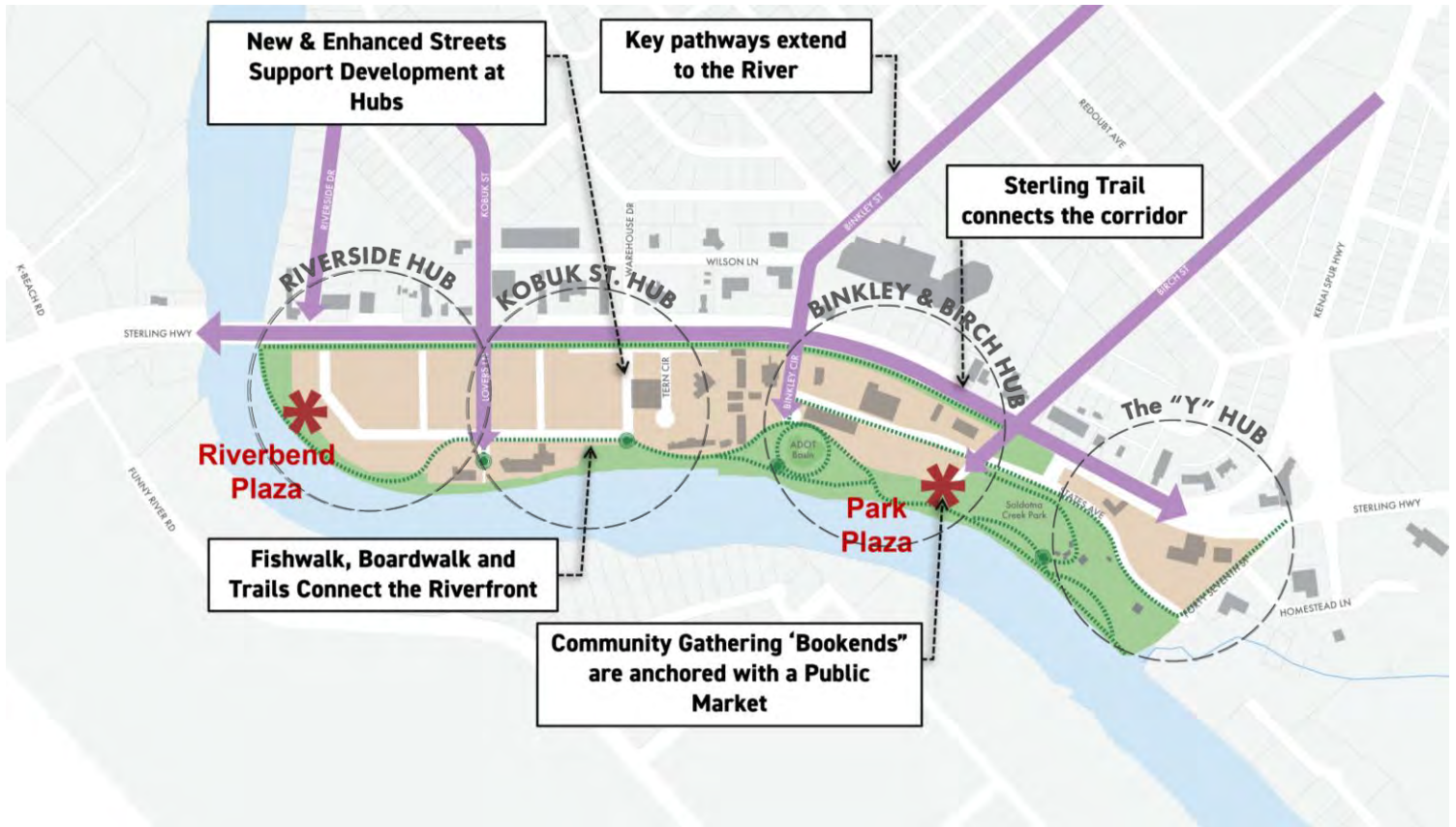
Portland, Oregon firm First Forty Feet has assembled a multi-disciplinary team that is well-positioned to partner with the City to:

- » Create a one-of-a-kind riverfront experience that attracts locals and tourists with shopping, dining, & lodging in a walkable environment.
- » Highlight and incorporate the Kenai River with the Downtown.
- » Provide housing options to meet local needs.
- » Remedy environmental issues on a 10-acre brownfield site to promote riverfront investment.
- » Identify critical infrastructure, including roads, water, sewer, and energy investments necessary to support redevelopment.
- » Increase the inventory of developable commercial land to support local businesses, business expansion and attract new entrepreneurs to the community.
- » Identify opportunities for public and private partnerships.
- » Explore options and strategies for funding and implementation.



# The Big Ideas

In response to community feedback and consistent with the project objectives a Vision for the redevelopment area is a place where nature and urban gathering spaces can coexist, expanding and enhancing one another. Strategies to implement the Vision are identified in the project area's "Big Ideas" for transforming the Sterling Highway corridor into a vibrant and active riverfront and downtown experience.



**IDENTITY:** The Kenai River corridor is a woven blend of **nature, wildlife, recreation & gathering.**

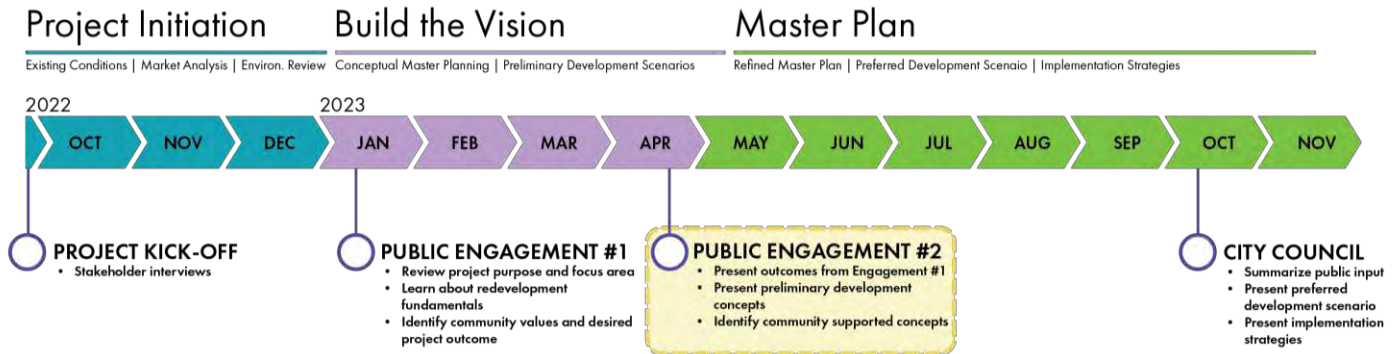


**CONNECTED:** **Key pathways** reconnect neighborhoods to the river and destinations along Sterling Highway



**PLACE:** New & enhanced streets support Downtown Hubs as **places to live, work, and play.**

# PROJECT TIMELINE



## PROJECT CONTACTS

City of Soldotna  
 John Czarnezki  
 Director of Economic Development and Planning  
 jczarnezki@soldotna.org  
 907.714.1246

First Forty Feet (Consultant)  
 Jason Graf  
 Project Manager  
 jason@firstfortyfeet.com  
 503.890.6755


## Subscribe to Soldotna Riverfront Redevelopment

**Stay up to date!**


Sign up to receive project updates

Enter your email here \*

Email

I'm not a robot 

**Sign Up**



Visit the project webpage @ [www.soldotnariverfront.org/](http://www.soldotnariverfront.org/)



# IDENTITY

## History of Gathering and Natural Preservation

History begins with the **Dena'ina Athabaskan** people who have lived in and used the areas around the Kenai River for many thousands of years.

**Homesteaders** arrived in the late **1940's**. WWII veterans were encouraged to lay claim to Alaska's land.



**Sterling Highway, Kenai River Bridge, and Kenai Spur Highway** were constructed in the **1950's**.



Kenai River Bridge replaced and widened in 1965

New infrastructure resulted in increased settlement to the area. Development spurred along the highways.

In **1960** Soldotna became **incorporated**. The Kenai Peninsula Borough, college, and school district formed.



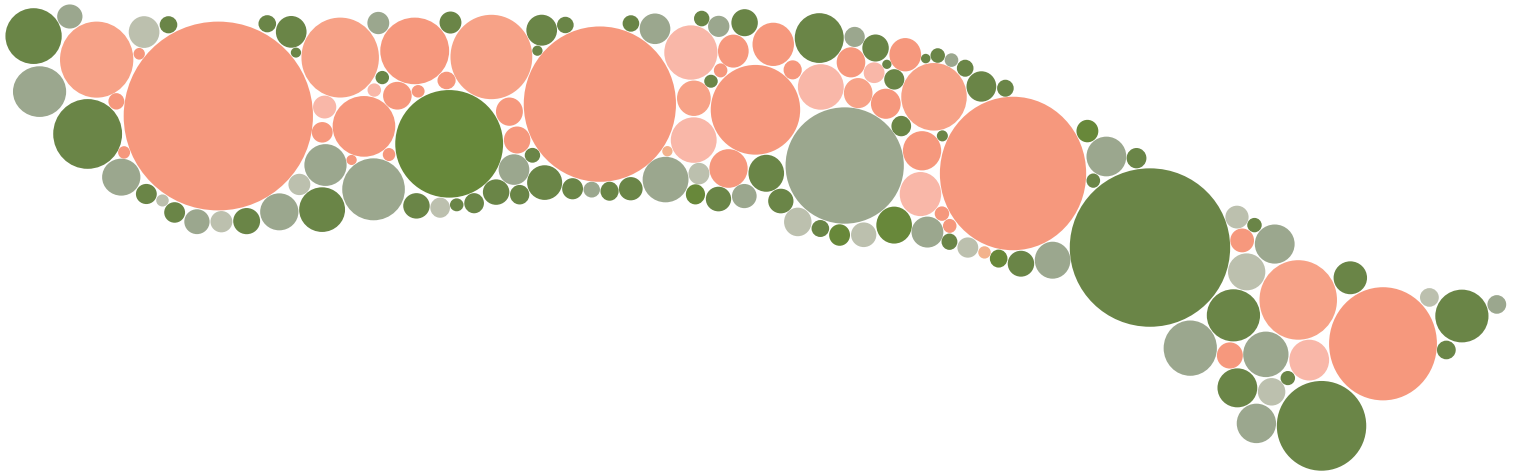
In **2012 Soldotna Creek Park opened**, serving as a valuable natural asset and gathering place in the city.





# IDENTITY

Soldotna is where the natural landscape and urban gathering spaces coexist, expanding, and enhancing one another.



GATHERING



NATURE





# IDENTITY

Through intelligent design, we can do what's best for the natural environment and for social well-being through gathering.







# PLACE

## Concept 1: River Street

**Bridgehead Public Market**



**River Street**

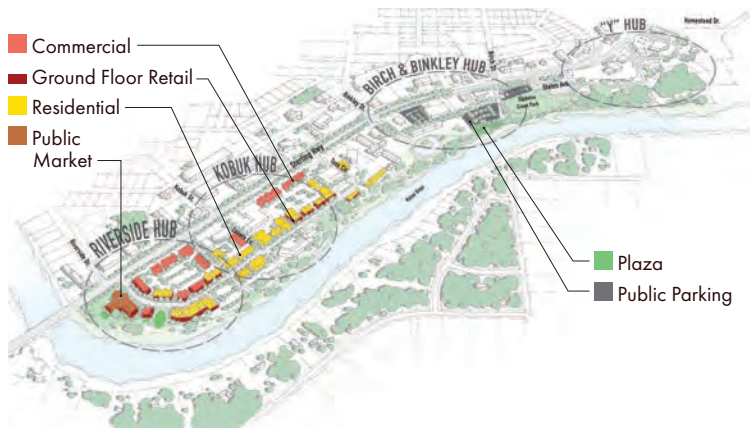


**Plaza**

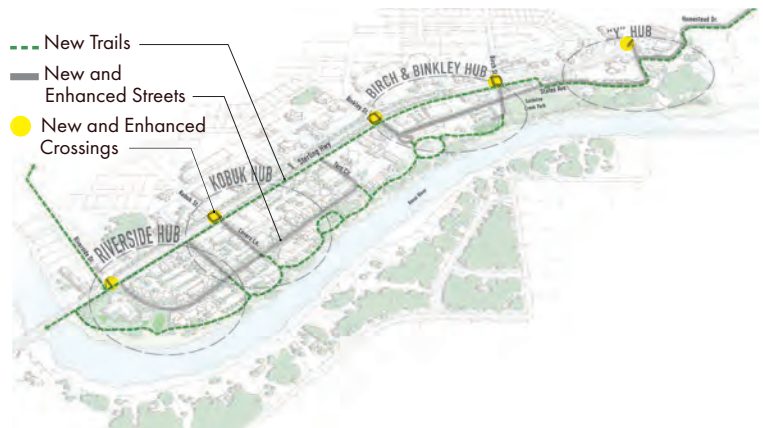


**Riverwalk Trail**

### Mix of Uses



### Enhanced Network of Streets + Trails





# PLACE Concept 2: Main Street

### Fishwalk



### Main Street



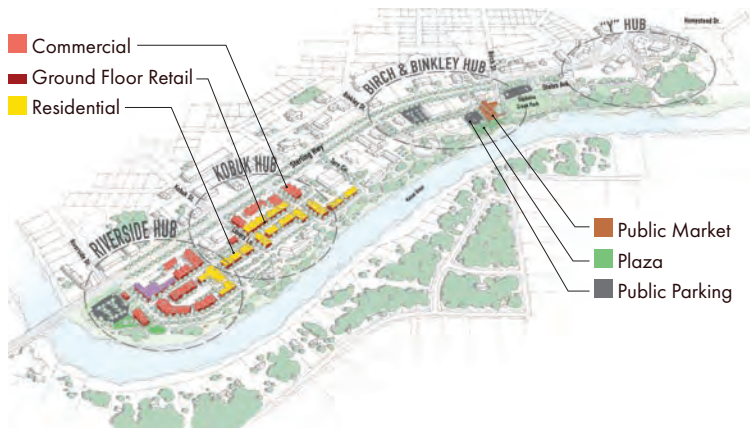
### Parkside Public Market



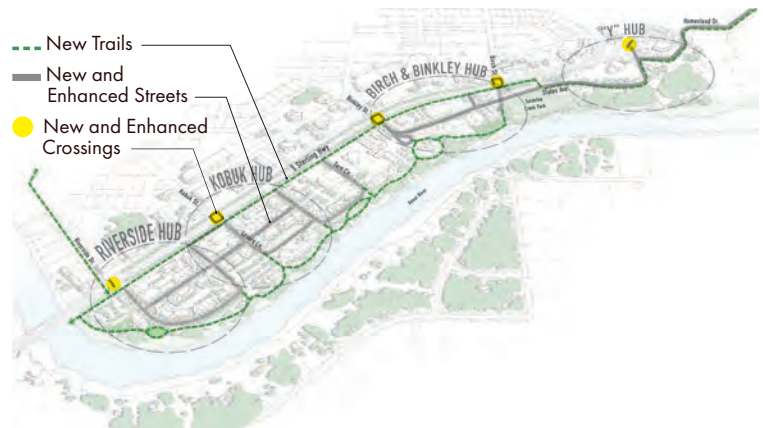
### Plaza



## Mix of Uses



## Enhanced Network of Streets + Trails





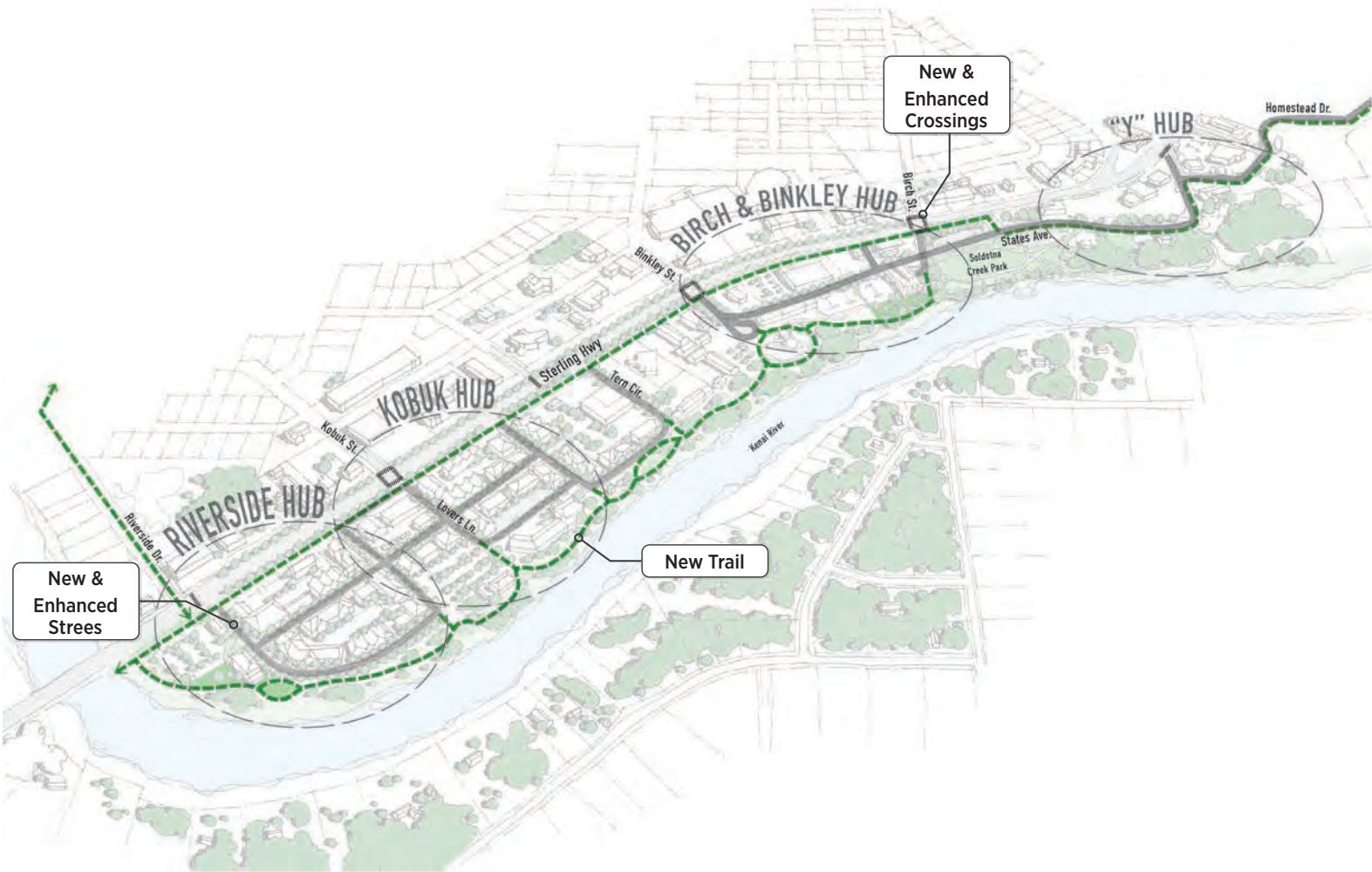
# PLACE 'Bookends' Public Gathering





# CONNECTED

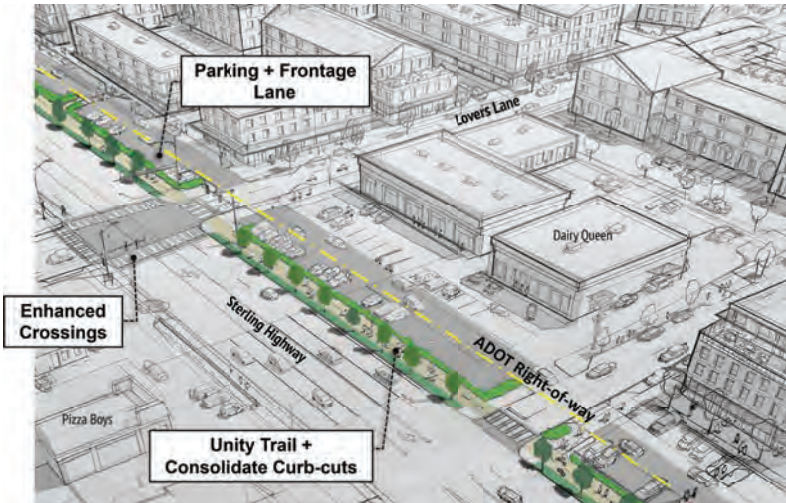
## Improving Walking & Biking on Sterling Highway



### Unity Trail at Sterling Highway Recommended Improvements



### Built Improvements





# CONNECTED

## Trails and Overlooks Provide River Access

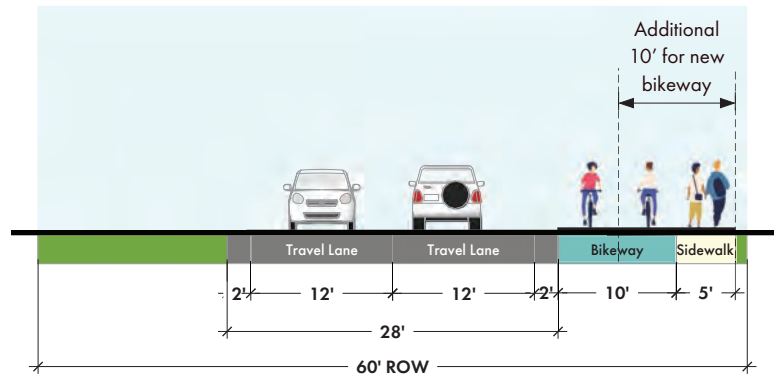
### New Kenai River Upland Trail



### Enhanced Riverside Drive Before



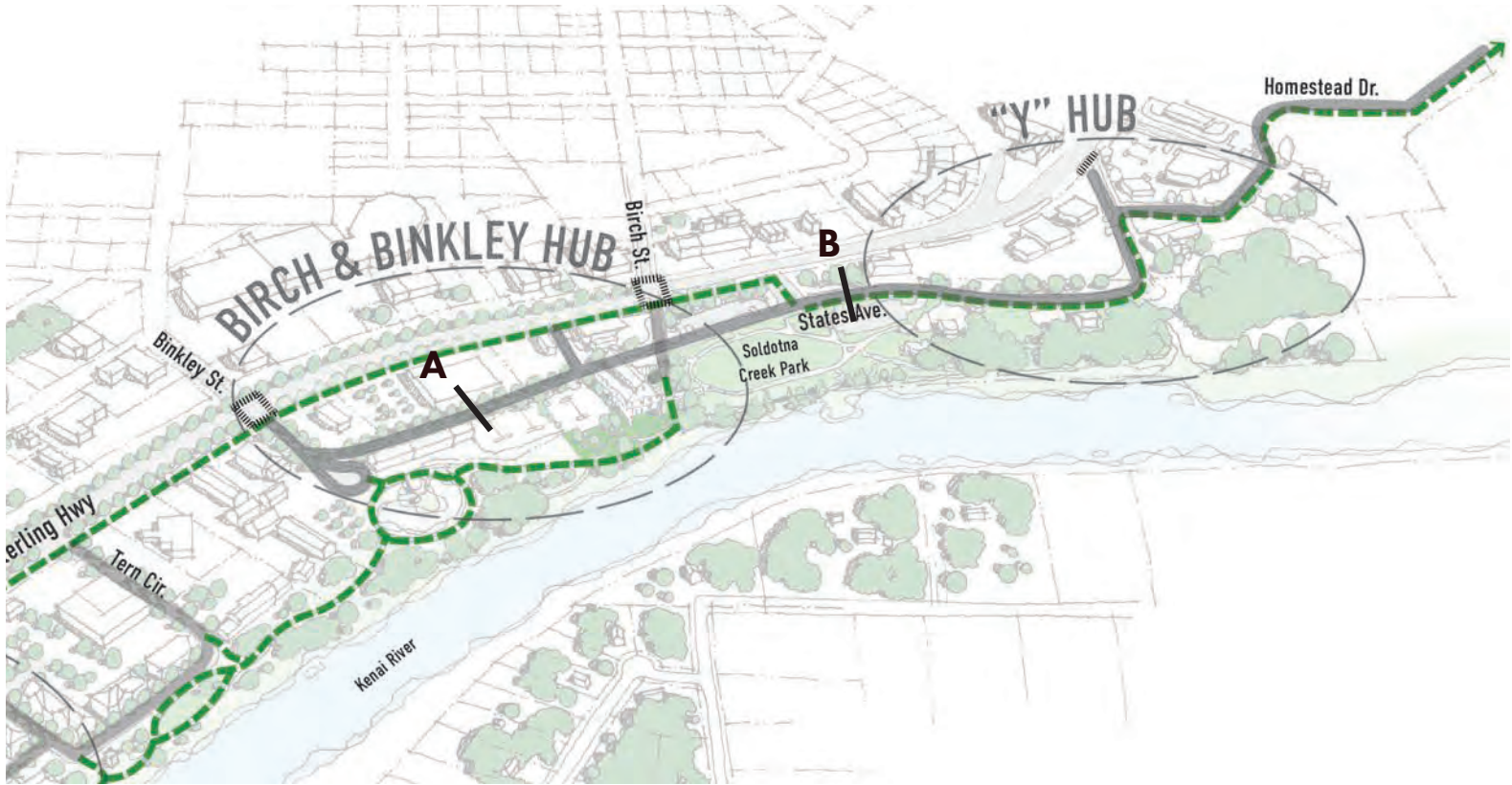
### After



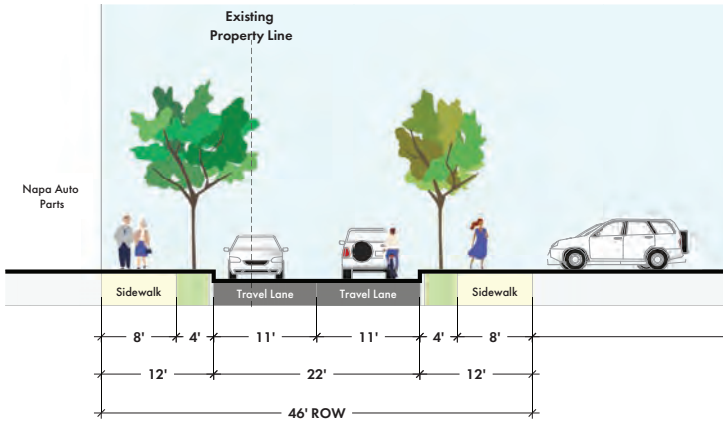


# CONNECTED

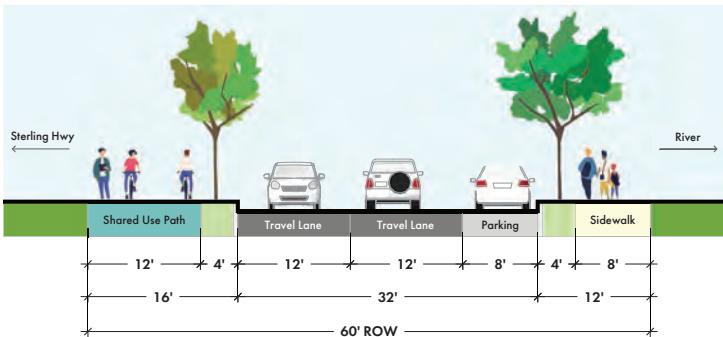
## Reclaiming States Avenue to Connect the Hubs



### States Avenue - Section A



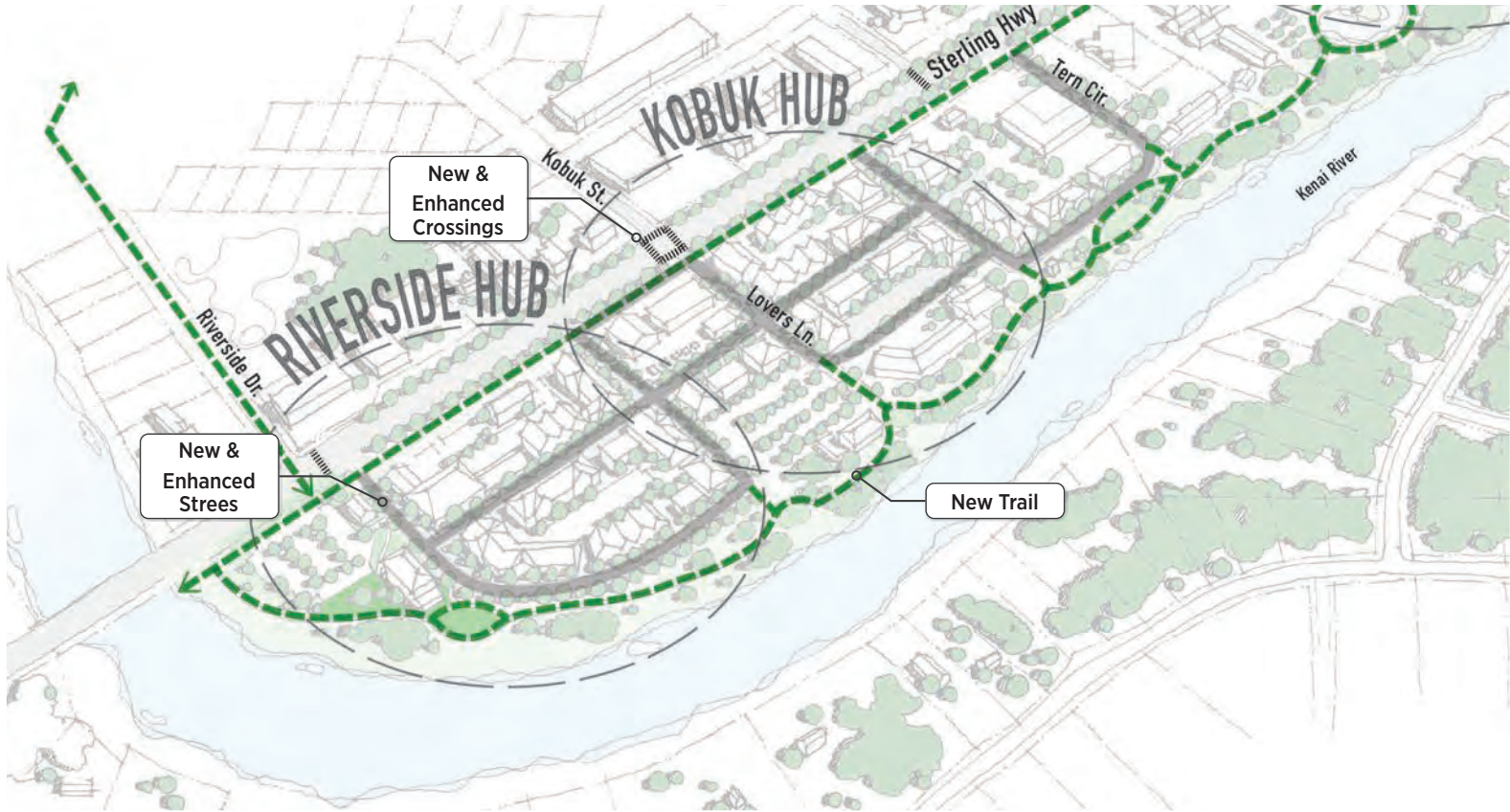
### States Avenue - Section B





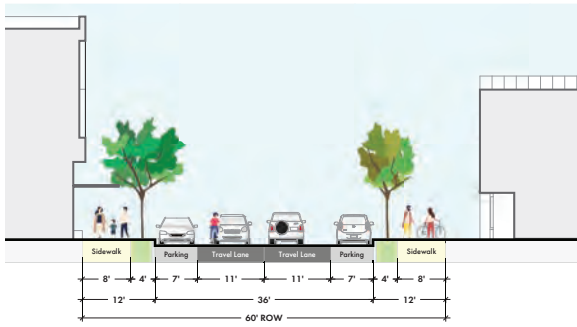
# CONNECTED

## New and Enhanced Streets to Connect the Hubs

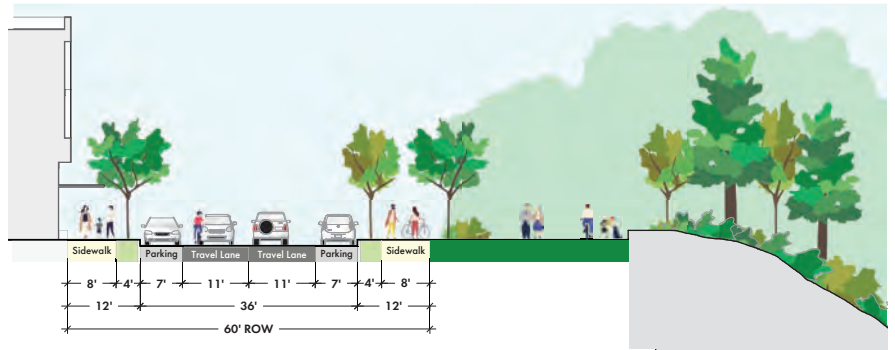


### New Downtown Retail Street

#### Main Street



#### River Street



# Soldotna Riverfront Redevelopment Plan

## BIG IDEAS

NEW & ENHANCED STREETS SUPPORT DEVELOPMENT AT HUBS

UNITY TRAIL CONNECTS THE STERLING CORRIDOR

KEY PATHWAYS EXTEND TO THE RIVER

FISHWALK, BOARDWALK AND TRAILS CONNECT THE RIVERFRONT

COMMUNITY GATHERING "BOOKENDS" ARE ANCHORED BY A PUBLIC MARKET





# RIVERFRONT REDEVELOPMENT PROJECT

## INTRODUCTION

Redevelopment of Soldotna’s downtown area is an opportunity to strengthen the heart of the community.

Your feedback is important to the project team in identifying community values and desired outcomes for potential redevelopment in the project area.



There are two options for providing feedback. 1. Scan the QR code with your phone or mobile device to complete the feedback form with the presentation. 2. Complete the questions in the paper form below and on the following pages and return to a project team member.



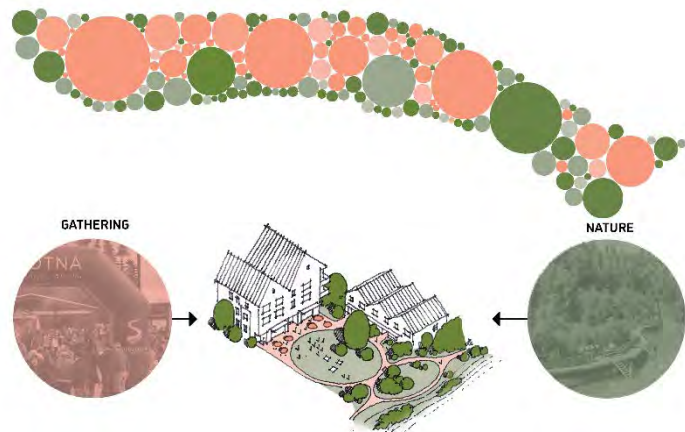
## IDENTITY

The project envisions the Kenai River corridor as a woven blend of nature, wildlife, recreation & gathering.

## Gathering

**Soldotna has a history of being a place of gathering in the region.** The history of the City of Soldotna begins with homesteading in the late 1940s, although Native Alaskan Athabaskan peoples had lived and used the areas around the Kenai River for many thousands of years prior to the city’s establishment.

In our recent history Soldotna has expanded its role as a gathering place. Soldotna Creek Park – all summer long; the Frozen River Fest and other events; local food and drink business where people meet in their third space. These are the elements of the community coming together that the project intends to strengthen.



## Nature

**Soldotna also has a history of reclaiming and preserving the natural environment.** Today, Soldotna remains Alaska's Kenai River City, pushing forward with bold and innovative efforts to protect and address its natural resources. In 2012, the city opened Soldotna Creek Park. Formerly a storage facility and maintenance grounds, the newest addition to Downtown Soldotna serves as a community gathering space, with open greenspace, river boardwalks, picnic pavilions, an amphitheater, and year-round public restrooms. The Kenai Watershed Forum located in Soldotna Creek Park is dedicated to the Peninsula's rivers, streams and surrounding communities of the Kenai Peninsula promoting healthy habitat on the Kenai Peninsula.

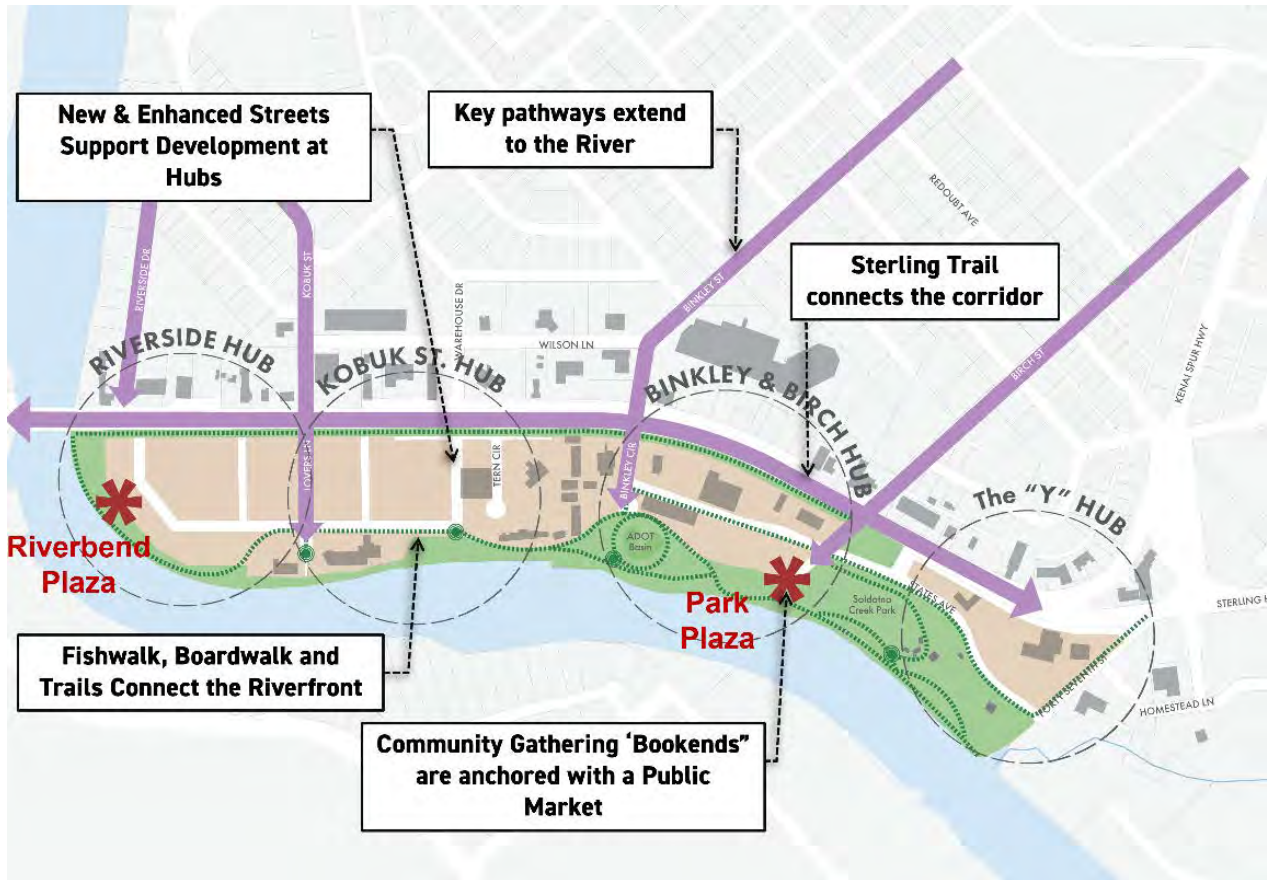
**In that sense Soldotna is defined by its stewardship of the land and being a place of gathering.** These two things can be contradictory at times - how can development and the gathering of people Downtown not only coexist with, but also expand, and enhance the natural habitats in the project area? A perfect example of this situation can already be seen in Soldotna Creek Park. The city was able to accommodate bank fishing as a gathering activity along the river's edge while at the same time limiting the resulting erosion of it. This not only meant that the natural habitats were protected, but also the social and cultural identity of the town, giving shape to something quite distinctive and spectacular in contributing to the identity of the downtown. How was this done?

- Strong Community Support
- Public investment in park and riverfront infrastructure
- Intentional design that provides a community benefit

**Q.1 Does the Vision of nature and gathering adequately capture Soldotna's community values?**

## The Big Ideas

The big ideas represent strategies that will bring the vision to life: a place where nature and urban gathering spaces can coexist, expanding and enhancing one another.



**Identity**—The Kenai River corridor is a woven blend of nature, wildlife, recreation and gathering.

**Place**—New and enhanced streets support downtown hubs as places to live, work and play. The hubs engage drive-by traffic and visibility along the Sterling Highway and the Kenai Riverfront to create a unique and one-of-a kind downtown and riverfront experience.

**Connected**—Key pathways reconnect neighborhoods to the river and destinations along Sterling Highway. Making downtown a safe place to walk and bike to destinations is a major consideration in the enhancements to existing streets and new streets.

### A Soldotna Public Market

Food and local goods are regularly showcased seasonally at Soldotna Creek Park. A public market could serve as a year-round destination to showcase these assets, promote small businesses, create space for community meetings and events and a unique riverfront destination.



### Q.2 Would a new public market be a valuable community asset on the riverfront?

Yes.

Maybe. But I have some concerns.

No.



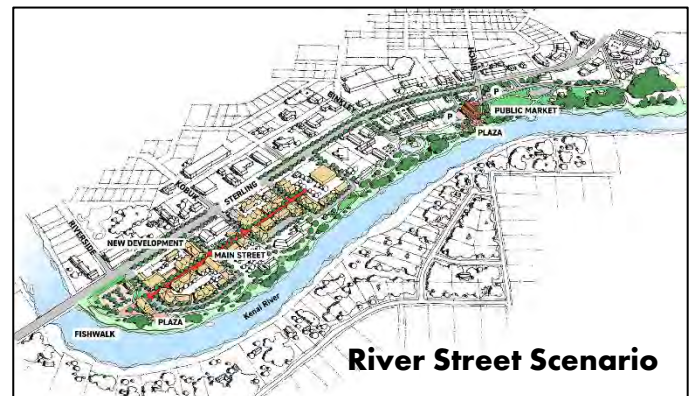
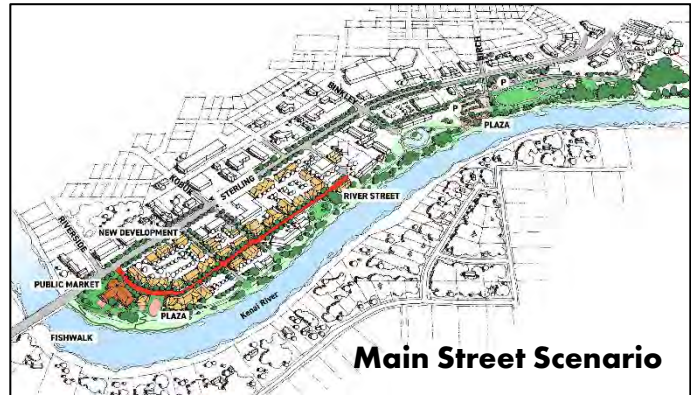
## PLACE

Future redevelopment can support downtown as an 18-hour hub of activity. These hubs of activity such as dining, shopping and entertainment should be places that are walkable, have opportunities to engage the river and spaces for gathering.

### Preliminary Redevelopment Concepts for Building the Hubs

#### Redevelopment focus along a Main Street or a River Street

Two scenarios depict how future development might be organized. The Main Street scenario is built around retail storefronts extending across a few blocks along a new street between the highway and the river. The River Street scenario orients retail storefronts to the Kenai River with a new street supporting housing and businesses with river views.



### Q.3 Which redevelopment option feels best for the downtown and riverfront area?

- Main Street Scenario
- River Street Scenario
- Hybrid
- Other

## “Bookends” Public Gatherings at Each End of the Corridor

Memorable downtowns have a variety of spaces to gather from parks (large and small), to plazas, and riverfronts that attract residents and visitors alike.

### Soldotna Creek Park Enhancements

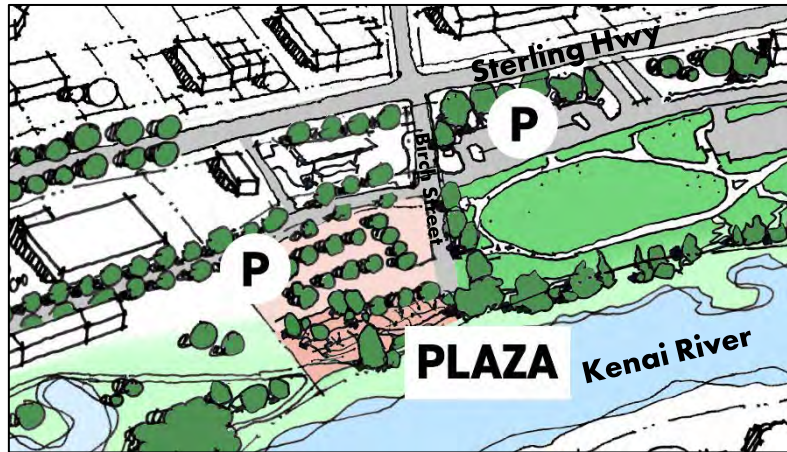
A plaza with river views and direct access from an extension of Birch Street would promote the use and function of Soldotna Creek Park and improve visual access to the river. Additional public parking could be constructed to support park use and seasonal events.

**Q.4 Do you support a riverside public plaza and parking area at Soldotna Creek Park?**

Yes.

Maybe. But I have some concerns.

No.



### Bridgehead Plaza and Fishwalk

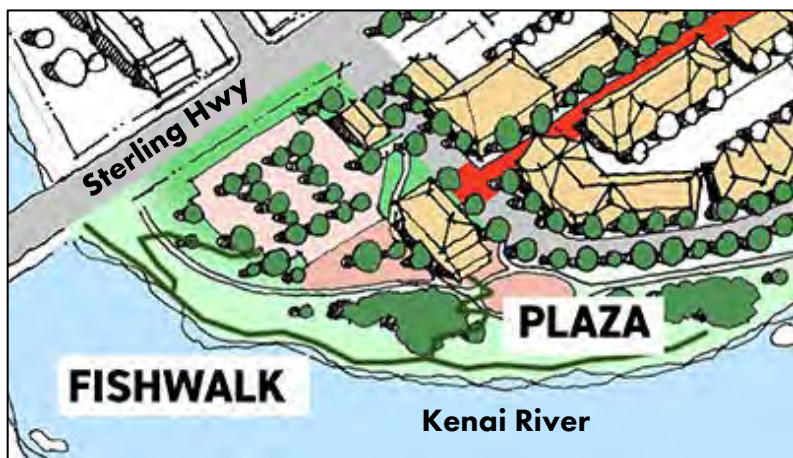
At the bridgehead, a riverside plaza and enhanced fishwalk is an opportunity for a complimentary visitor and public gathering space, an enhanced riverfront fishwalk and an amenity to attract development.

**Q.5 How important is an additional public gathering area near the bridgehead as a “bookend” to Soldotna Creek Park?**

Very important.

Somewhat important.

Not very important.





# CONNECTED

Important features of a connected downtown and riverfront include streets, and trails providing safe, direct, and continuous access to destinations for all ages, abilities and users, whether you walk, bike, roll, or drive.

## Sterling Highway Trail

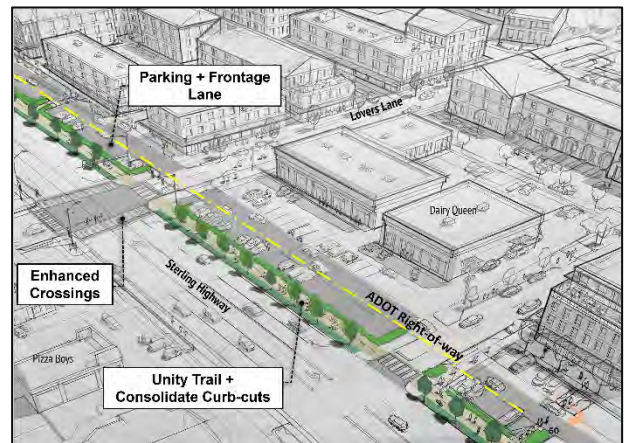
The Sterling Highway is the primary traffic route through town, provides access to businesses and acts as a gateway or “front door” to Soldotna. Today, the highway can be a barrier for those walking and biking with limited street crossings, sidewalks next to busy traffic and no bicycle facilities. Future improvements could enhance the visual quality of the corridor, provide enhanced crossings, and a more comfortable environment for walking and biking.

**Q.6 Do the proposed Sterling Highway improvements adequately address safety, access, and visual challenges?**

Yes.

Maybe. But I have some concerns.

No.



## New and Enhanced Street Connections

New Streets can improve access to existing businesses and destinations and provide opportunities to support redevelopment areas oriented to the highway and the river.

### Enhanced Street Connections

Kobuk Street, Birch Street, Binkley Street, are local streets that link to citywide destinations like parks, schools, employment areas and the downtown and riverfront area. Future street improvements can support safe and comfortable ways to walk, and bike as well as drive to these destinations.

**Q.7 Should these key streets be enhanced and extended to connect to view the river?**

Yes.

I’m not sure. I need more information.

No

Other



## Reclaiming States Avenue

States Avenue is a former street that today provides access to Soldotna Creek Park and the Kenai Watershed Forum. Reclaiming States Avenue and extending it east and west of the park would connect businesses on Homestead Drive to businesses at Birch Street and Binkley Street.

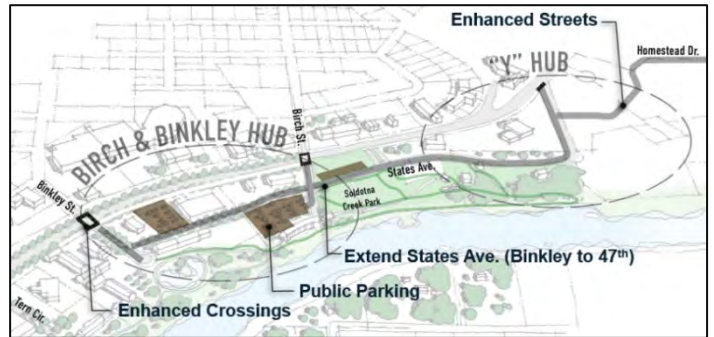
**Q.8 Do you have concerns with reclaiming and extending States Avenue to connect the "Y" Hub with the Birch and Binkley Hub?**

No concerns.  
Let's do it!

I'm not  
sure. I need  
more  
information.

Yes.

Other



## New Streets for a Walkable Downtown

**Q.9 How important are new streets to promote walking to businesses and the riverfront, support redevelopment and connect the hubs?**

Very  
important.

Somewhat  
important.

Not very  
important.



## Riverfront Trail Connections

The downtown riverfront consists of a riparian zone with gradual and steep slopes and public and private ownerships. Given these conditions there are a variety of ways to connect with the river such as with trails, boardwalks, overlooks and buildings oriented to the river.

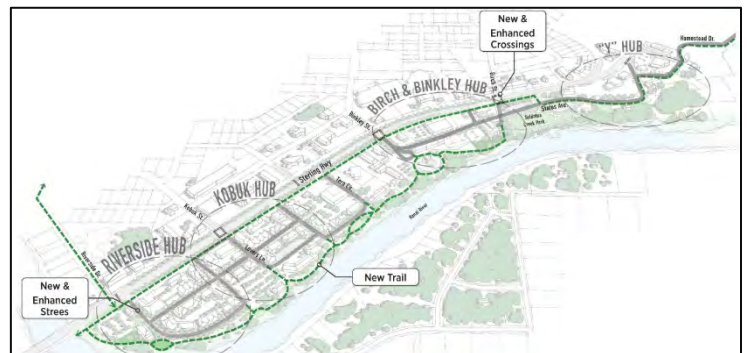
**Q.10 Should this project continue to pursue a new Riverfront Trail to connect Soldotna Creek Park to the bridgehead?**

Yes, but it  
should be  
different.

Absolutely  
this is a  
must-have.

Maybe, but I  
have some  
concerns.

No, the trail  
is not  
necessary.



## Riverside Drive Trail to Centennial Park

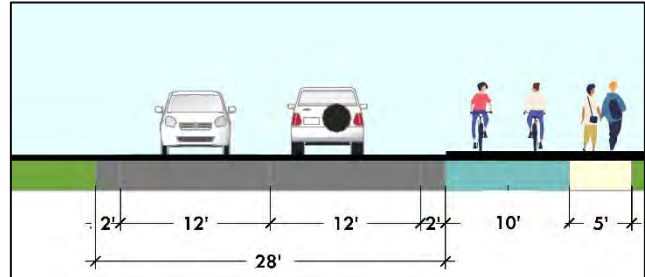
Today, Riverside Drive is a cut-through route for cyclists riding to Centennial Park and who ride in traffic with vehicles. A multi-use path on one side of the road may be a way to create a safe off-street bicycle connection and a new highway crossing could improve access to the redevelopment area and riverfront.

**Q.11 Do you support a trail connection along Riverside Drive linking the Kobuk Street bike lane to the bridge crossing to Centennial Park?**

Yes.

Maybe. But I have some concerns.

No.



## Additional Comments

**Q.12 Do you have any additional comments to share with the project team?**

## TELL US ABOUT YOURSELF

(Optional)

**Q.13 What is the zip code of your home address?** .....

**Q.14 Do you own a business, building, or land in the project area?** .....



**Q.15 How often do you visit the downtown area between Kenai Spur Highway and the Kenai River Bridge?**

- Daily
- Weekly
- Monthly
- Occasionally
- Rarely
- Never

**Q.16 For what purpose(s) do you visit the downtown area between Kenai Spur Highway and the Kenai River Bridge? Check all that apply:**

- For my job/business
- Shopping
- Dining
- Entertainment
- Recreation
- Other:

**Q.17 Optional: Provide your name and the best way to contact you:**

- Name: .....
- Mailing Address: .....
- City: .....
- State: .....
- Zip: .....
- Phone: .....
- Email: .....

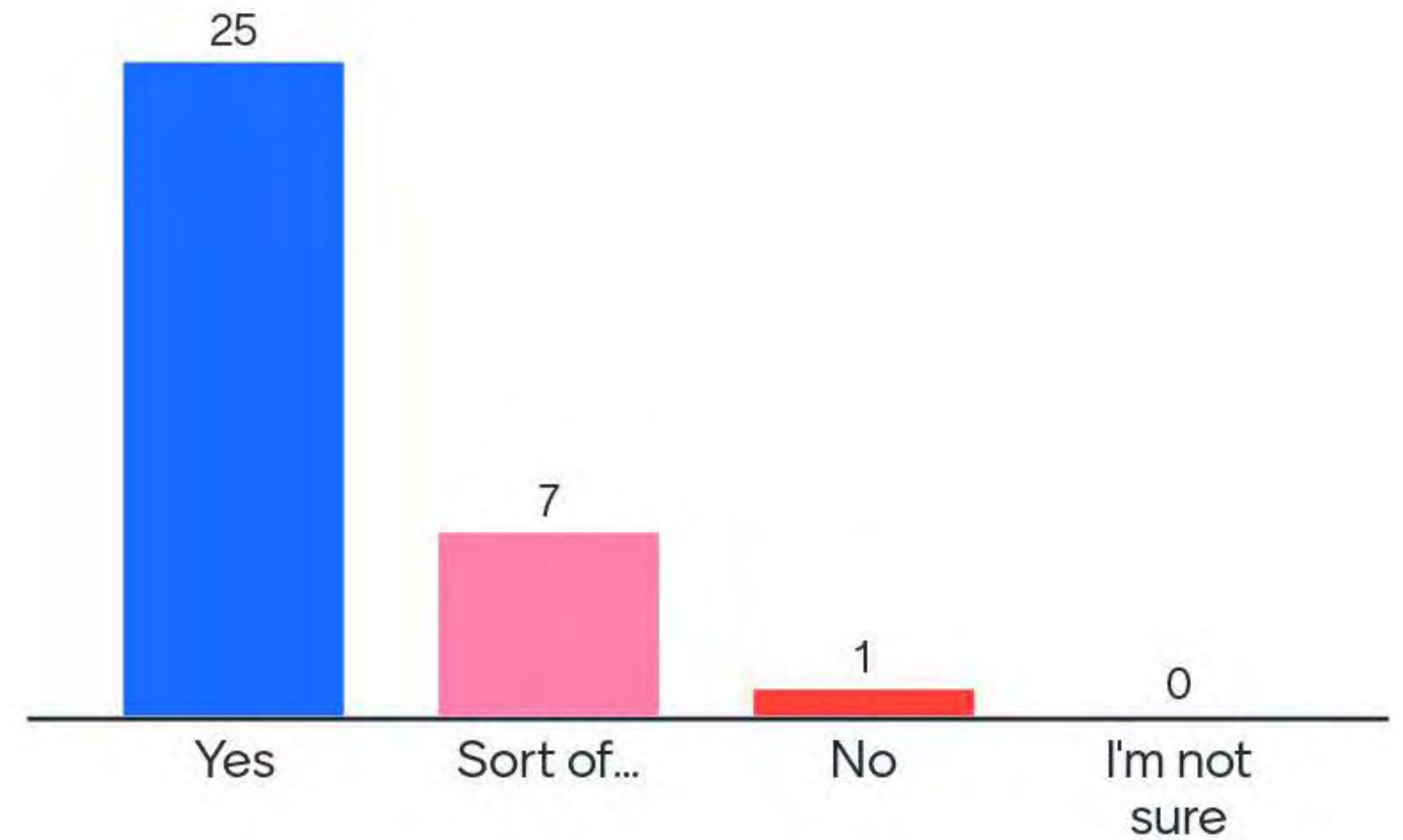
**YES - I want to sign up to receive updates about the project.** (Be sure to provide your email address above.)

# Poll Results - Community Open House 2

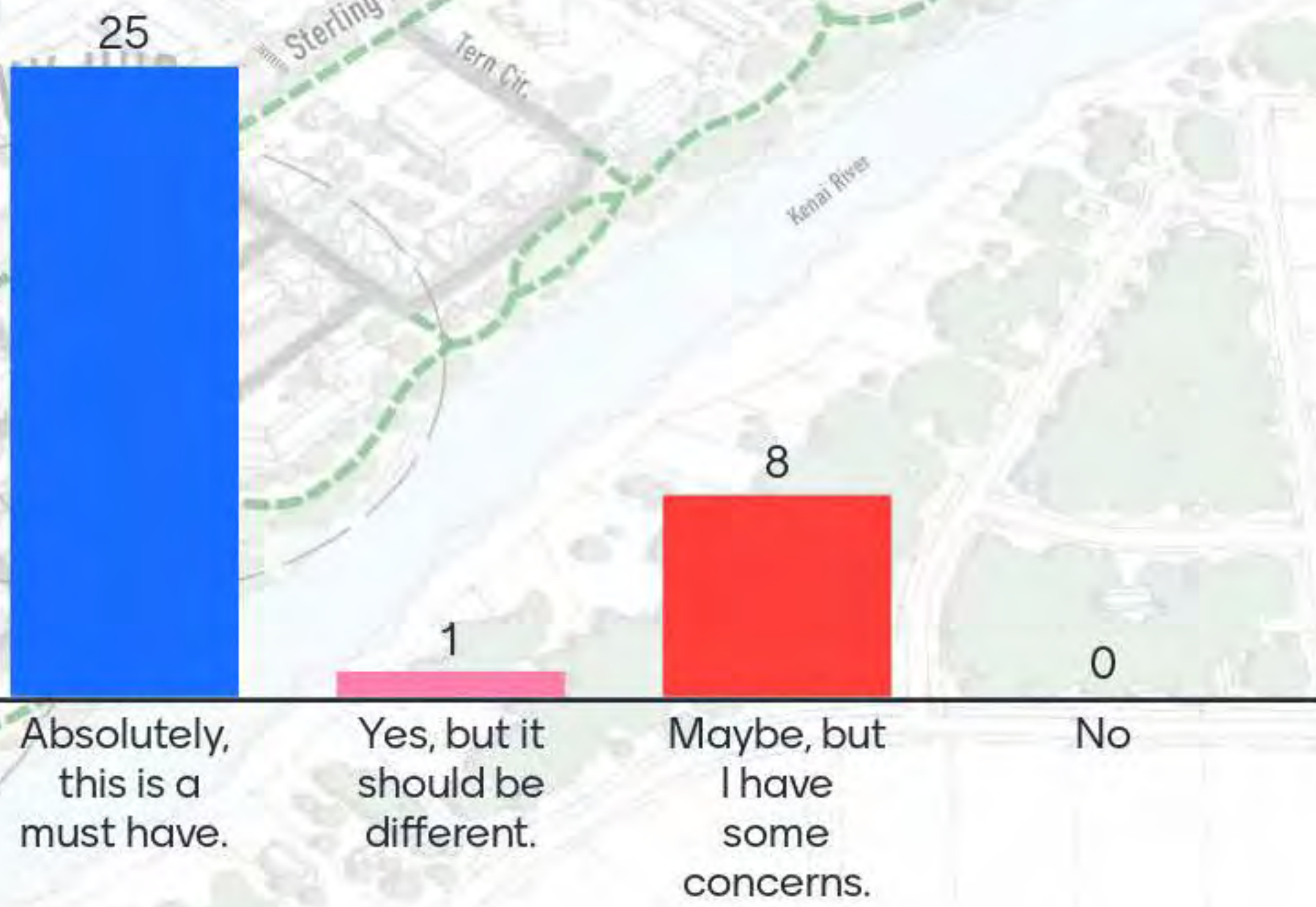


Does the vision adequately capture Soldotna's community values around nature and gathering?

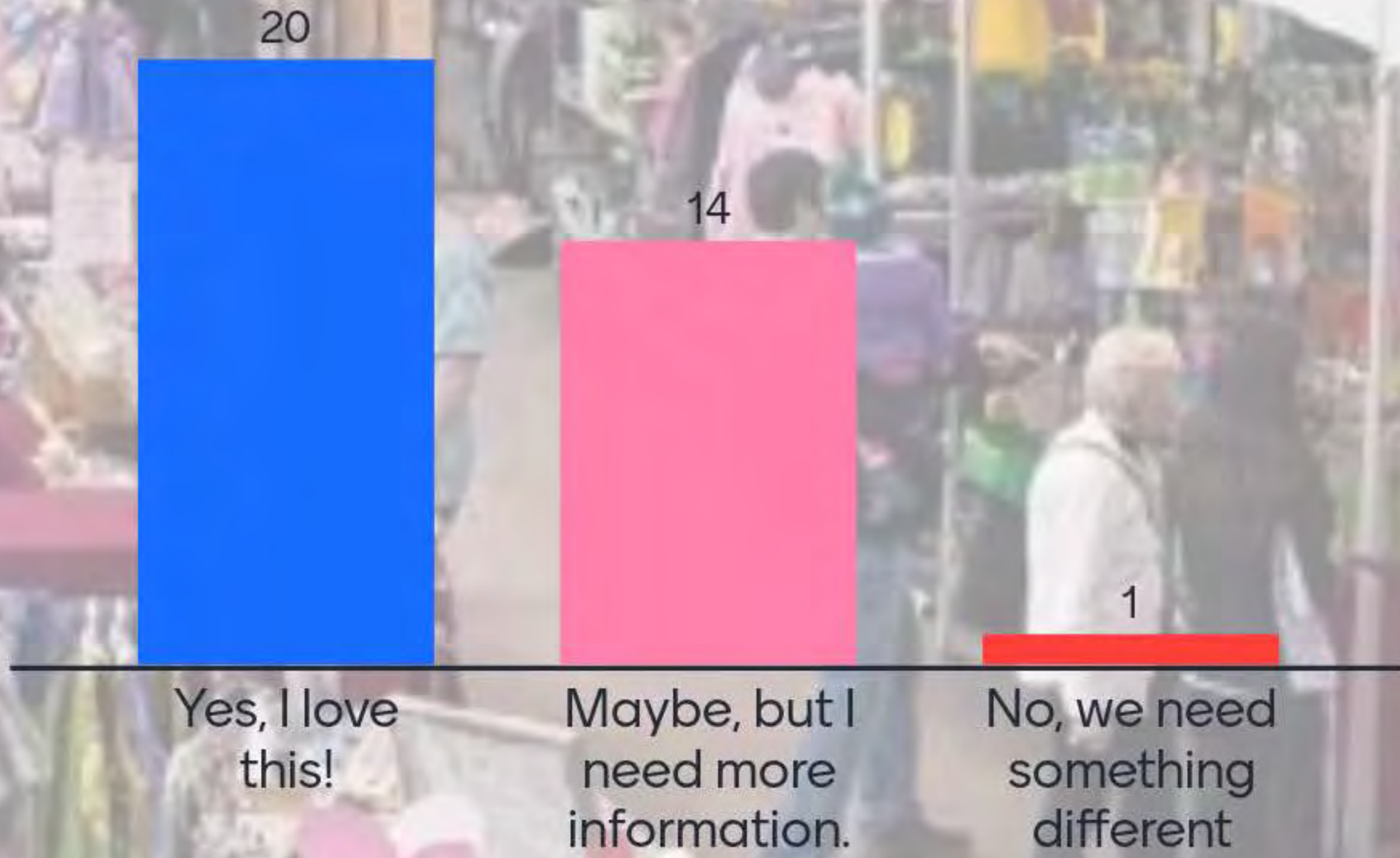
Mentimeter



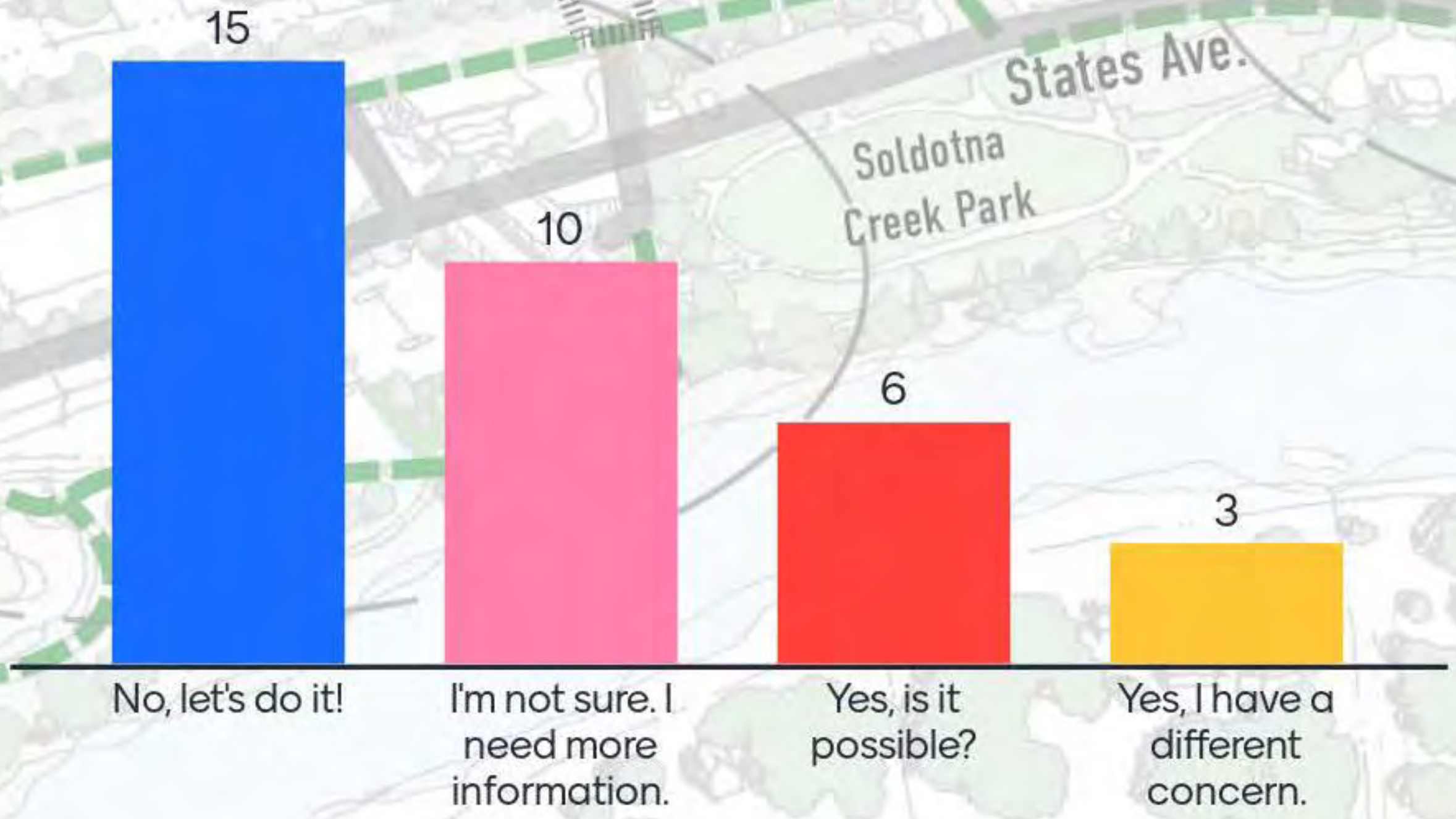
# Should this project continue to pursue a new Riverfront Trail to connect public gathering at each end of the project area?



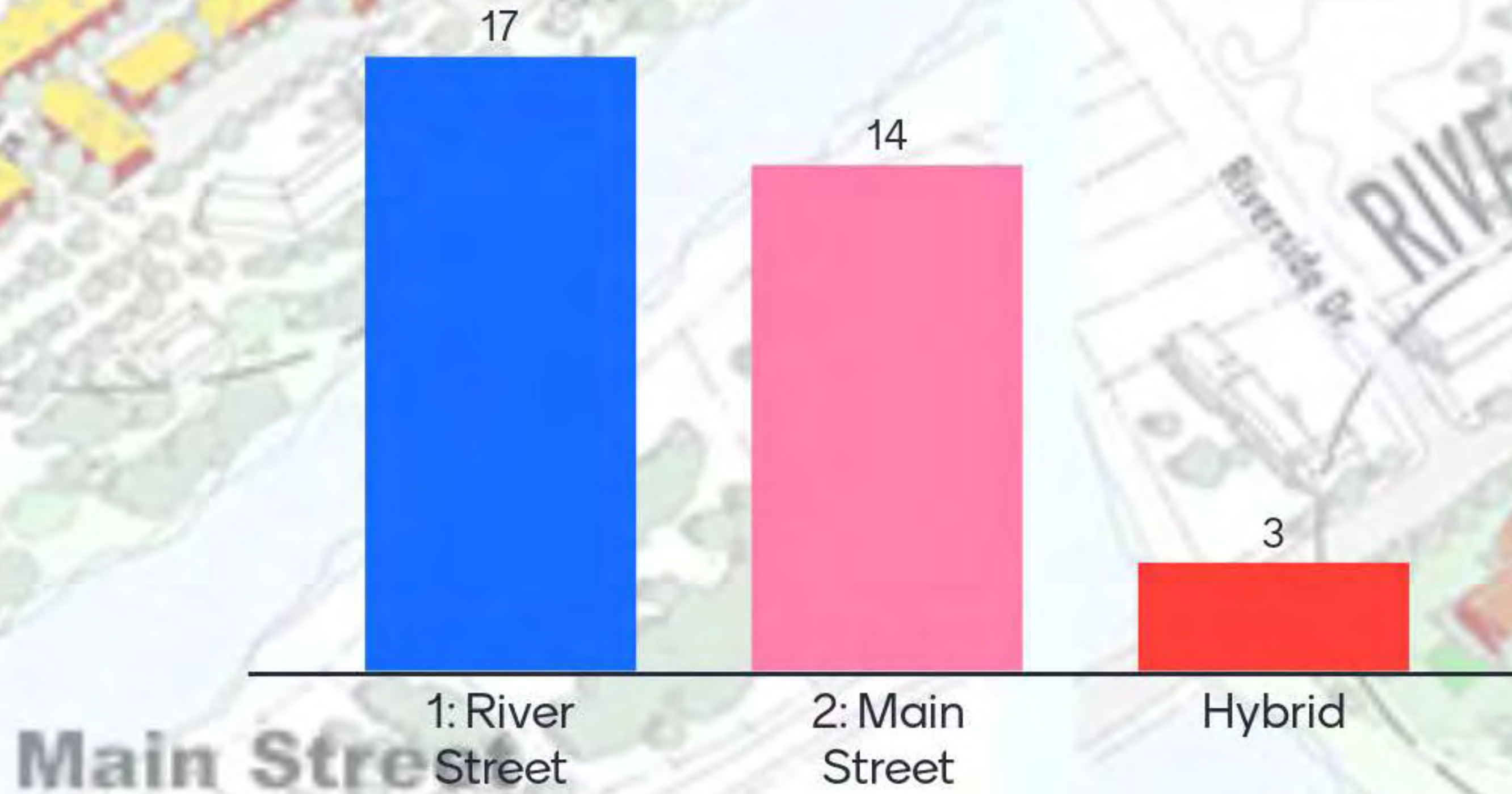
# Would a new public market be a valuable community asset on the Riverfront



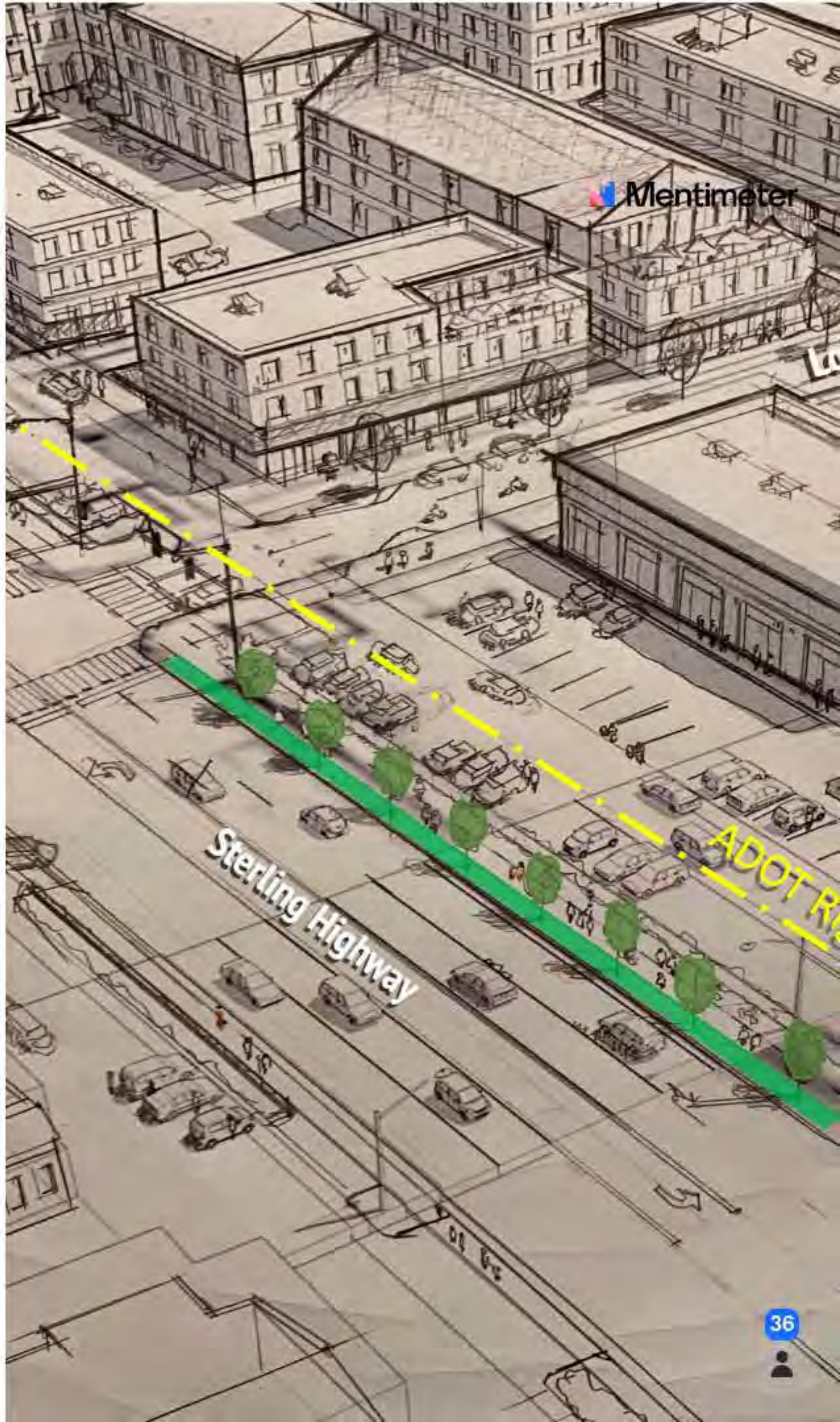
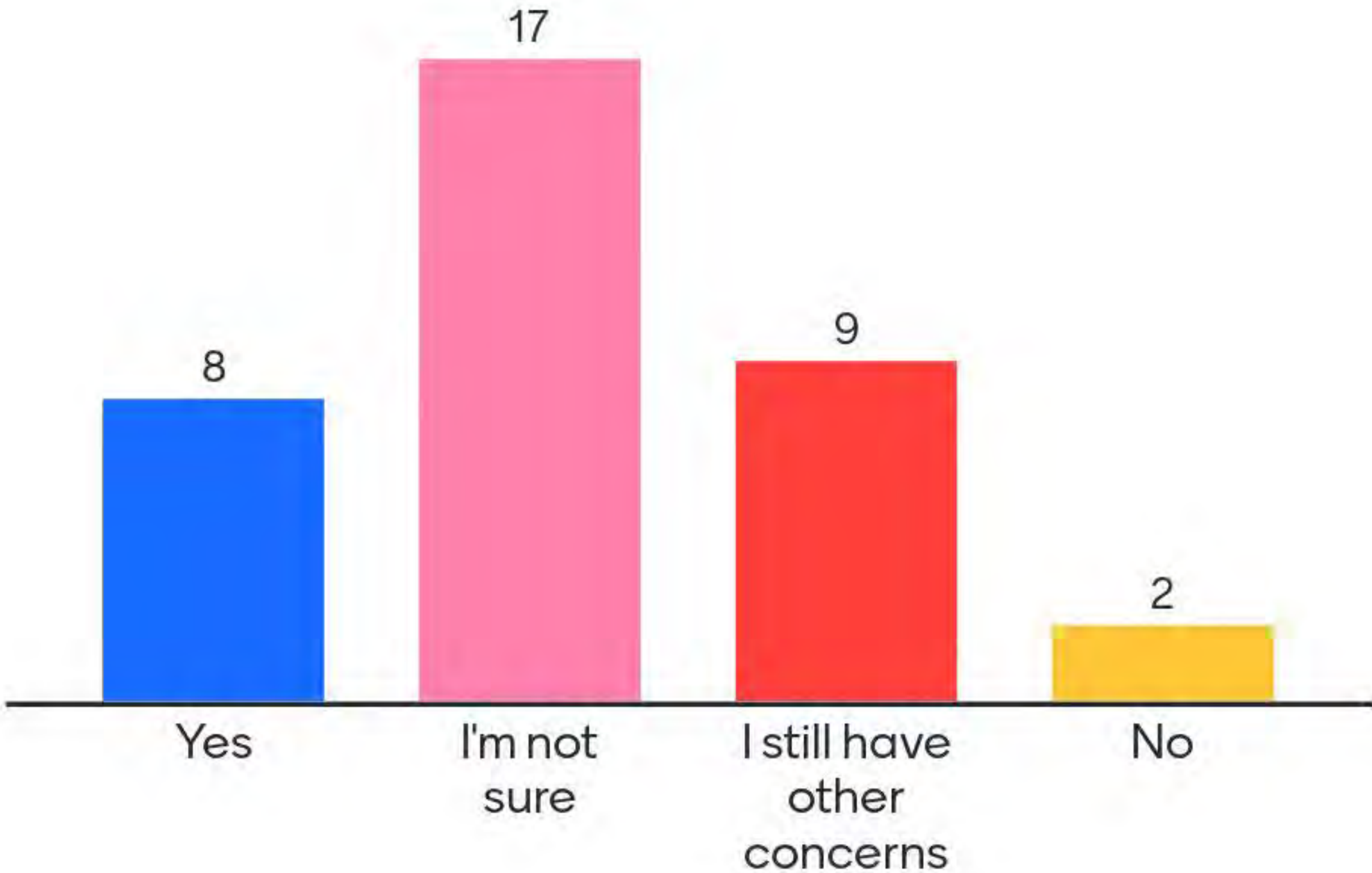
# Do you have concerns with reclaiming States Avenue to connect the hubs?



# Which development option feels best for Soldotna?



Do the Sterling Highway improvements adequately address safety, access, and visual challenges?



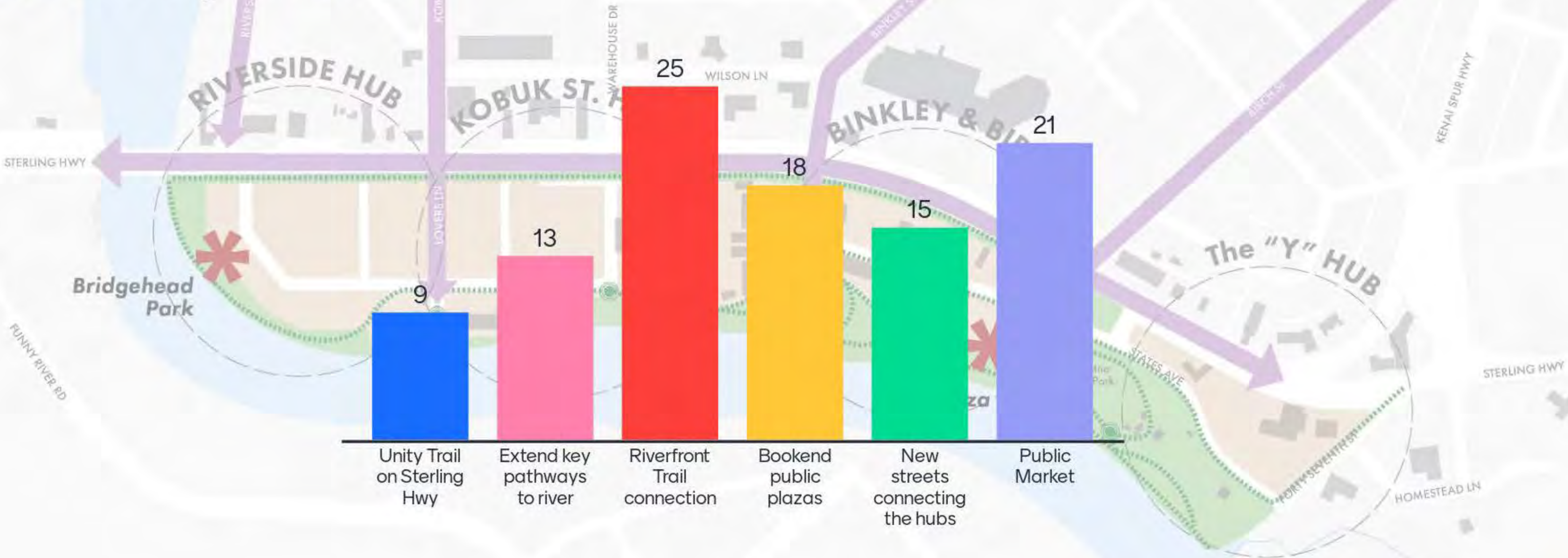
# Should these key pathways be enhanced to connect to the riverfront?





# Choose your top three "big ideas" for Riverfront Redevelopment.

Mentimeter



Is there anything we missed? Please tell us.

35 Answers

Mentimeter

Will there be fishing access?

Environmental impact on the river

Parking

I think we should focus on venue space as it seems to be limited in Soldotna.

There is a lot to absorb already.

Pedestrian bridges

Visitor center

Connection to tsalteshi

River protection. People visit for the salmon.

# Is there anything we missed? Please tell us.

35 Answers



Public parking

What property is available for purchase? Is the CoS considering purchase?

I always enjoy going to out of state locations with walkable areas with arts, museums, restaurant variety, etc. so please make this happen

I've heard much public concern about how to gain the properties. I see this as an area for much communication with the public.

I know you will consider handicap access.

Very much interested in how the new river walk will be integrated with the existing walkways and how they will be upgraded for additional foot traffic due to the increase in accessibility

Partnering to purchase the properties, either with the current owners or entrepreneurs..

Connect with Soldotna Elem students about planning work done several years ago

Discuss partnering with current owners or entrepreneurs to purchase key properties.



# Is there anything we missed? Please tell us.

35 Answers

Mentimeter

River front owners are not entitled to silence

Please consider handicap access

Concerned about environmental impact and impact to existing businesses.

Consider mix of ped only along with mix ped and vehicle

ParkingParkingParking

Would creating a parking garage be an option?

Having a connection from the Riverfront Hub beneath the bridge to the opposite side of the Sterling. Jay walking would be a dangerous reality without a traffic-free option.

Concepts for safe ped crossings accross sterling highway

Are multi-level parking structures under consideration?



# Is there anything we missed? Please tell us.

35 Answers

Underground parking would be an easy way that works around the world, and is easier to manage in the winter months than having vast, ugly, parking lots.

Currently SCP events have parking issues. If we make it more ...destinationistic... perhaps parking on the east end with shuttle

Consider ending riverside in cul-da-sac

Height is an issue with overpasses and all the RVs

A concern. Is about public parking, so there' is accessibility to use the trails, go to businesses, park, etc.

I don't think you should have cars on the Riverside street, and Market Street except to get to parking. As much walking and small shuttle as possible.

Just want to emphasize importance & meaning of walkable.. A walkway right next to the street without buffer is unsafe, noisy & smelly. I'll get in my car & drive 1 block instead of suffering it.

The parties responsible for development was not discussed. How is the private partnership going to work? Is there eminent domain factors?

# Poll Results - Kenai River Fish Habitat Symposium

What are the current issues in the project area that may negatively impact fish habitat?

24 Answers

Mentimeter

Run off from parking lot areas and heavy foot traffic on the banks

Urban run-off

Pollution

Runoff from highway

increased impervious surfaces

Storm water run off

Impervious surfaces

Stormwater discharge

Uneducated landlords/landowners

What are the current issues in the project area that may negatively impact fish habitat?

24 Answers

Mentimeter

Species disturbance during construction

Impervious surfaces

Runoff

People going "off trail".

Increased fishing pressure

Impervious coverage

Bank side erosion

Parking

Bank trampling

What are the current issues in the project area that may negatively impact fish habitat?

24 Answers

Mentimeter

Impervious surfaces/runoff pollution

Overuse

Lisa of green infrastructure

Runoff including tire particles toxic to coho salmon

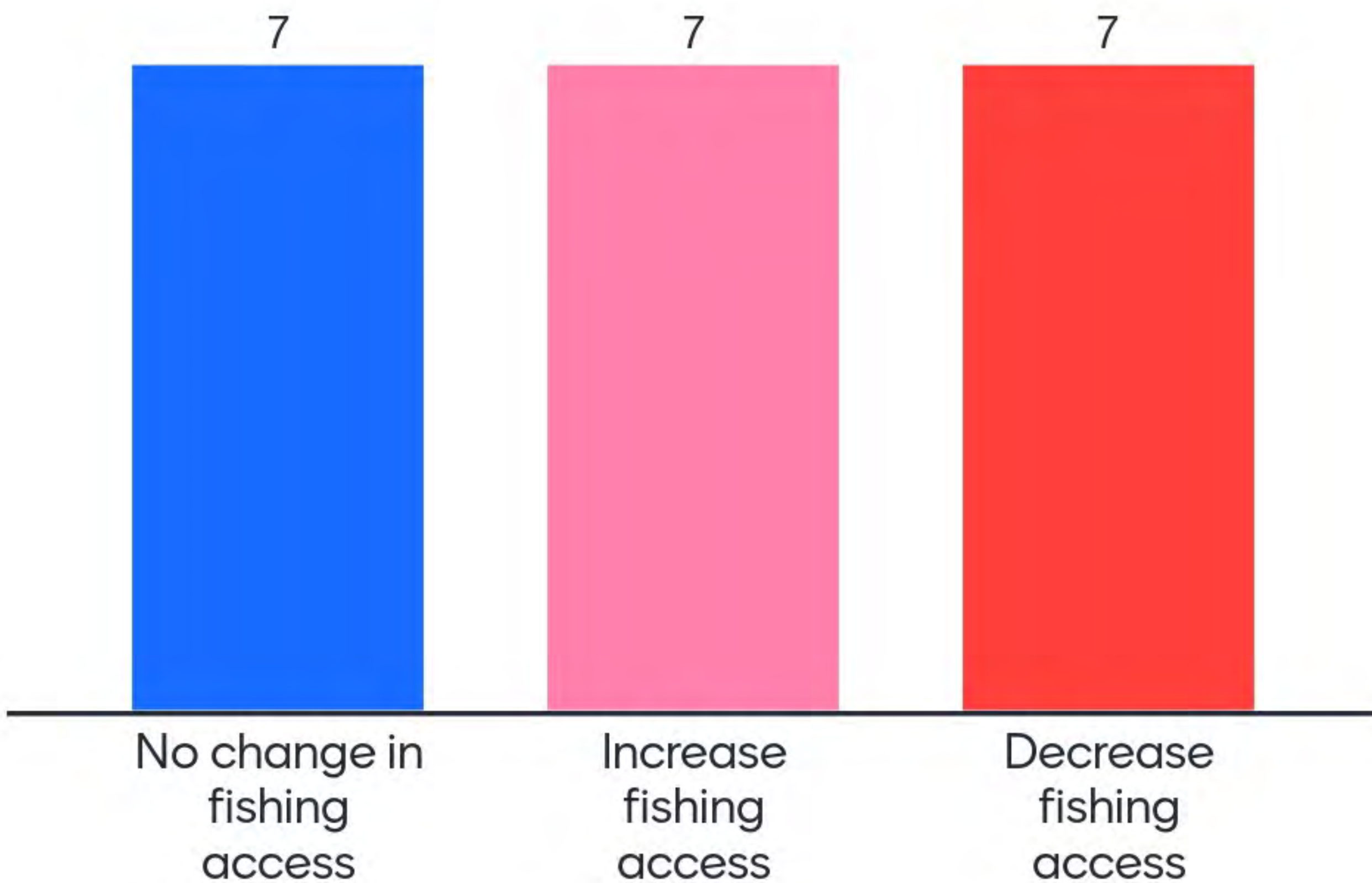
Pollutants

Missing riparian buffer in some areas.





# What kind of fishing access can this area of the riverfront support?



# How can the design of infrastructure such as streets or public gathering areas support river and riparian health?

26 Answers

Mentimeter

Public rest room!Bike Lane

Keeping equal use by all modes of transportation

Designs that incorporate methods to filter road/path/parking runoff

Integrate porous pavement and other green infrastructure

Lots of shade, permeable vegetation buffers

Lots of trash cans, recycling bins and bathrooms to keep the area clean

Weed free certified materialsFew impervious surfaces

Planting buffers of native plants

Allow for natural movement of rivers edge

# How can the design of infrastructure such as streets or public gathering areas support river and riparian health?

26 Answers

Mentimeter

Well planned designs with run off and human impact in mind can benefit both the local users and the fish- run off & erosion control in mind

Ensuring buffer zone in place

Bear proof Trash cans

Elevated light penetrating walkway

Direct storm water runoff through filters (eg wetlands) or other biological treatments

More trees

Adequate vegetation and green space

Greenway better than wasting space on a street for cars

Improve green infrastructure to capture pollutants

# How can the design of infrastructure such as streets or public gathering areas support river and riparian health?

26 Answers

Mentimeter

Wide enough sidewalks to ski/groom in the winter

Increase visibility of users abusing

Ensure multi-layered riparian vegetation structure

Make sure vegetated buffer, bio swales and green infrastructure is implemented to protect water quality.

Addition of vegetation will help riparian habitat and mitigate human impact on the riverfront

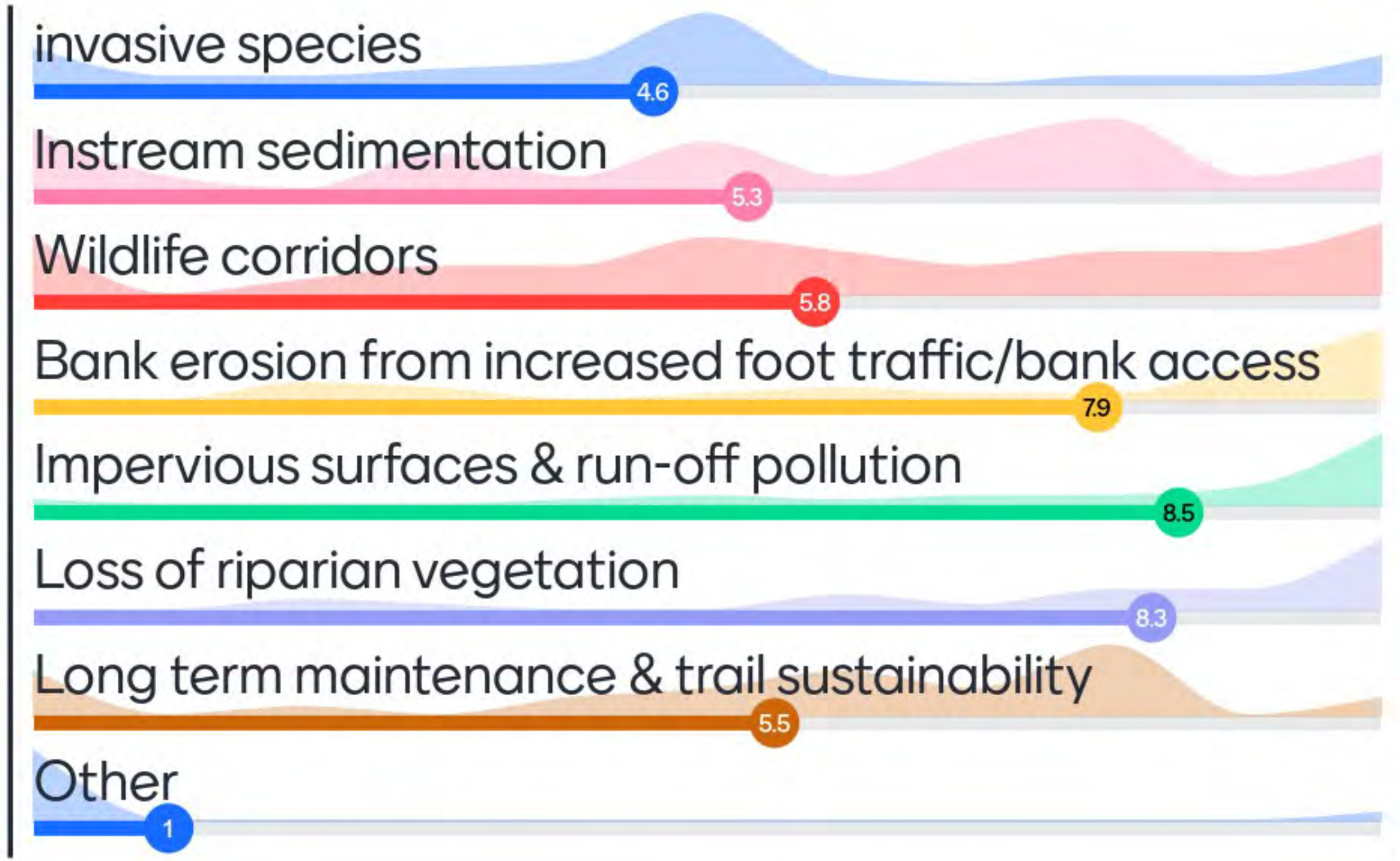
Austin TX non paved riverfront walk is inspiring case study

How about no car-based roads or parking lots on the park side? Just foot and non-motorized access?

Opportunities for outreach and education



# What are major river and riparian habitat concerns with redevelopment?



# APPENDIX D: ENGAGEMENT

## D.1 Community Engagement Plan

Document: Soldotna Riverfront Redevelopment Project: Engagement Plan. FIRST FORTY FEET

Description: *The plan identifies the Project's engagement goals and objectives, key engagement milestones, the outreach strategy, method of stakeholder identification, engagement methods, and the role of decision-makers in the project process.*

## D.2 Project Advisory Committee Plan

Document: Soldotna Riverfront Redevelopment Project: Project Advisory Committee- Roles & Responsibilities; FIRST FORTY FEET

Description: *The plan sets the expectations for the project advisory committee including roles, responsibilities and a schedule of project advisory committee meetings.*

## D.3 Engagement Milestone #1: Project Initiation- Objectives and Vision

Document: Project Handout; Engagement Boards for Display at the Community Workshop; Engagement #1 Feedback Form; and Engagement Results for sessions with the community and the Chamber of Commerce. FIRST FORTY FEET

Description: *Various engagement materials including an overall project handout, describing the project objectives, project area map and project timeline; large format boards illustrating the project area and timeline, elements that shape community identity, the places where people gather today and types of places they would like to see in the future, the challenges to walking and biking in the downtown and type of facilities to be considered in the project. A project feedback form was used to gather feedback on places and attributes of Soldotna that people value, the types of desirable future uses and riverfront activities in the project area, and opportunities and challenges related to riverfront access and general walk and bike conditions in and around the downtown. A summary of engagement results are tallied for each question posed during a community workshop and Chamber of Commerce luncheon.*

## D.4 Engagement Milestone #2: Build the Vision- Preliminary Development Concepts

Document: Project Handout; Engagement Boards for Display at the Community Workshop; Engagement #2 Feedback Form; and Engagement Results for sessions with the community and the Kenai River Fish Habitat Symposium. FIRST FORTY FEET

Description: *Various engagement materials including an overall project handout, describing the project objectives, project area map, project timeline and the "big ideas" for future redevelopment; large format boards illustrating the project area and timeline, the vision for downtown redevelopment, and preliminary concepts for parks, plazas and trails, riverfront and highway development and new and enhanced streets and trail connections.. A project feedback form was used to gather feedback on the project vision and preliminary development concepts. A summary of engagement results are tallied for each question posed during a community workshop and at the Kenai River Fish Habitat Symposium.*

## D.5 City Council Work Sessions

**Document: The Big Ideas and Preliminary Concepts, Market Hall Options and Development Feasibility, and Downtown Riverfront Redevelopment Plan Elements slideshow presentations. FIRST FORTY FEET and ECONorthwest.**

**Description: Presentations were a part of work sessions with the City Council and project advisory committee, to review and discuss: preliminary concepts and the results of the Engagement #1 sessions, development feasibility analysis, and the preferred plan elements and development strategy.**

# RIVERFRONT REDEVELOPMENT PROJECT

## **Project Update Agenda:**

The Riverfront Redevelopment project is moving from Building the Vision phase to assembling the components of the Master Plan. As we advance into a preferred scenario and the frameworks for land use, circulation, and implementation strategies this meeting is an opportunity to reflect on What We Heard from our engagement sessions regarding the Big Ideas and preliminary redevelopment concepts, review technical analyses, and discuss next steps.

### **Welcome (5 Min.)**

#### **What We heard (25 min)**

- The Big Ideas—Top Three
- Soldotna Public Market
- Development Scenarios
- New + Enhanced Streets
- “Bookend” Public Gatherings
- Trail Connections

*Committee Discussion*

#### **Development Feasibility Findings (40 min)**

- Circulation Analysis
- Utilities Analysis and Cost
- Public Market Interviews
- Preliminary Development Feasibility
- Preferred Scenario and Frameworks Recommendation

*Committee Discussion*

#### **Next Steps (20 Min)**

- Preferred Scenario and Development Summary
- Preferred Development Feasibility and Catalyst Projects
- Implementation Strategy

*Committee Discussion*



SOLDOTNA

[Home](#) [Overview](#) [Project Area](#) [Timeline](#) [Events](#) [Contact](#)

# SOLDOTNA RIVERFRONT REDEVELOPMENT

**PROJECT UPDATE:**

**The Big Ideas and Preliminary Concepts**

City Council Work Session & Riverfront Advisory Committee August 23, 2023



# Agenda



**Engagement #2 What We Heard**



**Development Feasibility Findings**



**Next Steps**

# Purpose



**Redevelop and transform Soldotna's downtown to achieve long-term economic development goals**

# Objectives



Create a **one-of-a-kind riverfront experience** with shopping, dining, **entertainment**, and lodging in a walkable destination



Support **local businesses, expansion and attract** new entrepreneurs



Highlight the **Kenai River** and incorporate the **natural landscape** into the Downtown



Identify opportunities for **public and private partnerships**



Identify **critical infrastructure** to support redevelopment



Explore **options and strategies** for funding and implementation



Provide **housing options** to meet local needs

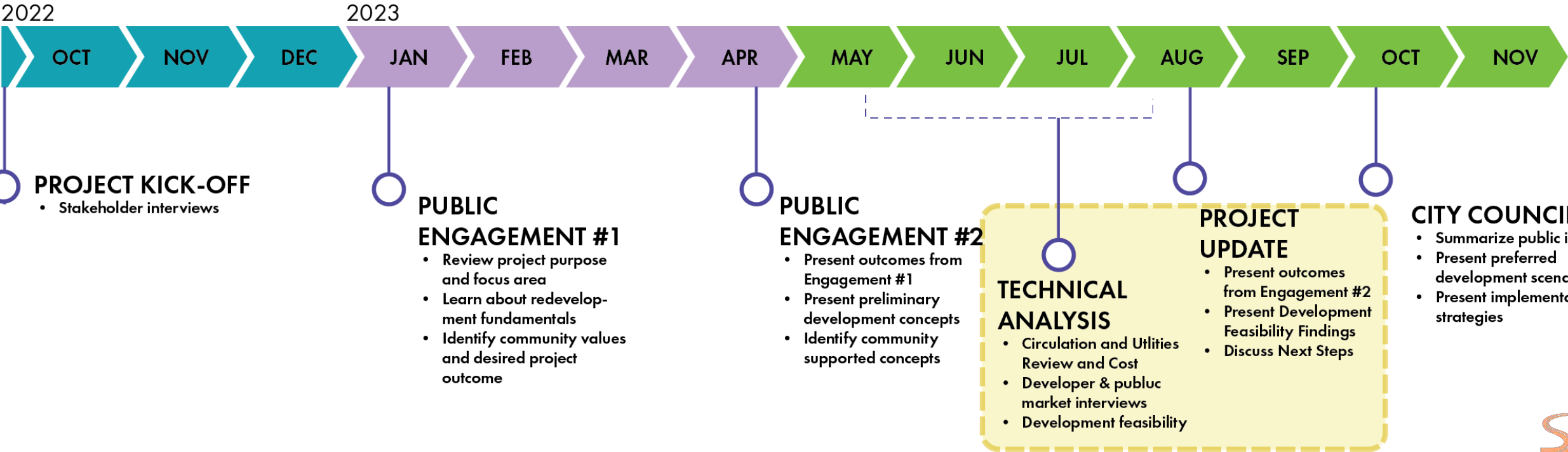
# Project Process + Schedule

## Project Initiation

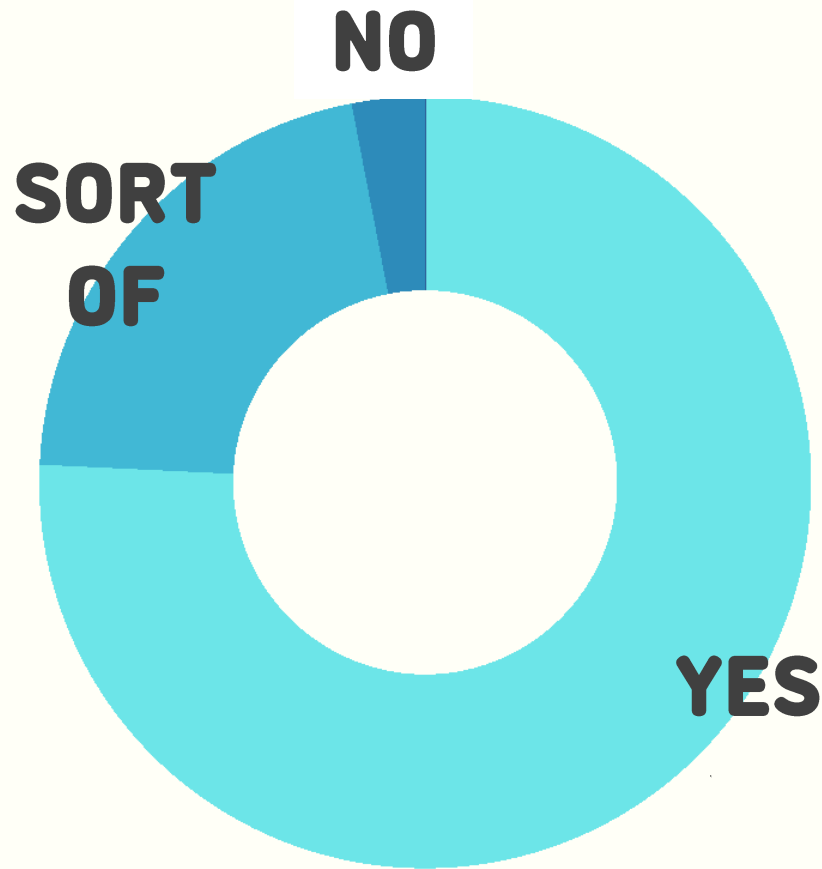
## Build the Vision

## Master Plan

Existing Conditions | Market Analysis | Environ. Review | Conceptual Master Planning | Preliminary Development Scenarios | Development Feasibility | Refined Master Plan | Preferred Development Scenario | Implementation



# What We Heard

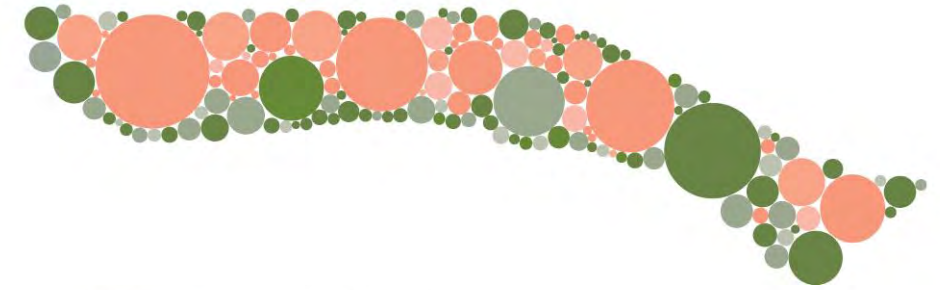


Does the Vision capture Soldotnas values around nature & Gathering?

## Vision

Downtown Soldotna is a place where **nature and urban gathering spaces** coexist, expanding and enhancing one another.

Future circulation improvements and redevelopment should incorporate elements of gathering and nature.



# The "Big Ideas"



The Kenai River corridor is a woven blend of nature, wildlife, recreation & gathering



# The "Big Ideas"

## IDENTITY

The Kenai River corridor is a woven blend of nature, wildlife, recreation & gathering

## PLACE

New & enhanced streets support Downtown Hubs as places to live, work, and play



# The "Big Ideas"

## IDENTITY

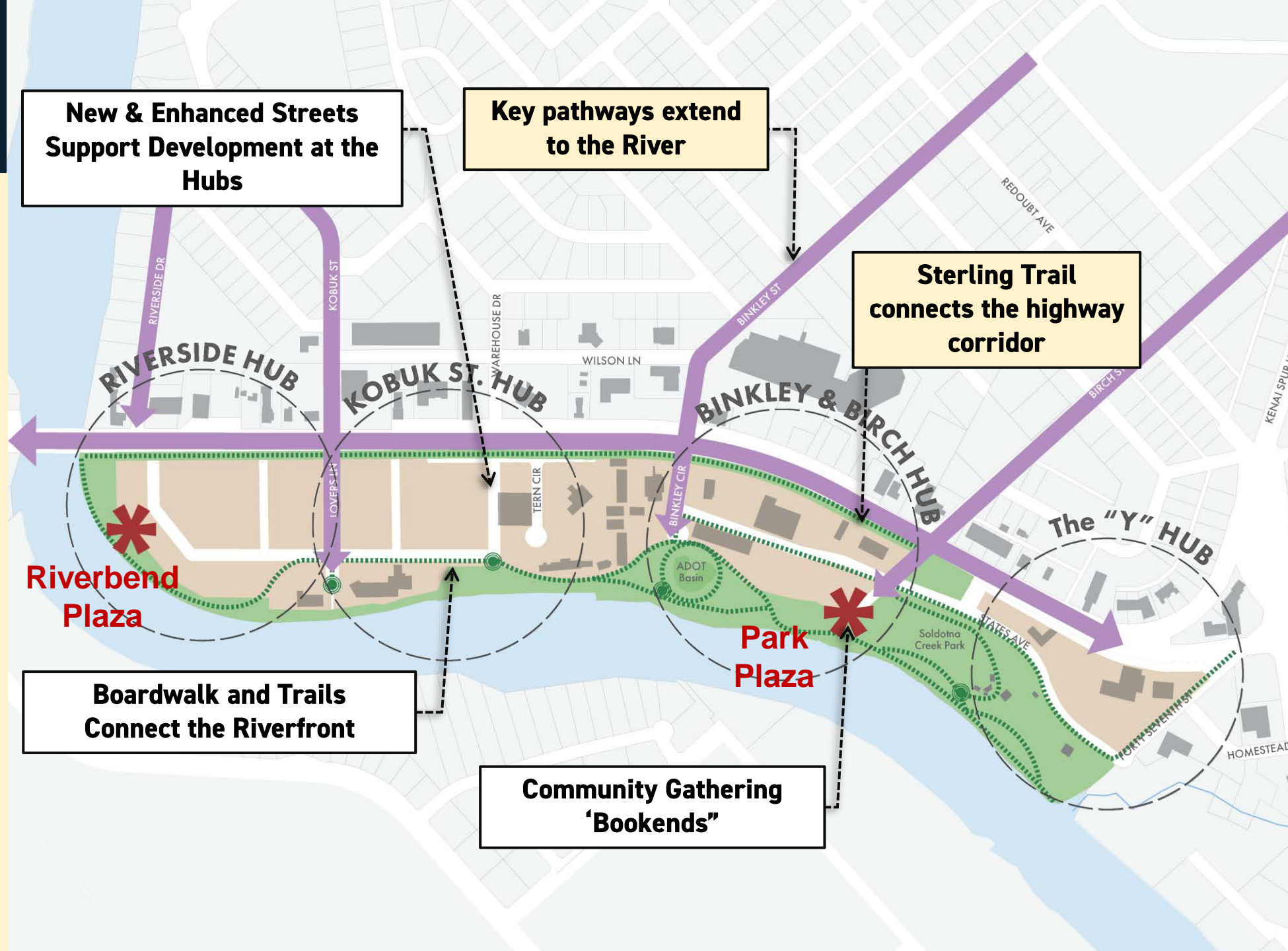
The Kenai River corridor is a woven blend of nature, wildlife, recreation & gathering

## PLACE

New & enhanced streets support Downtown Hubs as places to live, work, and play

## CONNECTED

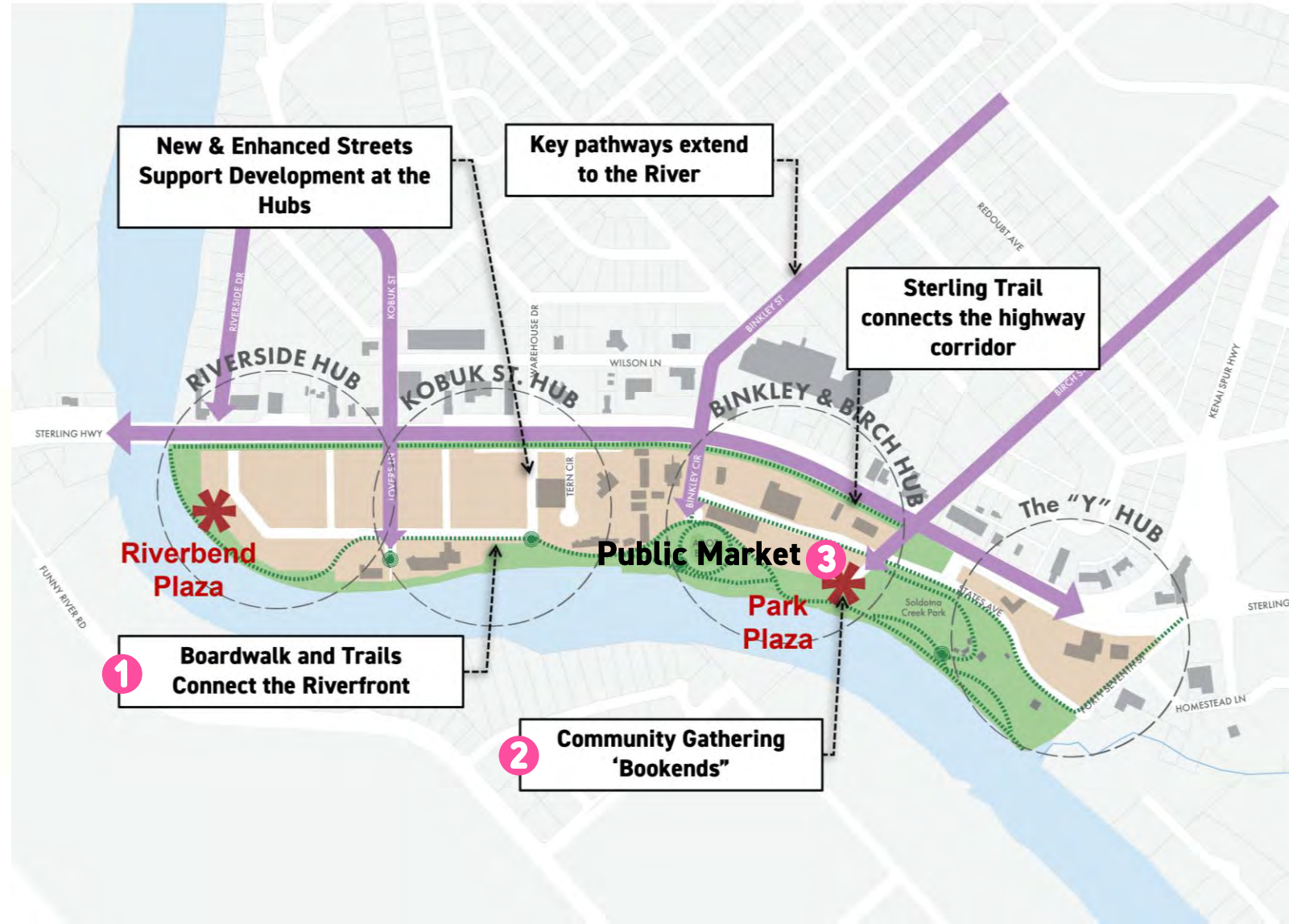
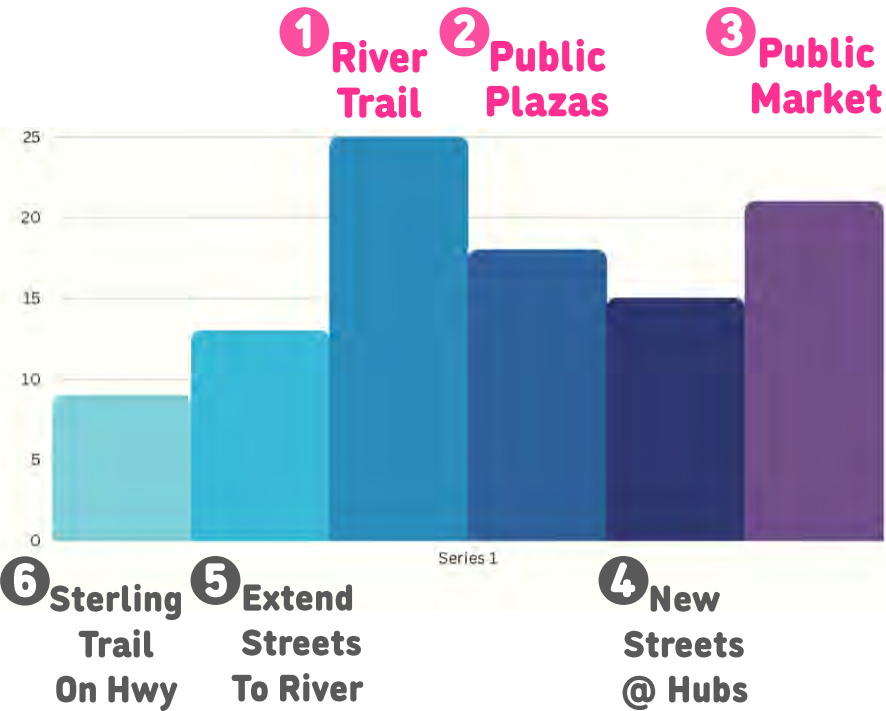
Key pathways reconnect neighborhoods to the river and destinations along Sterling Highway





# What We Heard

## The "Big Ideas"



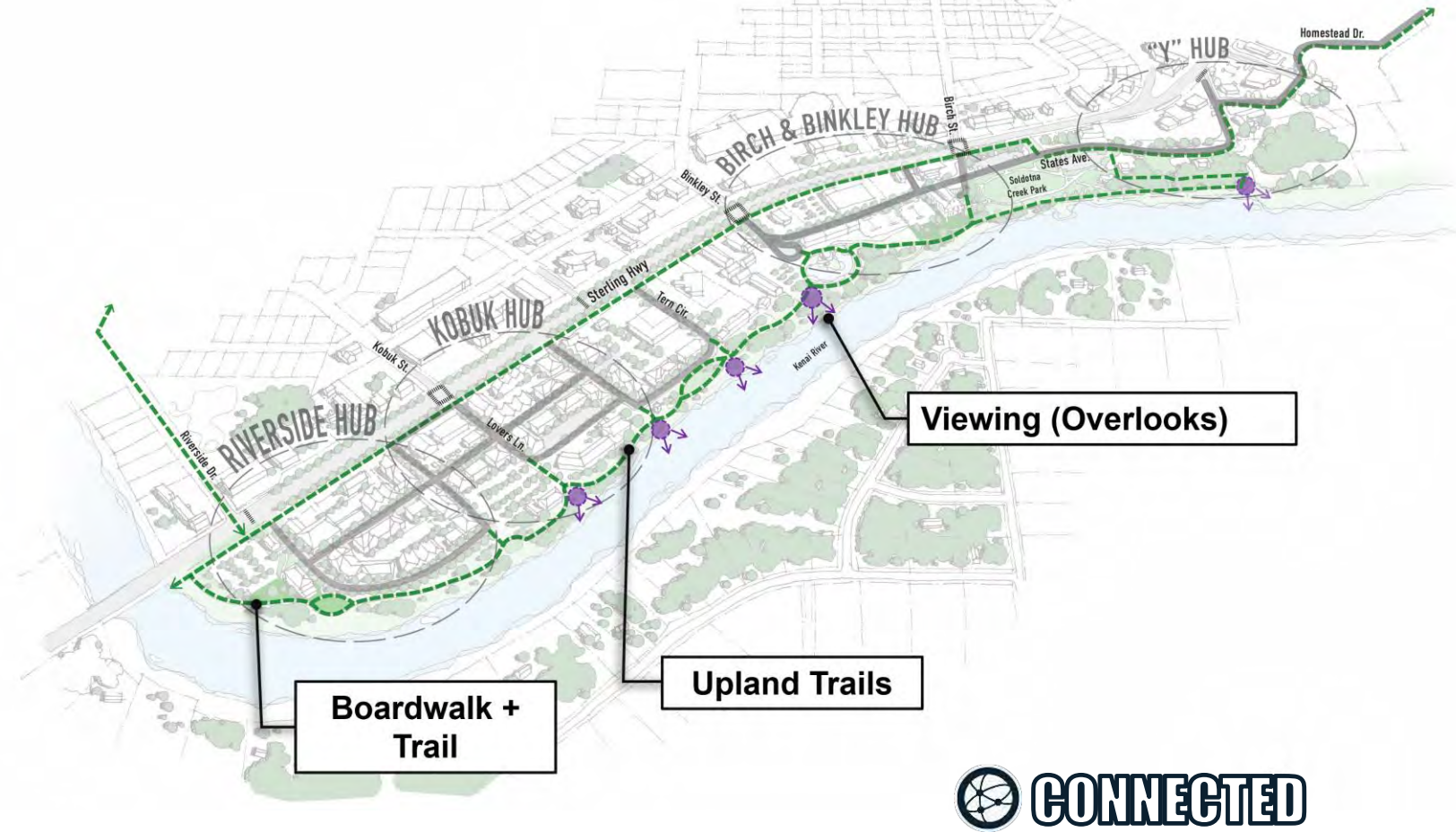
# What We Heard

## Riverfront Trail

Maybe,  
Need More  
Info

Yes, But  
different

Absolutely,  
A Must Have



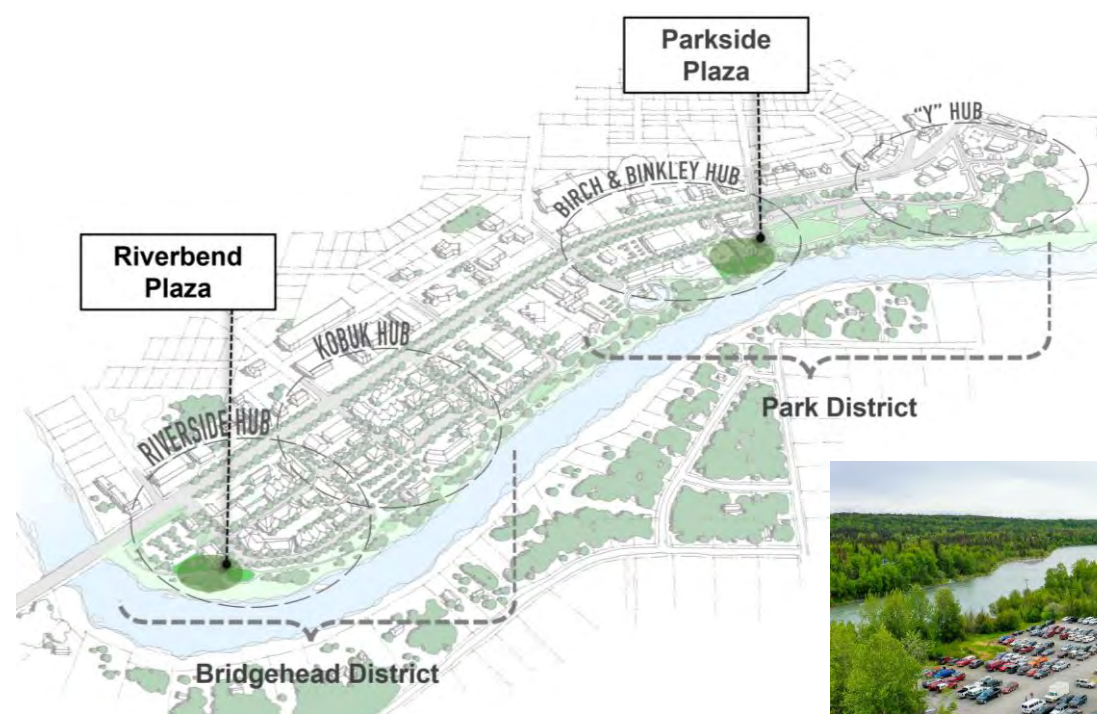
# What We Heard

**“Bookends”  
Public Gathering**

**Not  
Important**

**Somewhat  
Important**

**Very  
Important**



# PLACE



## “Bookends” Public Gathering

Nature & Gathering  
Soldotna Creek Park and  
Plaza

Riverbend Plaza at the  
Bridgehead



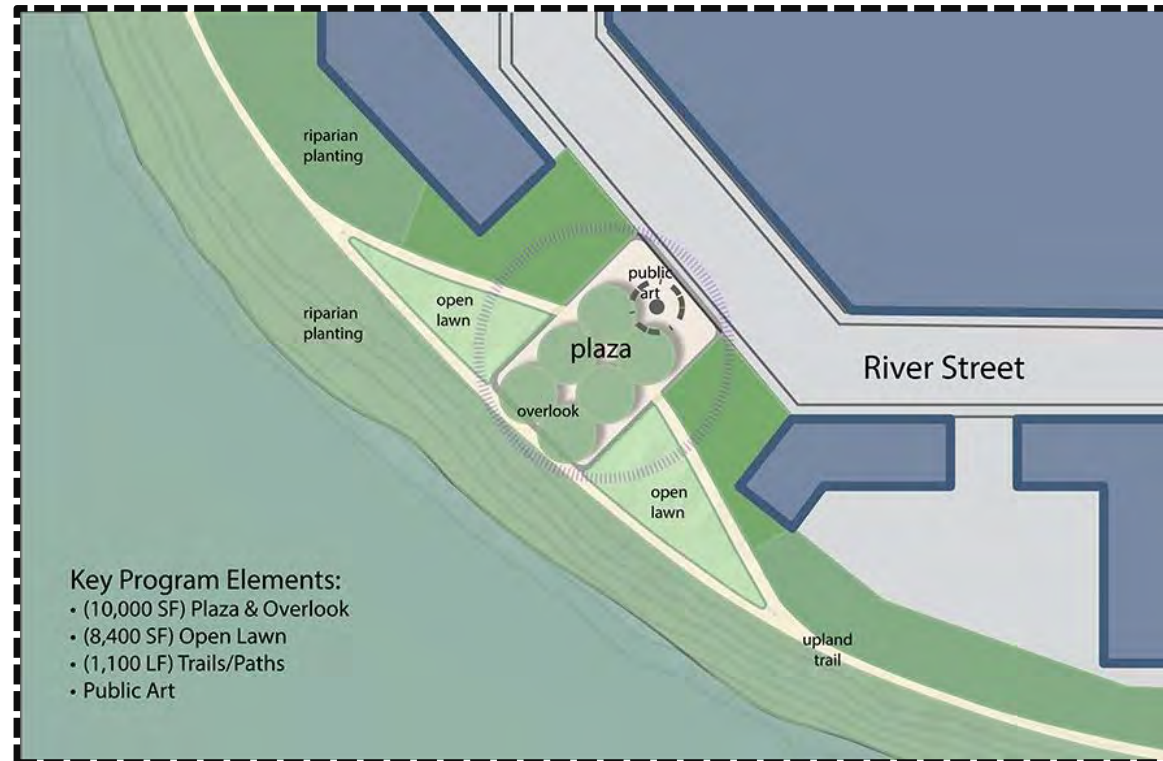
# PLACE



## “Bookends” Public Gathering

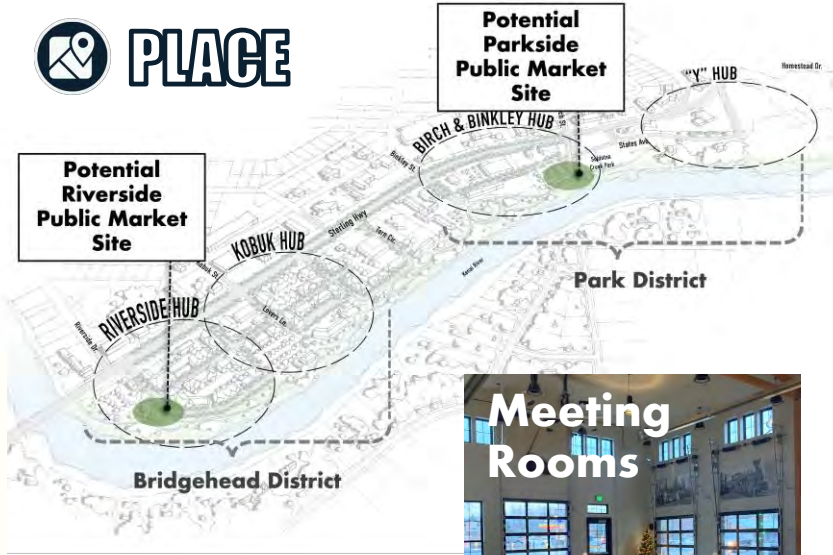
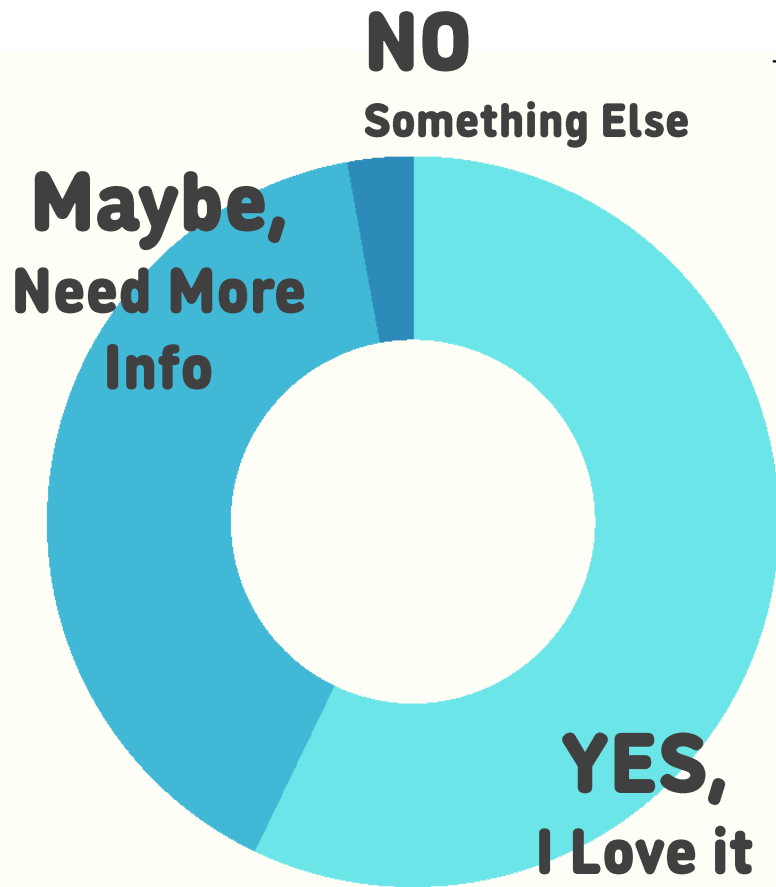
Nature & Gathering  
Soldotna Creek Park and  
Plaza

Riverbend Plaza at the  
Bridgehead



# What We Heard

## Public Market



Food and local goods are regularly showcased seasonally at Soldotna Creek Park. A public market could serve as a **year-round destination** to showcase these assets



# Development Feasibility Findings

## Public Market Precedents

The Grove Market Hall – Bend, Oregon credit: Hacker Architects



### Governance:

- **Private developer** (no public support)

### Funding:

- Privately funded construction
- **High-end market rate rents support operations**

### Program:

- **14,000 SF**
- **9 local restaurants**
- 2 well-known anchors
- Events & gathering space
- Centerpiece for a development

# Development Feasibility Findings

## Public Market Precedents



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### Governance:

- **Nonprofit operator**
- **Public land ownership**

### Funding:

- **\*LRF district and private funding**
- **Rents, events, & fund raising**
- City project specific-not annual

### Program:

- **28,000 SF**
- **20 restaurants and shops**
- Hosts Farmers Market
- Commercial kitchen
- Adjacent event center
- **Waterfront, location & trail**



# Development Feasibility Findings

## Public Market Precedents



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- Hosts Farmers Market
- Commercial kitchen
- Adjacent event center
- **Waterfront, location & trail**



### Governance:

- **Nonprofit owned and operated; private property management**

### Funding:

- KANA; no City or Borough money
- **Rental income & KANA's revenue**
- **Rents \$3/sf over 3 to 5 years**

### Program:

- **63,000 SF**
- **1/3 rented to businesses**
- 11 storefronts & commercial kit.
- Meeting space, and offices
- Seismic shelter

# Development Feasibility Findings

## Public Market Precedents

### The Grove Market Hall

- Smaller scale
- Privately developed and operated; premium market rents
- Focus on local seasoned retailers meant no need for business support
- **Strong anchor tenants important**
- **Community gathering space**
- **Outdoor space was necessary**
- **Events boost visitors**
- Design matters

### Pybus Market

- Mid-sized; hosts Farmer's Market & 20 retail spaces
- PPP developed, nonprofit operated
- Operated through rents, events, & fundraising
- No time limit for businesses in market
- Community vision and buy in essential for long-term success
- **Waterfront and trail boost visitation and activating downtown**

**“There have been lean times. Relied on the generosity of others who believed in the vision.”**

**- Pybus GM**

**“Met w/each business to help them with business planning that would allow them to pay higher prices”**

**-Kodiak PM**

### Kodiak Marketplace

- 11 retail spaces co-located with business supports
- Nonprofit owned, operated, funded
- Ongoing subsidy from KANA
  - Deficit decreases with gradual rent increases
- **Community benefit, economic driver, revitalize downtown**
- Direct outreach and business plan support essential for getting higher rents
- Crucial to have public engagement and manage expectations

# Development Feasibility Findings

## What the Soldotna Public Market Should Deliver?

- **Vibrant** community hub: retail, food, entertainment
- **Celebrate** Soldotna and the Kenai River
- **Gathering** place for residents and tourists
- Appeal to **all ages**
- Operate **year-round** with events and activities
- **Affordable** for businesses and customers
- Support **local business**

“Would be nice to integrate with the river and riverwalk and have views of the river and fishing.”

“Vendor and food is not enough - need music and something the old and young want to be at.”

“It would be the worst to be so expensive and only seasonally used.”

# Development Feasibility Findings

## Public Market Critical Element

Affordable restaurant and retail space for local businesses

Multi-use space that shifts with need

Anchor tenant

Active programming: events, management, etc.

# Development Feasibility Findings

## Specific Ways to Support Small Business

### In Market Hall

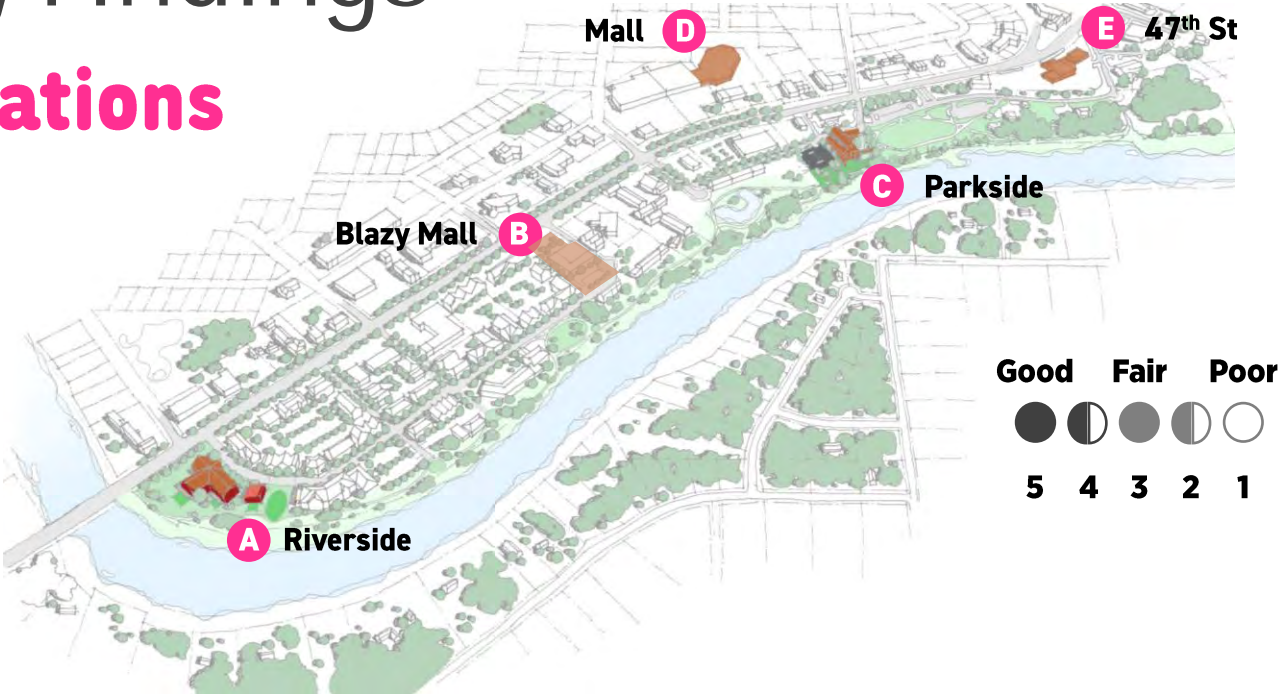
- Ensure affordable rent
  - Graduated rent or percentage rent
  - First month free
- Adequate storage within spaces
- Active, supportive management

### In City

- Pair facade improvement program with tenant improvement, and/or equipment grants in commercial areas
- Ensure adequate access to a commissary kitchen
- Coordinate suite of business support services

# Development Feasibility Findings

## Public Market Site Considerations



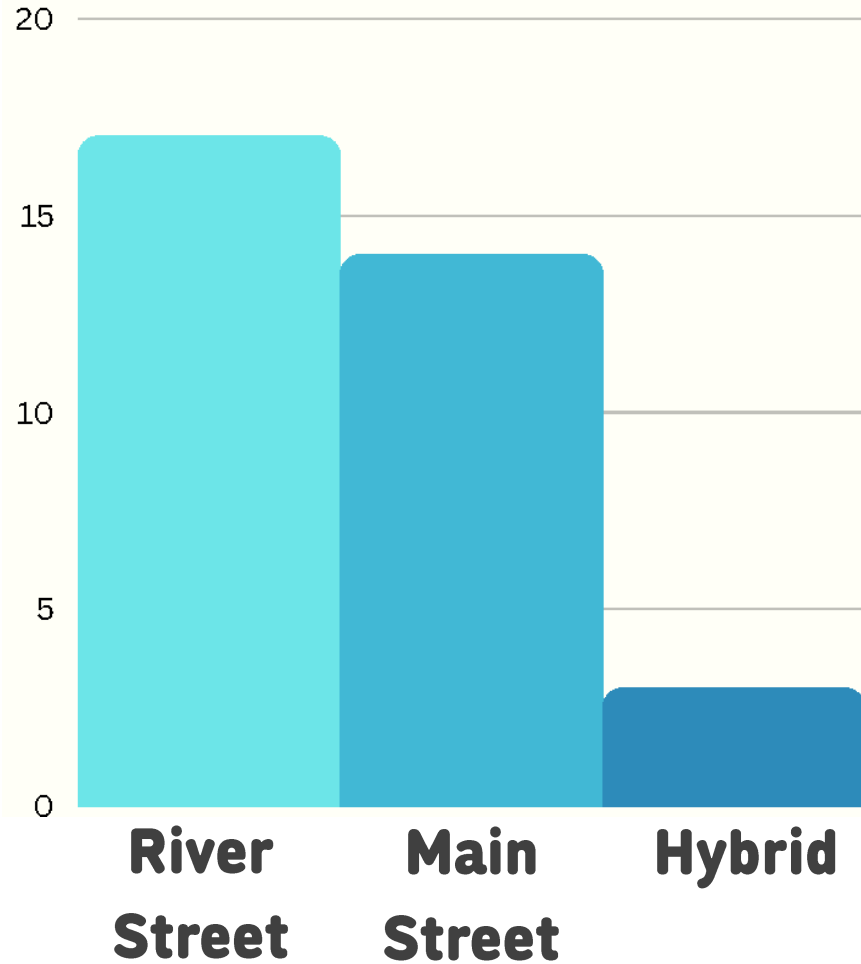
- City owned property=lower cost
- Accommodate parking needs
- Ability to stage indoor and outdoor events
- Outdoor public gathering space
- Waterfront and trail location
- Regional access

### Criteria & Evaluation

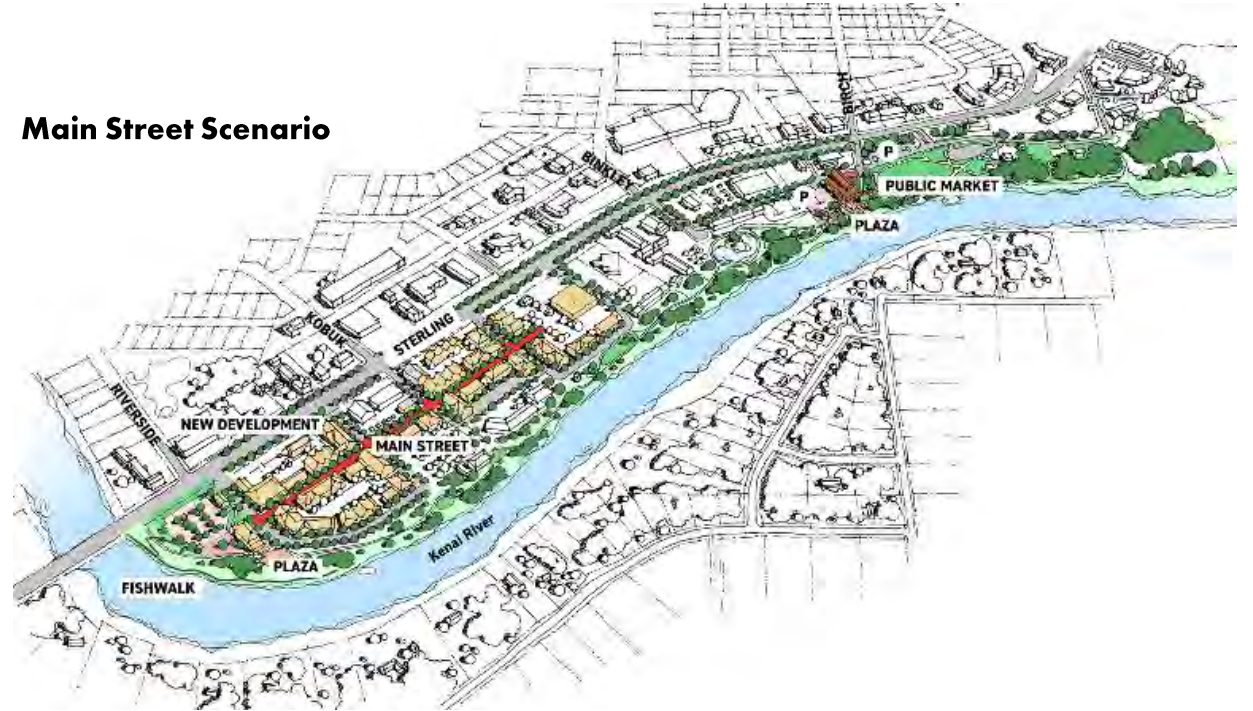
	A- Riverside	B- Blazy Mall	C- Parkside	D- Mall	E- 47th St
■ City owned property	○	○	●	○	○
■ Accommodates parking needs	○	●	●	●	◐
■ Stage indoor and outdoor events	◐	◐	●	◐	◐
■ Outdoor public gathering space	◐	●	●	◐	◐
■ Waterfront and trail location	●	◐	●	○	○
■ Regional access	●	●	●	●	●

# What We Heard

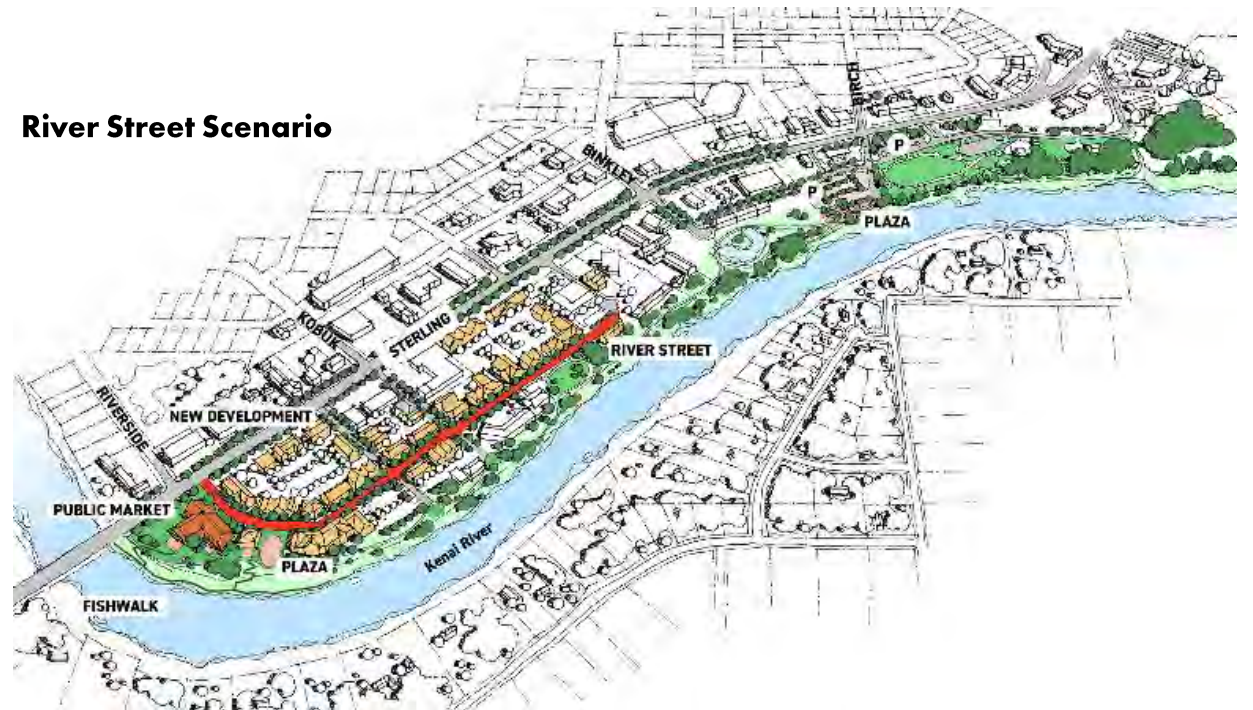
## Downtown Development Scenarios



Main Street Scenario



River Street Scenario



# Development Feasibility Findings

## Criteria

### 1. Project Objectives

- Create a riverfront experience and destination
- Support existing local business + attract new
- Highlight the Kenai River + nature
- Provide housing options

### 2. Development Feasibility

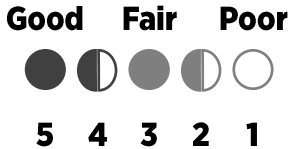
- Uses and density meet current market demand
- Phasing

### 3. Circulation

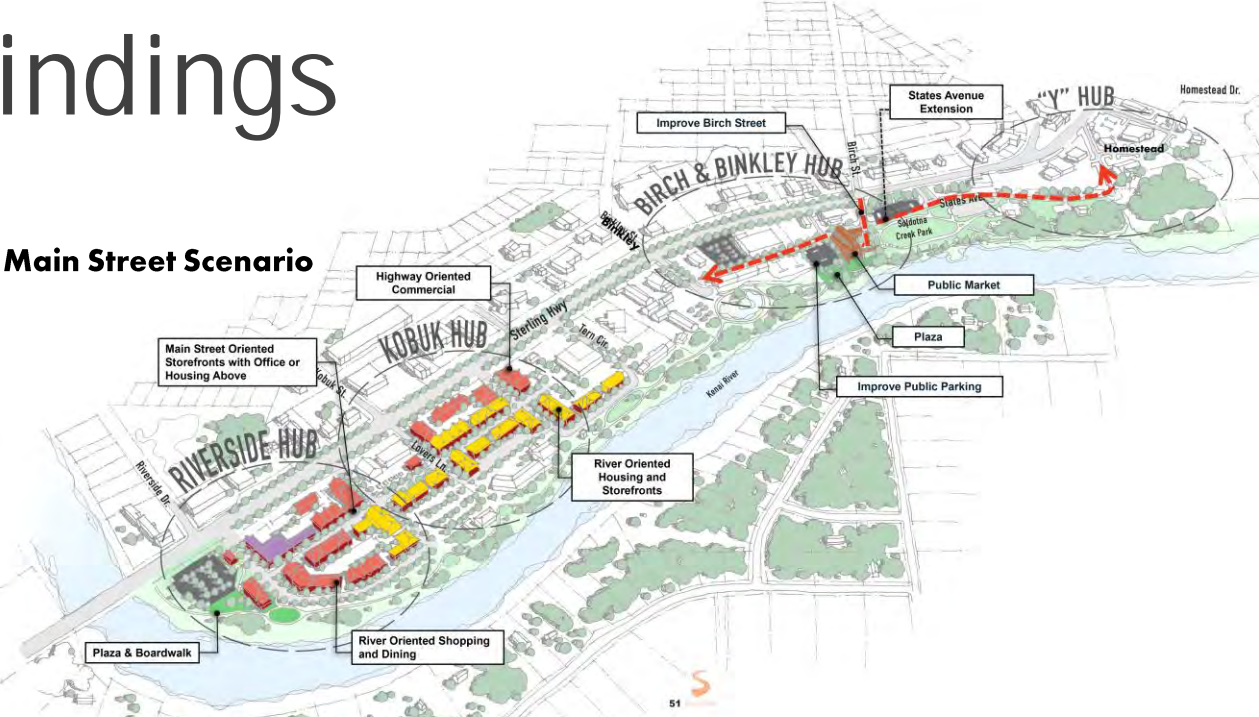
- Promotes walk + bike destination
- Connects neighborhoods to riverfront
- Enhances business access
- Supports highway operations

### 4. Infrastructure + Cost

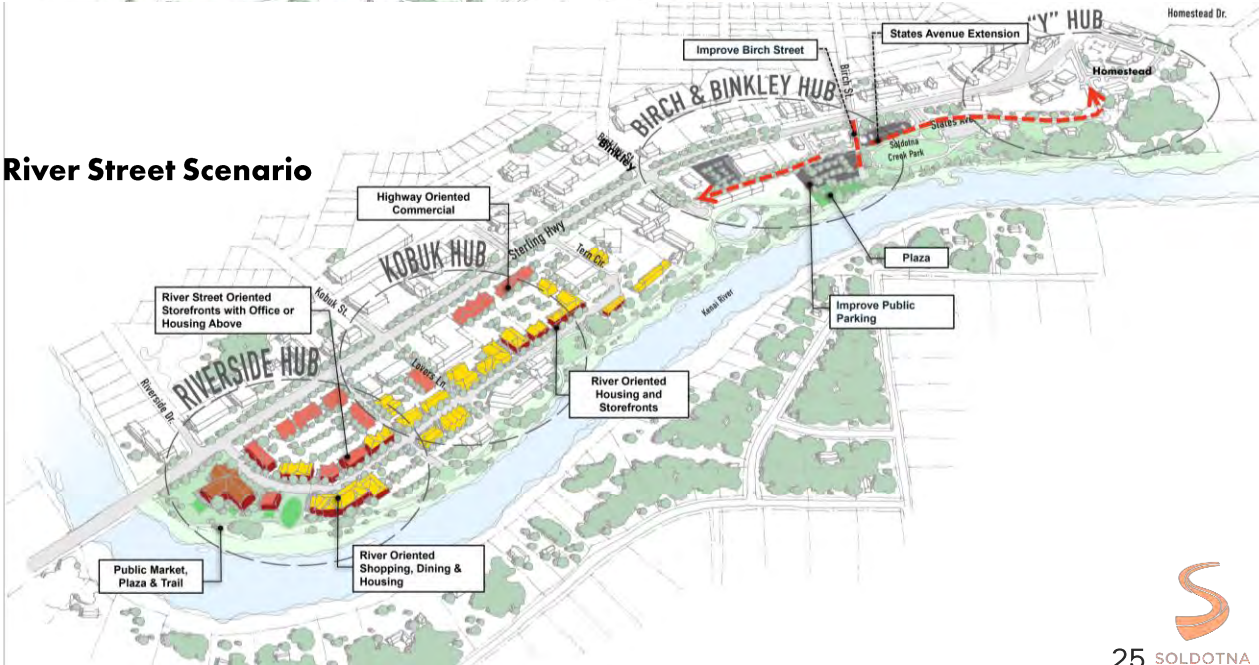
- Utilities
- Streets + right-of-way
- Cost



**Main Street Scenario**



**River Street Scenario**





# Development Feasibility Findings

## Criteria

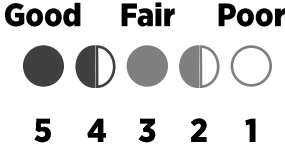
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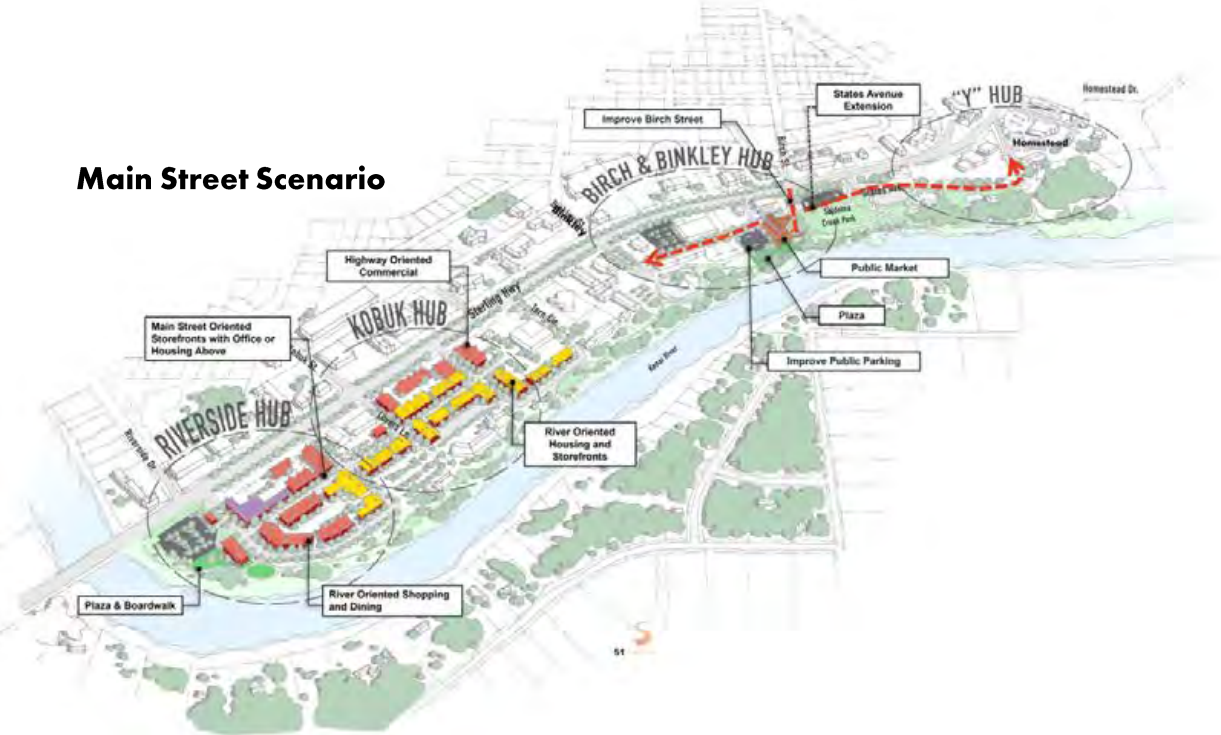
Main Street Scenario



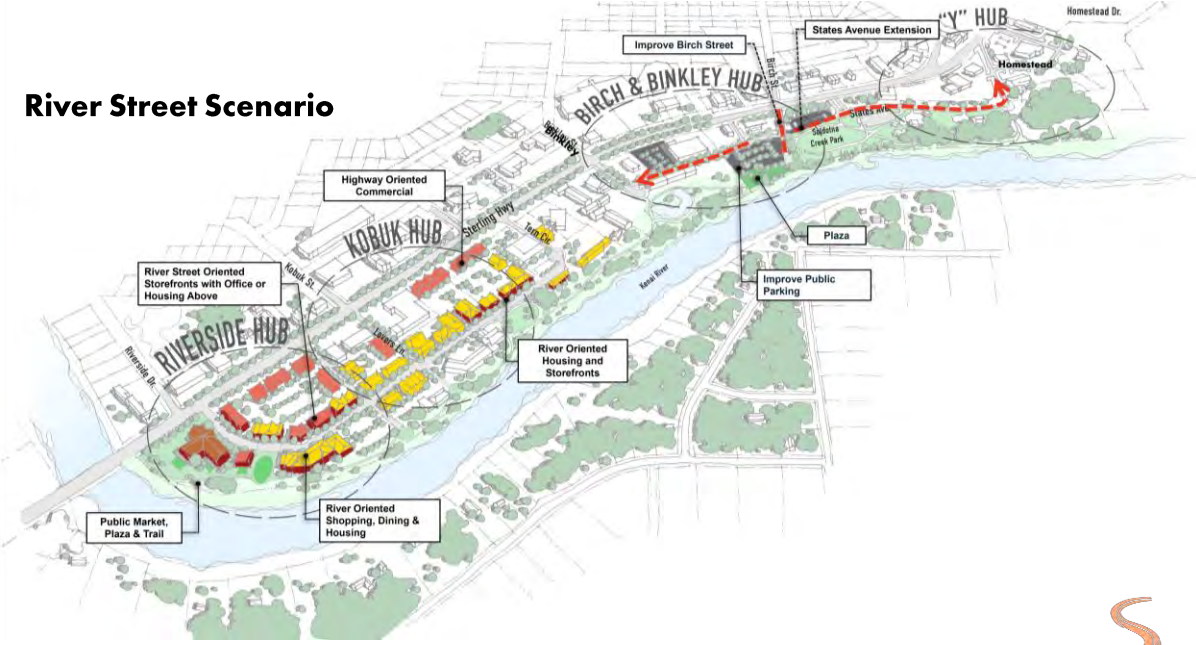
River Street Scenario



Main Street Scenario



River Street Scenario



# Development Feasibility Findings

## Criteria

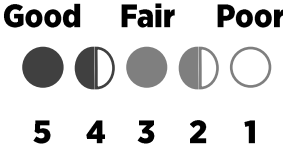
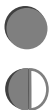
### 2. Development Feasibility—Scenarios

- Uses and density meet current market demand
- Phasing

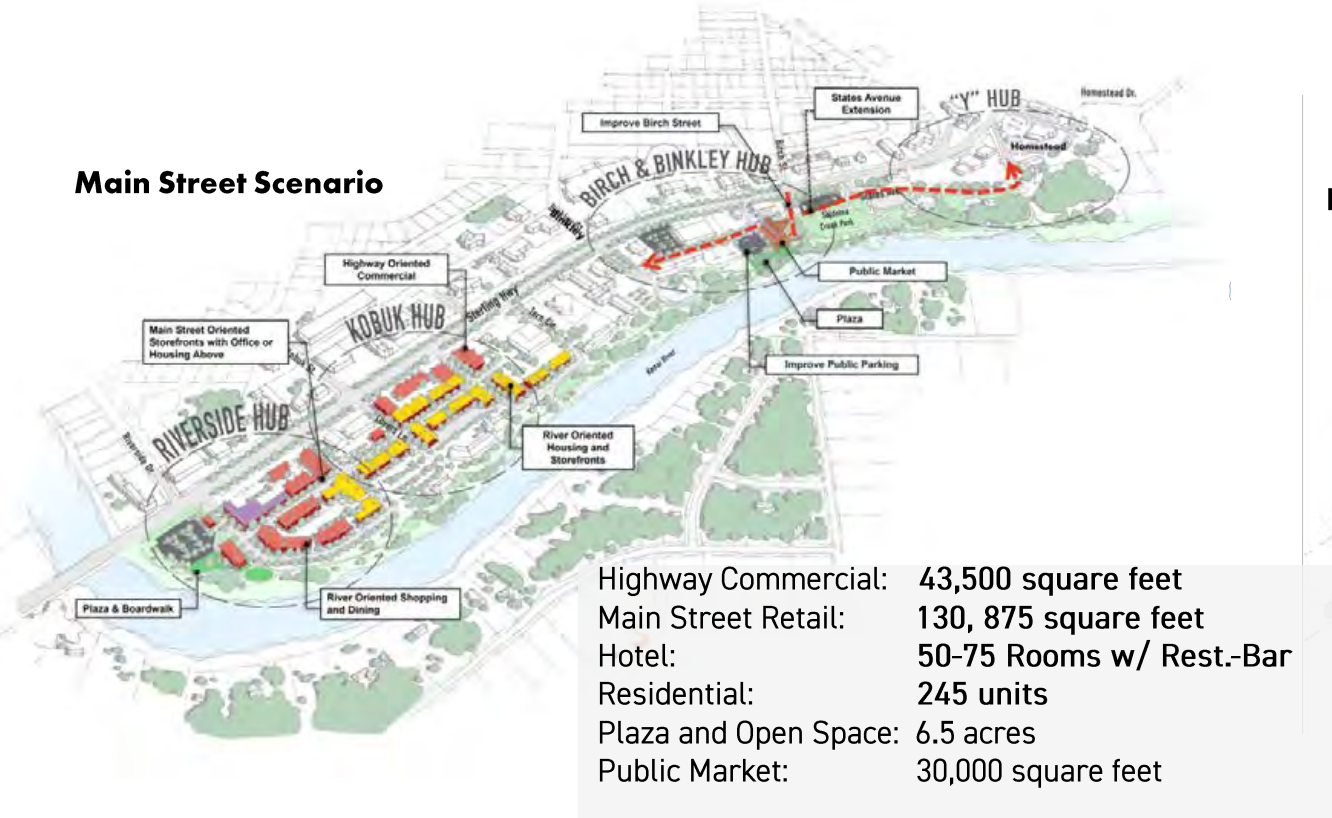
Main Street Scenario



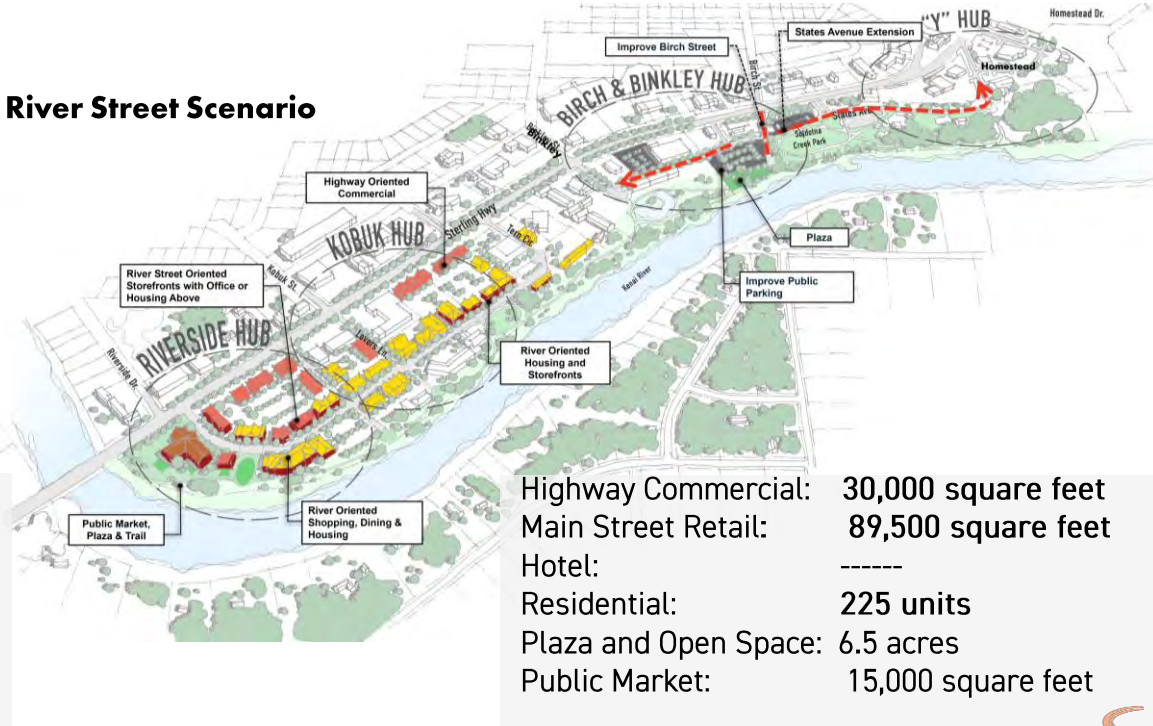
River Street Scenario



Main Street Scenario



River Street Scenario



# Development Feasibility Findings

## 2. Development Feasibility—Market Study



Three story mixed-use and multifamily are **not currently feasible**



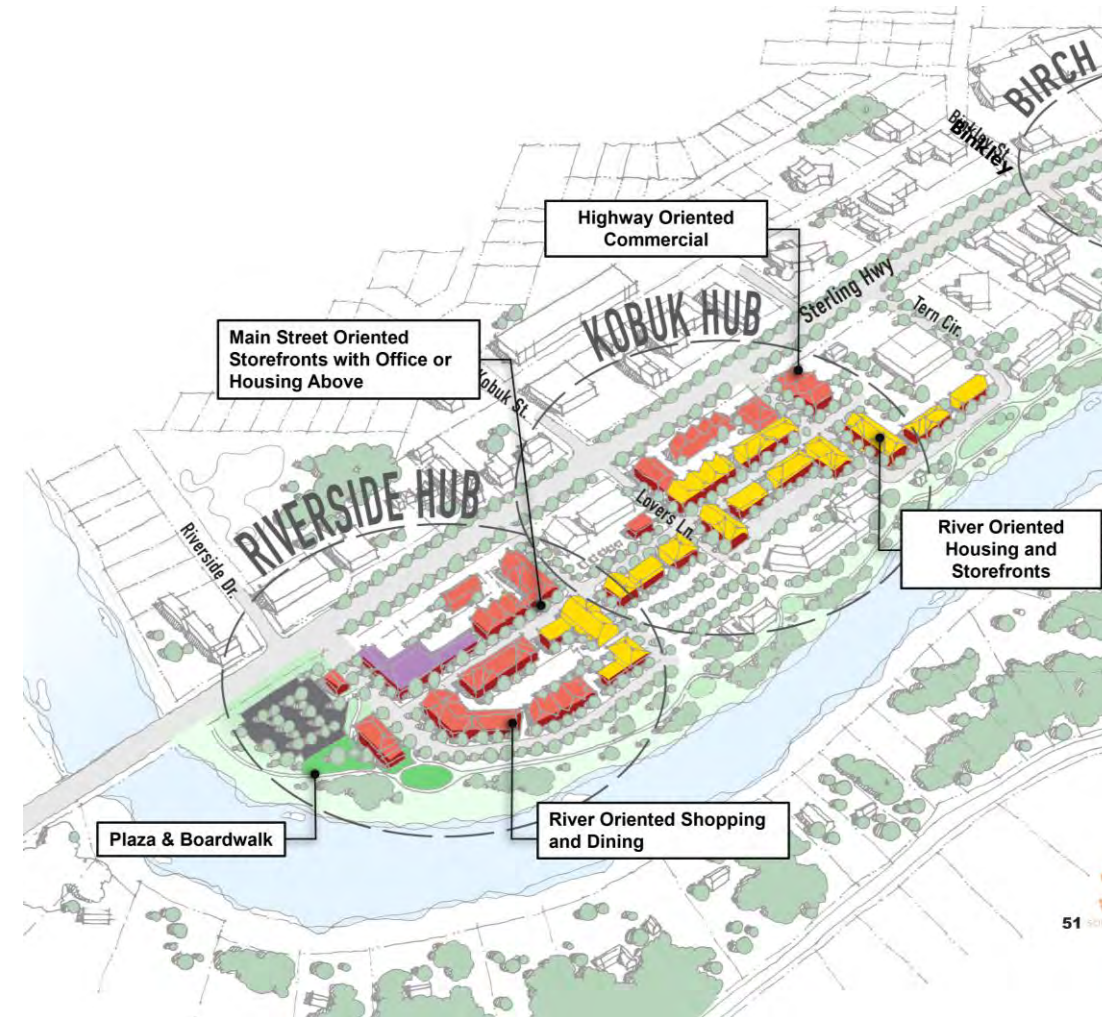
Townhomes are **more feasible**, especially with lower cost land



A new hotel **could be feasible** but would need district public amenities



**Public participation and phasing** will be necessary to stimulate desired development



# Development Feasibility Findings

## Development Considerations & Takeaways

### Preferred Scenario

- Provide housing diversity
- Use River Street road network
- Include hotel use
- Retail, dining, & entertainment cluster versus 3-block area
- Public market at the park

### City's Role

- Participate in public private partnerships
- Construct infrastructure improvements
- Consider timing/phasing of public and private investment

# Development Feasibility Findings

## Development Considerations & Takeaways

### Phase 1

- Establish a market hall
- Encourage townhome development
- Assemble partners to build affordable housing
- Improve trails, streets, and waterfront amenities

### Phase 2

- Encourage a hotel w/ restaurant
- Promote Adaptive reuse

### Phase 3

- Pursue three-story mixed-use development

# Development Feasibility Findings

## Criteria

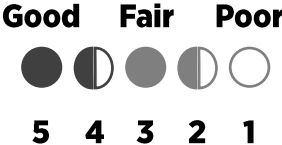
### 3. Circulation

- Promotes walk + bike destination
- Connects neighborhoods to riverfront
- Enhances business access
- Supports highway operations

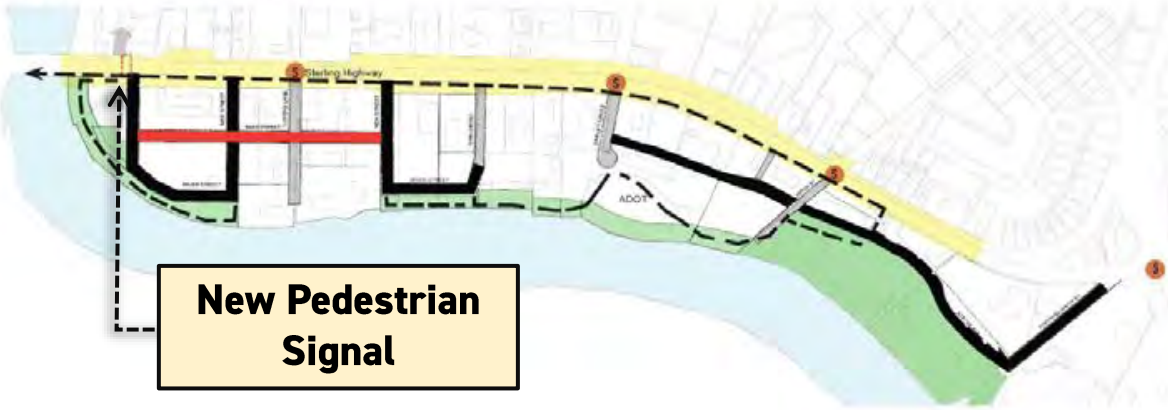
Main Street Scenario



River Street Scenario



Main Street Mobility Framework



River Street Mobility Framework

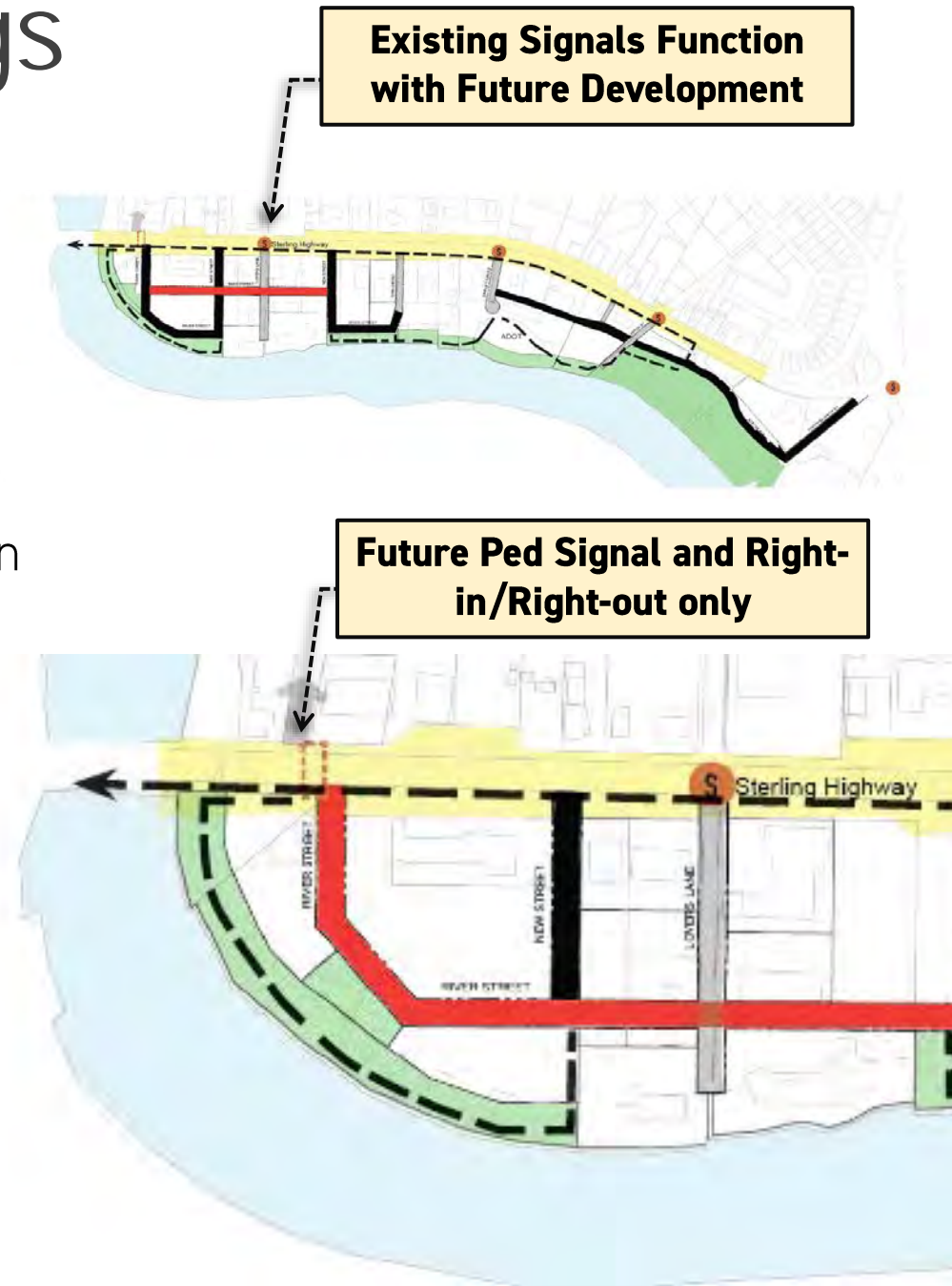


- Main Street/River Street
- New Street
- Enhanced Street
- Existing Signal
- Ⓢ Proposed Signal
- Ⓢ Proposed Rectangular Rapid Flashing Beacon
- Sterling Highway ROW Transportation Demand Management Area

# Development Feasibility Findings

## 3. Circulation

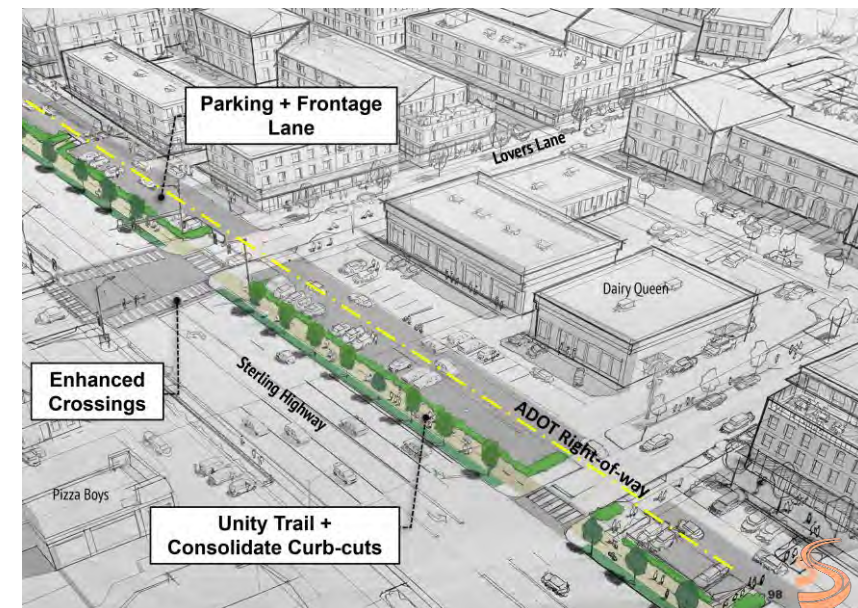
- The **new and enhanced streets promote a complete street network** supportive of walking and biking in the district and are likely to reduce vehicle trips on the Sterling Highway.
- **Current signalized intersections are expected to be able to accommodate future development** and anticipated traffic at an acceptable level of service.
- Consider allowing **right-in and right-out turns only onto and off Riverside Drive and River Street.**
- Consider **placing a median refuge and using rectangular rapid flashing beacons (RRFBs)** at the intersection of Riverside Street and Sterling Highway.
- Given the 35-mph speed limit, a new signal at Warehouse Lane may be acceptable and help to keep traffic on Sterling Highway platooned at while adding an additional walk and bike crossing.



# Development Feasibility Findings

## 3. Circulation

- Consolidating driveways on the river side of Sterling Highway would **improve access control**, and reduce vehicle conflicts.
- Consolidating driveways from the bridge to Birch Place **would reduce the number of driveways or side streets accessing the highway from 15 to 7**. This would decrease conflict points improving safety and decreasing delay.
- The **proposed multi-use trail would also benefit from access control**, as bike riders would interact with vehicles only at the side streets.





# Development Feasibility Findings

## Criteria

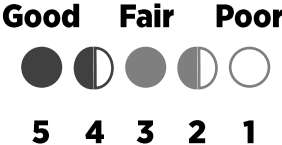
### 4. Infrastructure + Cost

- Utilities
- Streets + right-of-way
- Cost

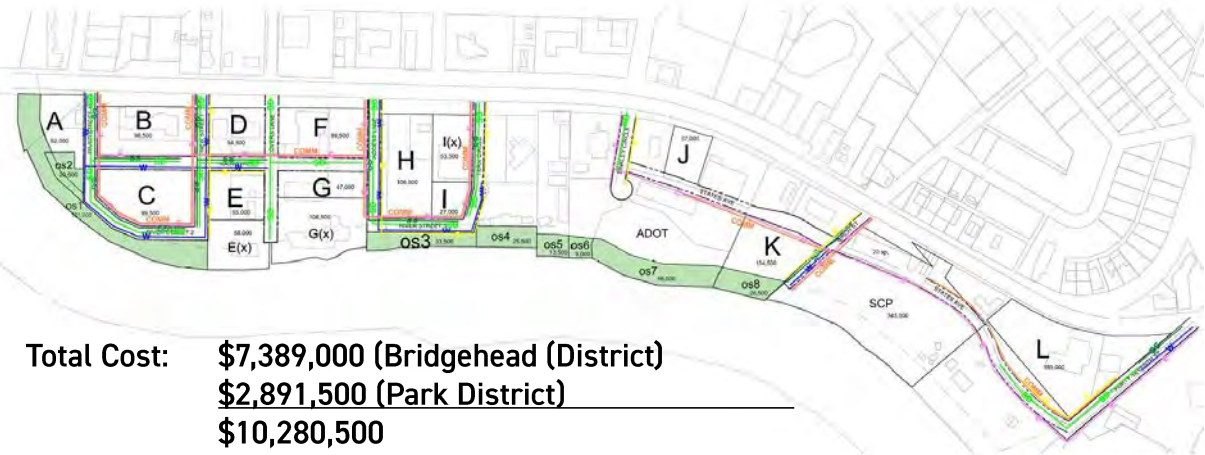
Main Street Scenario



River Street Scenario

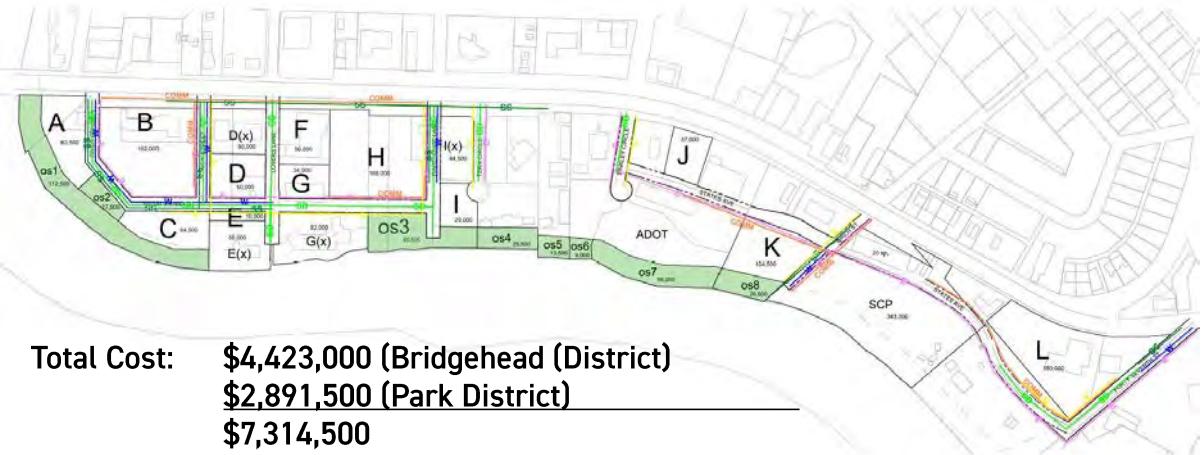


Main Street Scenario



Total Cost: **\$7,389,000** (Bridgehead (District))  
**\$2,891,500** (Park District)  
**\$10,280,500**

River Street Scenario



Total Cost: **\$4,423,000** (Bridgehead (District))  
**\$2,891,500** (Park District)  
**\$7,314,500**



# Development Feasibility Findings

## 4. Infrastructure + Cost

- **River Street Alternative** would have less **potential impact on utilities** as it does not include short new street segments along routes not currently developed or supported by utility mains.
- **River Street alternative** would have a **lower cost for utilities and roadway improvements**.

Main Street Total Cost: \$7,389,000



Figure 2: Main Street Alternative

River Streets Total Cost: \$4,423,000



Figure 3: River Street Alternative

# Development Feasibility Findings

## Criteria

### 1. Project Objectives

- Create a riverfront experience and destination
- Support existing local business + attract new
- Highlight the Kenai River + nature
- Provide housing options

### 2. Development Feasibility

- Uses and density meet current market demand
- Phasing

### 3. Circulation

- Promotes walk + bike destination
- Connects neighborhoods to riverfront
- Enhances business access
- Supports highway operations

### 4. Infrastructure + Cost

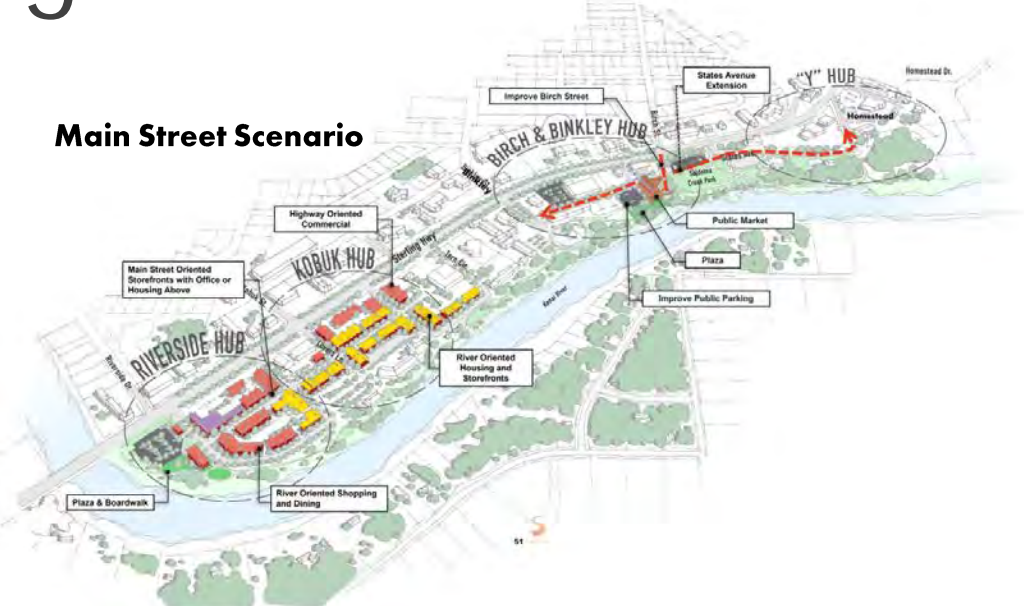
- Utilities
- Streets + right-of-way
- Cost

Main Street Scenario

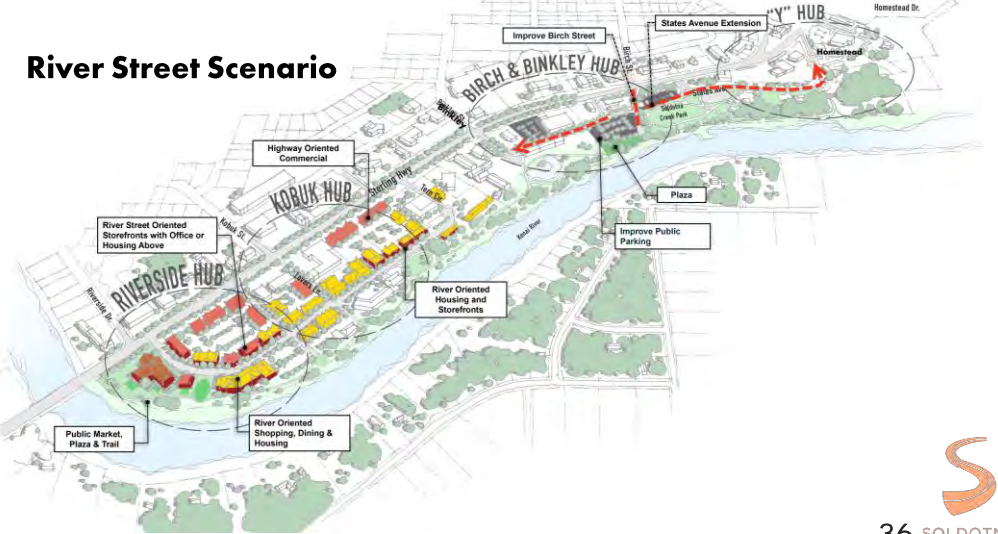
River Street Scenario



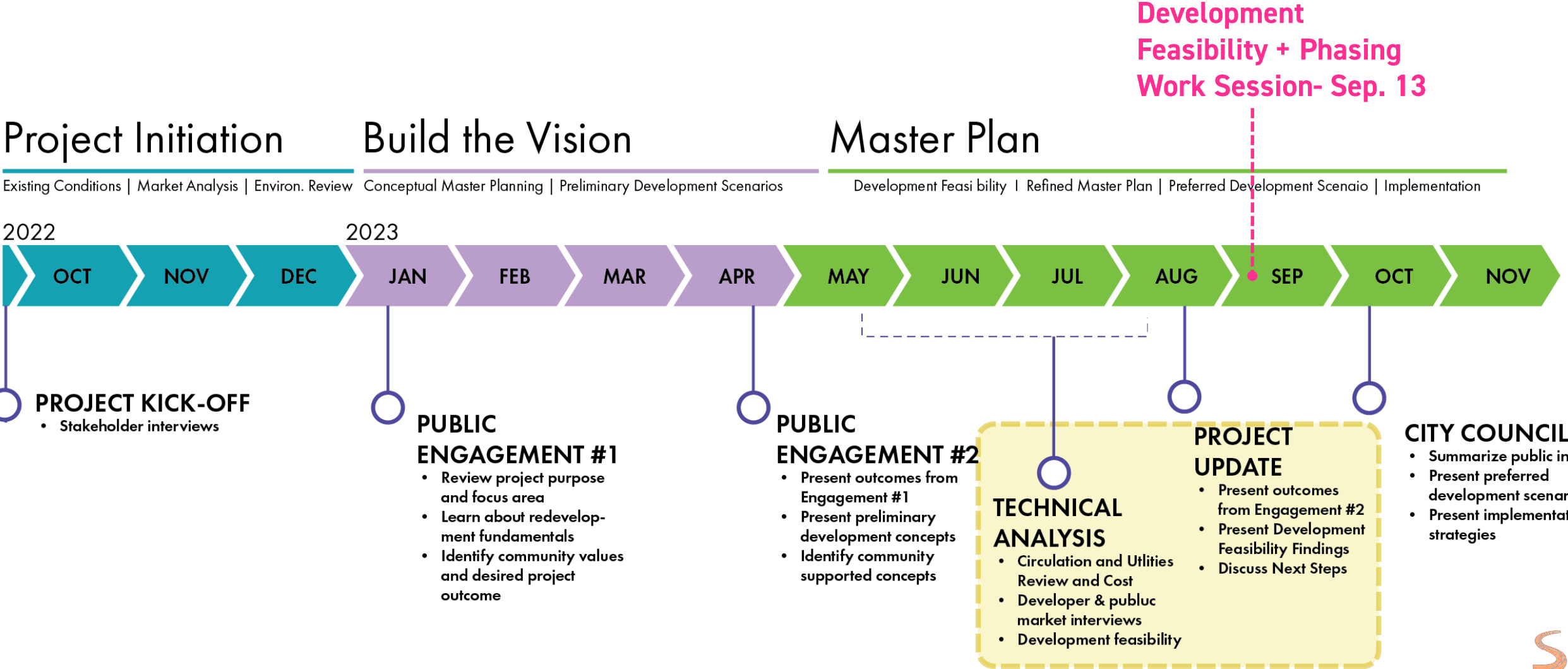
Main Street Scenario



River Street Scenario



# Project Process + Schedule



# Next Steps

## Preferred Scenario + Development Summary

- Plans + Illustrations
- Development Yield + Typologies
- Regulatory + Design Guidelines Framework

## Catalyst Projects

- Public Market
- Waterfront Plazas
- Phasing I-III

## Implementation Strategies

- Actions
- Roles + Responsibilities
- Timeline

## Draft Master Plan

- Draft
- Review Draft
- Final Draft





# Soldotna Riverfront Redevelopment: Market Hall Options and Development Feasibility

## City Council Work Session September 13, 2023

01

Set the Stage

02

Review  
Residential,  
Mixed-Use and  
Hotel Feasibility

03

Review Options  
for a Market  
Hall

04

Discuss  
Conclusions  
and Next Steps

# Project process and schedule

## Project Initiation

## Build the Vision

## Master Plan

Existing Conditions | Market Analysis | Environ. Review

Conceptual Master Planning | Preliminary Development Scenarios

Development Feasibility | Refined Master Plan | Preferred Development Scenario | Implementation

2022

2023



### PROJECT KICK-OFF

- Stakeholder interviews

### PUBLIC ENGAGEMENT #1

- Review project purpose and focus area
- Learn about redevelopment fundamentals
- Identify community values and desired project outcome

### PUBLIC ENGAGEMENT #2

- Present outcomes from Engagement #1
- Present preliminary development concepts
- Identify community supported concepts

### TECHNICAL ANALYSIS

- Circulation and Utilities Review and Cost
- Developer & public market interviews
- Development feasibility

### PROJECT UPDATE

- Present outcomes from Engagement #2
- Present Development Feasibility Findings
- Discuss Next Steps

### CITY COUNCIL

- Summarize public input
- Present preferred development scenario
- Present implementation strategies



## Part 1: Market Analysis

- Understand the demand for different uses in Soldotna

## Part 2: Feasibility Analysis

- Understand the rent, sales price, or room rates needed to justify new development

**Even if there is demand for a particular use, it may not materialize if businesses (or households) cannot afford the rent in newly developed space.**

# Purpose and scope of development feasibility analysis

**Purpose:** Explore catalytic opportunities for development in the **near-term**

## **Scope of Work – Dual Approach**

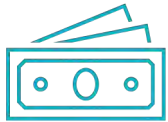
- Use pro forma analysis to evaluate the feasibility of **residential, mixed-use, and hotel uses**
- Begin to explore **market hall** concept in Soldotna



Strong interest in a public market with significant community expertise and capacity to operate and occupy space



Three story mixed-use and multifamily are not *currently* feasible



Townhomes are more feasible, especially with lower cost land



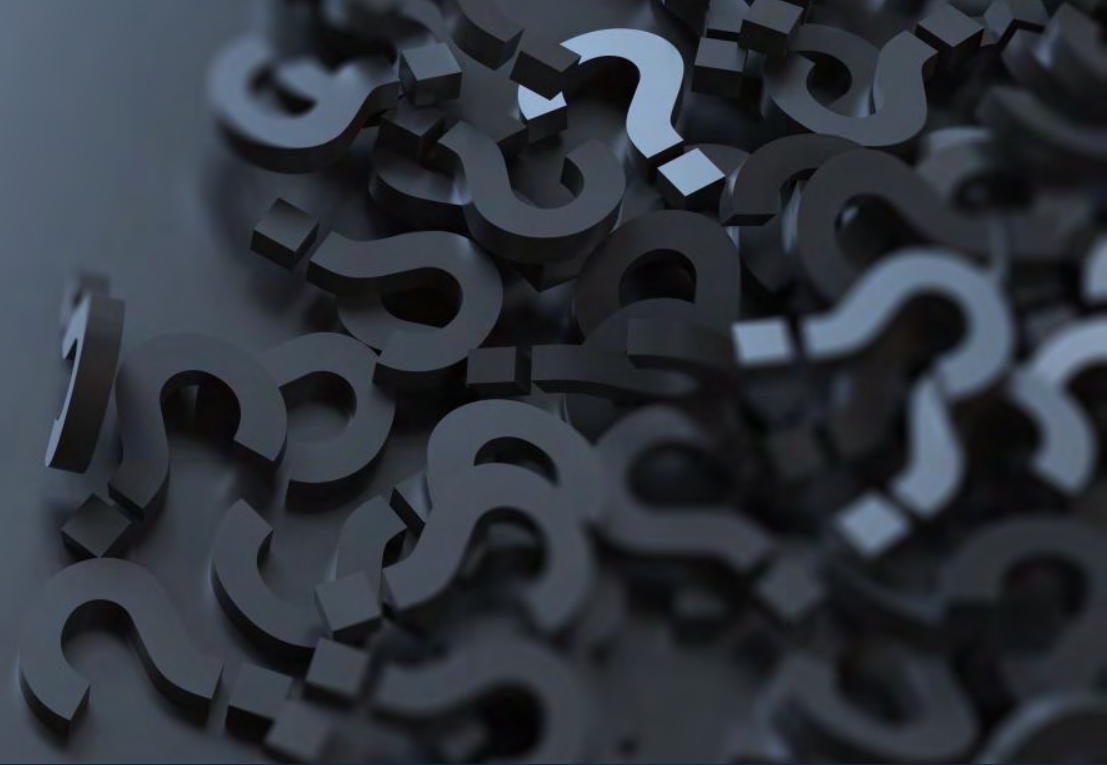
A new hotel could be feasible but would need enhancements

**City participation and purposeful phasing will be necessary to stimulate desired development and ensure that Soldotna remains affordable and accessible to Soldotna residents.**

# Key considerations for next steps and phasing

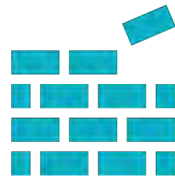
- How can the City work to balance private new development which will garner higher rents with affordability and accessibility?
- What is the City's appetite for different development options and level of City involvement/investment?

**How the City answers these questions will inform development phasing and programming.**



# Residential, Mixed-Use, and Hotel Feasibility

# Research questions



*What scale of development is currently feasible in the project area?*



*What level of City support will be required to facilitate development that is not quite feasible?*

# Residential and Mixed-Use Feasibility Analysis

# Residential and mixed-use pro forma method

- Compares development feasibility across prototypes
- *Residual Land Value (RLV)* is an estimate of what a developer would be able to pay for land given development inputs

## Building Program Information

- Unit size, parking ratios, building heights

## Development Costs

- Hard costs (labor & materials)
- Soft costs (permit fees & interest)

## Revenue

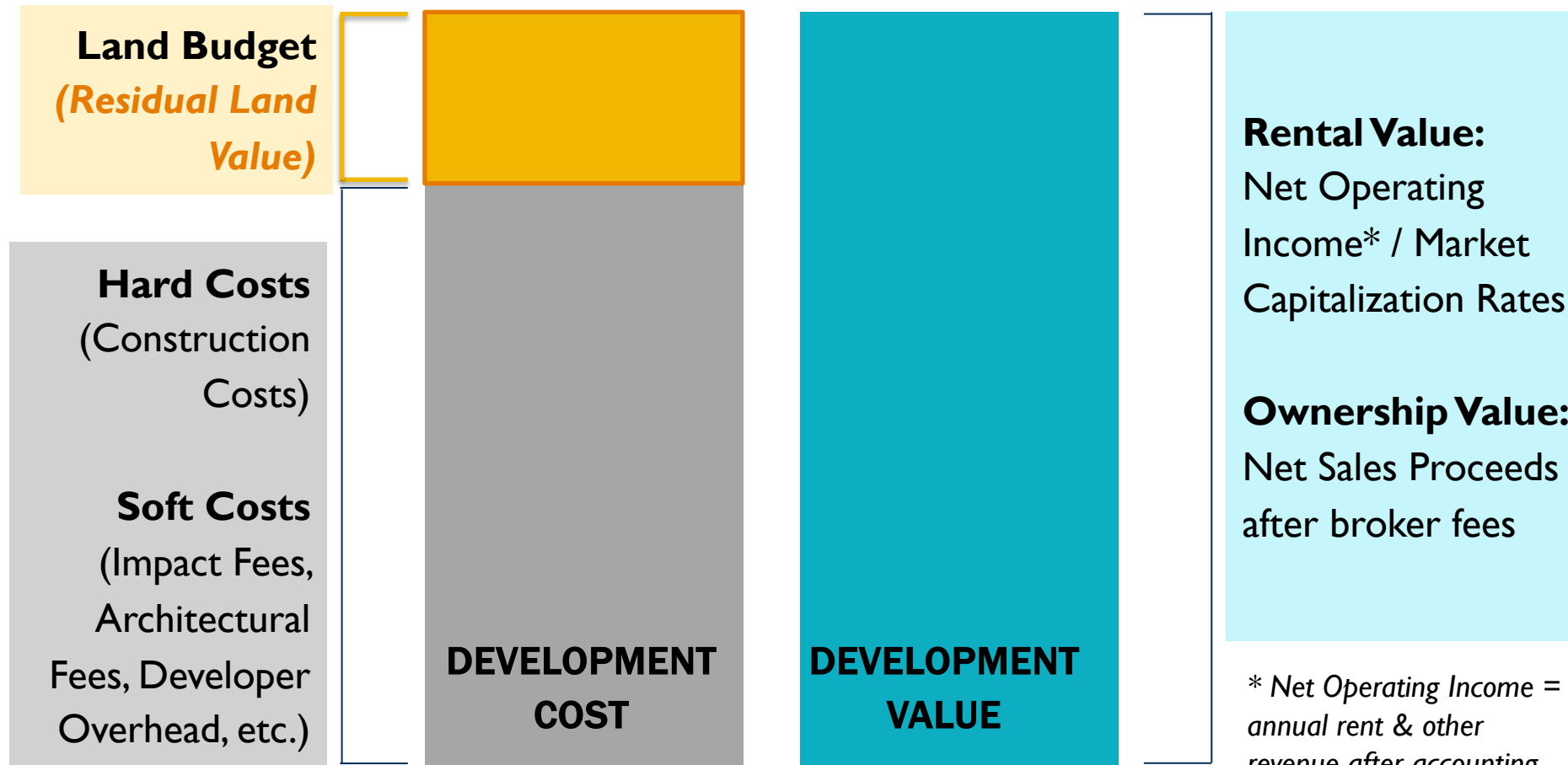
- Sale price, rent, operating costs

## Valuation Metrics

- Capitalization rates, debt service coverage ratios, and yield on cost thresholds



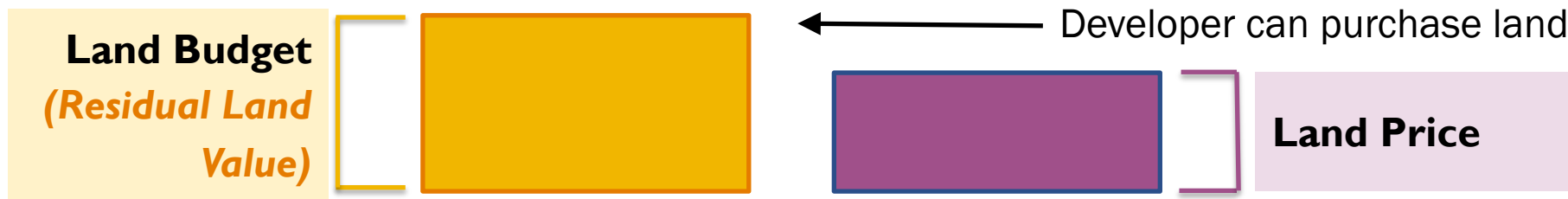
## Feasible Development Example



\* Net Operating Income = annual rent & other revenue after accounting for vacancy minus operating costs

# Residual land value (RLV)

- RLV analyses should be thought of as a strong *indicator* of the relative **likelihood of development**.
- Higher RLV relative to existing land prices indicates **better development feasibility**.



# Prototypes analyzed

## Townhomes



Anchorage

Source: Redfin

## Multifamily



Seward

Source: Loopnet, Costar

## Mixed-Use

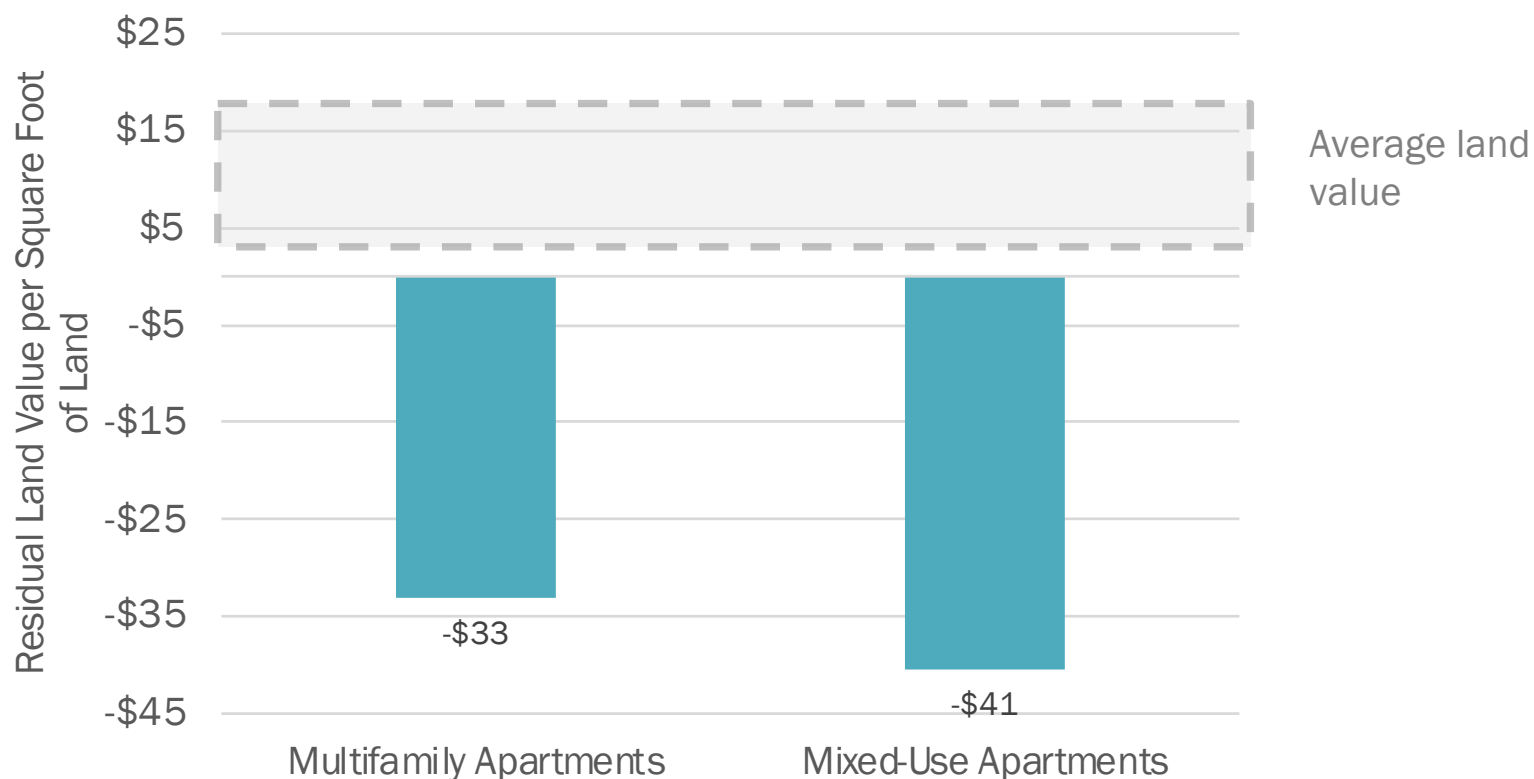


Anchorage

Source: Apartments.com, Costar

## Finding 1: Three story mixed use and multifamily is **not feasible** currently

- Observed rents are around \$1.50 per sf
- Apartment rents would need to be **at least \$2.30 per sf** for development to be financially feasible



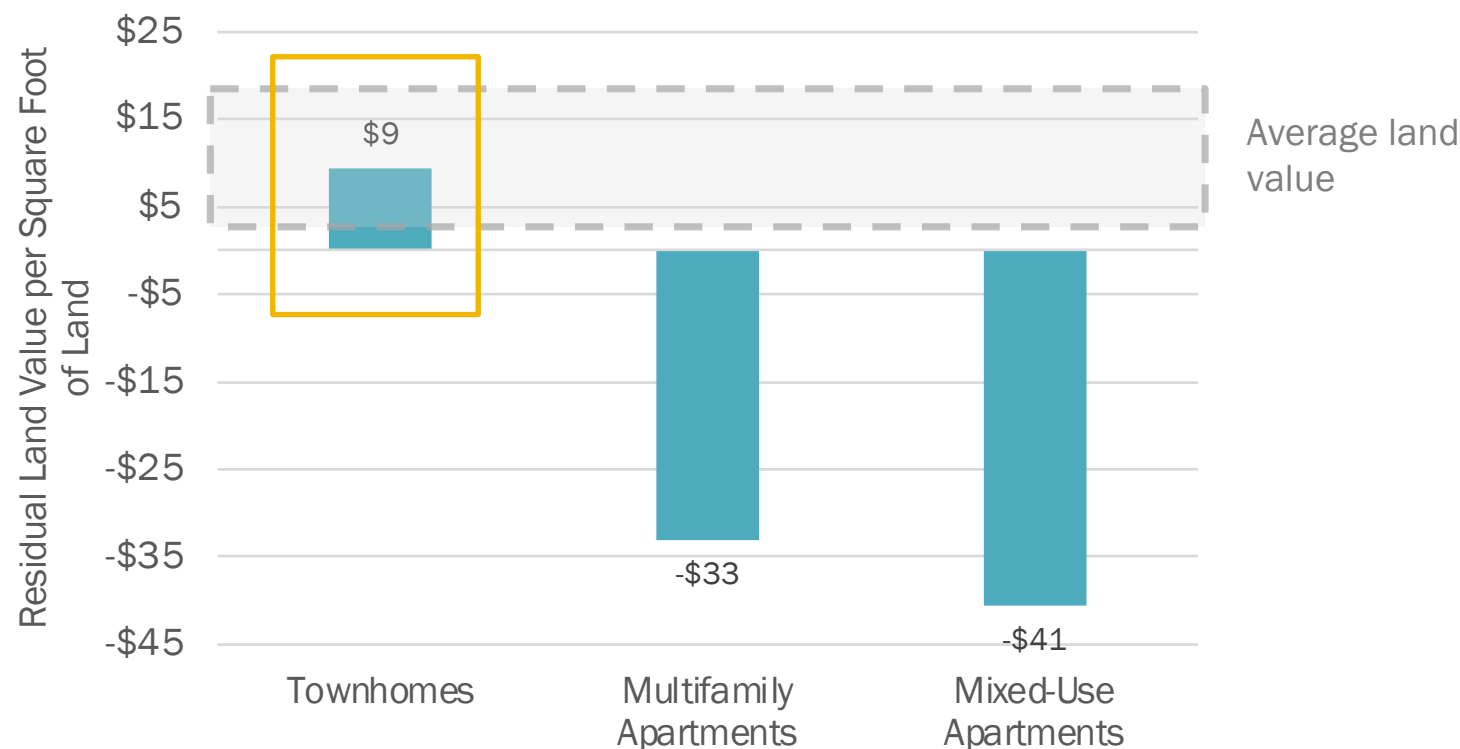
## Finding 1: Three story mixed use and multifamily is **not feasible** currently

When RLV is **negative**, a developer would need the **land for free plus a subsidy** of some kind



## Finding 1: Townhomes are **more feasible**, especially with lower cost land

- Observed sales price were around \$250 to \$325 per sf
- Assuming the average comparable sales price, developers could pay **\$9 per sf** for land



# Hotel Analysis

# Hotel pro forma method

*Internal Rate of Return (IRR)* is the compound annual rate of return an investor should expect to make on the hotel project over many years



## Building Program Information

- Unit size, parking ratios, building heights

## Development Costs

- Hard costs (labor & materials)
- Soft costs (permit fees & interest)

## Revenue

- Room rates, operating costs, stabilization period

## Valuation Metrics

- Capitalization rates, debt service coverage ratios, and yield on cost thresholds



## What is IRR?

- The compound annual rate of return an investor should expect to make over many years.

## Why use IRR instead of RLV for hotels?

- A cash flow model that solves for an IRR is a more robust analysis of feasibility than RLV but requires more assumptions.
- Hotels have a longer stabilization period and more complex operating costs. A cash flow model that results in IRR allows us to better approximate these conditions.
- RLV is often a first step in initial feasibility for residential and mixed-use. Developer may proceed to detailed IRR after RLV insights.

- Required rate of return is influenced by factors like investment risk, market conditions, and investor expectations.
- Safest investment is US government bonds, currently at 4.2%
- Developing a hotel is risky and requires higher returns.  
An appropriate IRR is 14% (currently).

# Pro forma baseline assumptions

- Average Daily Room Rate: \$169.40
- Natural Occupancy Rate: 66.2%
- Total Rooms: 62
- Type of Hotel: Upper midscale to upscale; branded

A new hotel would be cash flow positive but provide a **low rate of return** which may deter developers. However, enhancements could substantially **boost IRR**

## Ways to boost IRR for hotel development:

- Include bar/restaurant
- Enhance the attractiveness of the area
- Riverfront views
- Close part of the hotel in the off-season
- Consider ways to lower development costs

**Example:** Raising the ADR from \$169 to \$199 (2023 dollars) and the occupancy rate by 2 percent, all possible with a more attractive than average property, would raise the IRR to 12%.



# Market Hall Options and Considerations

# Research questions



*What can be learned from case studies and applied to Soldotna?*



*Are key stakeholders interested in participating in a market hall?*

# Market hall case studies

1

## The Grove Market Hall

Bend, OR

Opened 2020

14,000 sf w/9 restaurants



2

## Pybus Public Market

Wenatchee, WA

Opened 2013

28,000 sf w/20 vendors & commercial kitchen; hosts farmer's market



3

## Kodiak Marketplace

Kodiak, AK

Opening 2023

63,000 sf w/11 retail spaces co-located with business supports





**Governance:** Private – no public support

**Funding:** High-end market rents

## Other Takeaways

- Seasoned retailers meant the need for fewer business supports
- Strong anchor tenants very important
- Outdoor expansion element
- Events to boost visitation
- Design matters



# Case study 2: Pybus Public Market

**Governance:** Nonprofit established to operate;  
Public land ownership

**Funding:** *Construction* – Public land, funding through LRF district, private investors

*Operations* – Rent, events, fundraising

## Other Takeaways

- Located along riverfront – Alignment of market and trail development boosted visitation activating downtown
- Community vision and buy-in essential for long-term success
- All businesses on same schedule

“There have been lean times. Relied on the generosity of others who believed in the vision.”

- Pybus GM

Pybus is on the verge of breaking even as original leases expire and new leases are set at higher rates.

# Case study 3: Kodiak Marketplace

**Governance:** Nonprofit owned and operated

**Funding:** *Construction* – Funded by KANA  
*Operations* – rental income and KANA's other revenue streams

## Other Takeaways

- Developed for community benefit, economic driver, revitalize downtown
- Rents \$3/sf over 3 to 5 years – Ongoing KANA subsidy decreases with gradual rent increases
- Direct outreach and business plan support essential for higher rents
- Crucial to have public engagement and manage expectations

“Had to go in person to businesses and help them to do business planning that would allow them to pay higher prices”  
-Project Manager



# A Market Hall in Soldotna: Stakeholder Feedback

# Who we talked with and what they said

## Community Stakeholders

- Megan Weston, business owner
- Cliff Cochran, SBDC Director
- Melodie Allan, business owner
- Kaitlin Vadla, Planning Commission and nonprofit director
- Annette Villa, operator/manager of the Wednesday Market

“I’m excited about a market hall here. We have a great small business culture but it’s hard to compete against national chains.”

“I’m passionate about supporting small business. They’re the backbone of our town.”

“I love the idea of a public market!”

“This will be genuinely the best thing for the community”

# Envisioning a Soldotna market hall: what it should deliver

- Vibrant community hub: retail, food, entertainment
- Celebrate Soldotna and the Kenai River
- Gathering place for residents and tourists
- Appeal to all ages
- Operate year-round with events and activities
- Affordable for businesses and customers
- Support the business ecosystem

“Would be nice to integrate with the river and riverwalk and have views of the river and fishing.”

“Vendors and food is not enough - need music and something the old and young want to be at.”

“It would be the worst to be so expensive and only seasonally used.”

# Potential offerings in a market hall

Mix of local  
restaurants, retail,  
and services

Community gathering  
spaces and meeting  
rooms

Event space

Multi-use space that  
shifts with need

Shared office space  
for retail tenants

Commissary kitchen  
(could be utilized by market  
tenants but not located in the  
market)

Community seating  
and dining

Service provider or  
government office  
space (could be an anchor)

Indoor playground  
(movable, visible from all  
angles)

# Critical elements of a market hall

Affordable restaurant and  
retail space for local  
businesses

Multi-use space that shifts  
with need

Anchor tenant

Active programming:  
events, management, etc.



## Mix of Local Retail / Restaurants / Services

### Examples

#### Anchor

- Local Grocery w/Alaskan goods
- Deli
- Brewery
- Distillery
- Restaurant open most of the day

#### Other

- Flower Shop
- Fish Market
- Ice Cream or Gelato
- Restaurants / Beverage
- Take Home Dinners
- Food Truck Hookup
- Jewelry / Clothing
- Tour Guides

## Operator

If a paid position, multiple experienced community members expressed interest in serving as the operator of a Soldotna market hall.

“Need to find someone with a passion for this and sees the vision.”

## Supporters

- Kenai Economic Development District (KPED)
  - Business support; consider as potential tenant
- Cook Inlet Keeper
  - Currently operates incubator space with a DEC approved kitchen
  - Kaitlin could support through grant writing
- SBDC
  - Connecting to tenants
- City of Soldotna

# Potential programming components

## Programming

- Educational activities (esp. for children in winter)
- Musicians (busking/paid)
- Pop-up events
- Theme days (e.g., children's day where they sell their work)
- Cooking competitions
- Art Shows
- Concerts
- Comedy Shows
- Community Forums

“Events are essential...vendors and food are not enough...”

# Specific ways to support small businesses

## In Market Hall

- Ensure affordable rent
  - Graduated rent or percentage rent
  - Stabilization: first month(s) free
- Adequate storage within spaces
- Active, supportive management

## In City

- Pair facade improvement program with tenant improvement, and/or equipment grants in commercial areas
- Ensure adequate access to a commissary kitchen
- Coordinate suite of business support services

# Key considerations and takeaways for market hall

- Significant community expertise and capacity to operate/lease space if paid positions and affordable rent
- Partnerships will be essential to success: public, private, nonprofit effort
- Market may become more self-sustaining over time
- Market requires a consistent champion
- Community could be part of making the space
- Design matters (movable equipment, reclaimed materials, etc.)
- Marketing is critical
- Can serve as a catalyst for redevelopment and downtown activation

## PROS

- Wealth of talent and potential tenants
- Provides needed retail that may not be otherwise feasible
- Could serve as redevelopment catalyst
- Supports small businesses and builds capacity for additional retail tenancy over time

## CONS

- Extensive time and effort
- Potential risk of failure
- Reduces capacity to pursue other city priorities for investment



# Conclusion and Next Steps

**To stimulate development in the near term, the City may need to:**

- Participate in public private partnerships
- Construct infrastructure improvements
- Consider timing/phasing of public and private investment





# Phasing recommendation

## Phase 1

- Establish a market hall
- Encourage townhome development
- Assemble partners to develop affordable housing
- Improve trails, streets, and waterfront amenities

## Phase 2

- Encourage a hotel w/restaurant
- Promote adaptive reuse

## Phase 3

- Pursue three-story mixed-use development

# Next steps: setting the stage for development

- Build/strengthen relationships with property owners, regional developers, local businesses, and affordable housing providers
- Secure property
- Consider how to balance affordability and new development
- Seek additional funding sources for public improvements, affordable housing, and redevelopment projects
- Determine City's interest in pursuing a market hall
- Develop phasing plan for infrastructure improvements

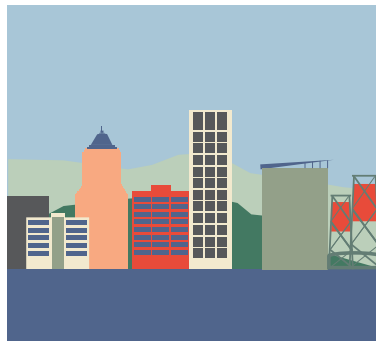
Implementation plan will provide additional steps based on which options the City is interested in pursuing

# **ECON**Northwest

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Boise



SOLDOTNA

# SOLDOTNA RIVERFRONT REDEVELOPMENT

**PROJECT UPDATE:**

**Downtown Riverfront Redevelopment Plan Elements**

City Council Work Session & Riverfront Advisory Committee November 14, 2023

# Agenda



**The Plan**



**Implementation**



**Next Steps**

# Purpose

Redevelop and transform Soldotna's downtown to achieve long-term economic development goals



# Objectives



Create a **one-of-a-kind riverfront experience** with shopping, dining, **entertainment**, and lodging in a walkable destination



Support **local businesses, expansion and attract** new entrepreneurs



Highlight the **Kenai River** and incorporate the **natural landscape** into the Downtown



Provide **housing options** to meet local needs



Identify opportunities for **public and private partnerships**

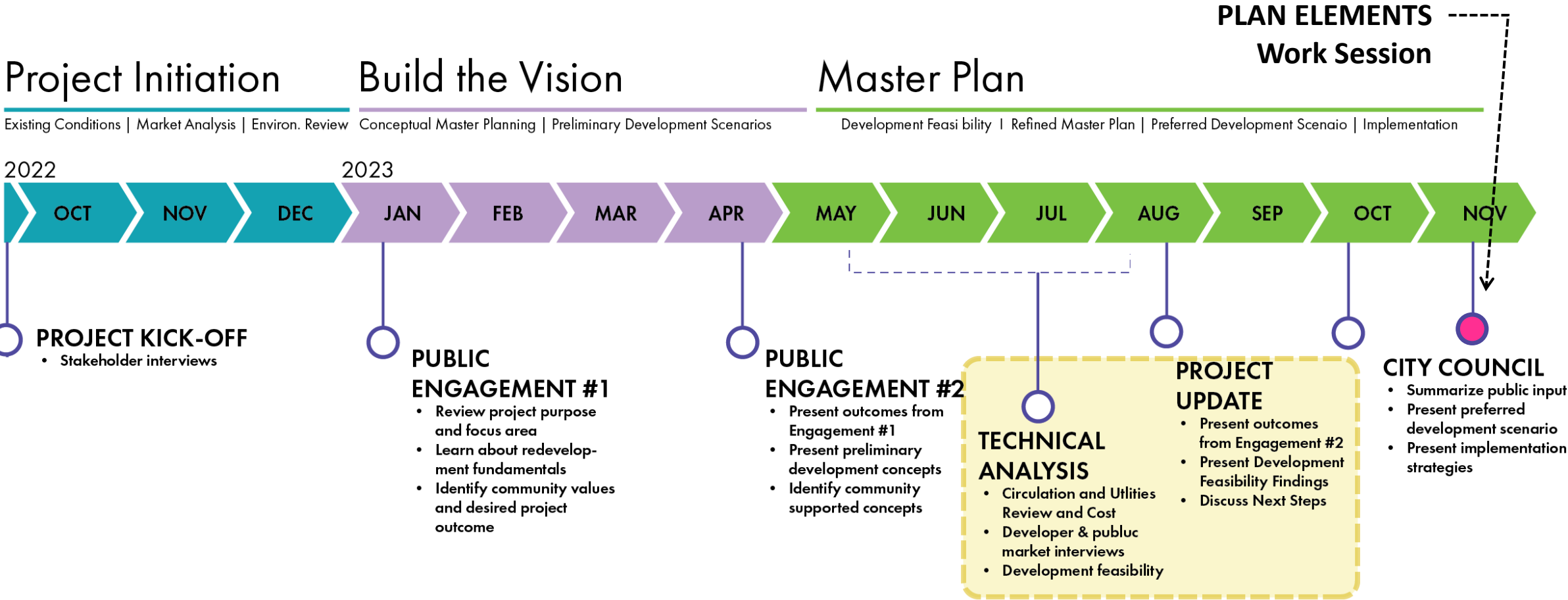


Identify **critical infrastructure** to support redevelopment



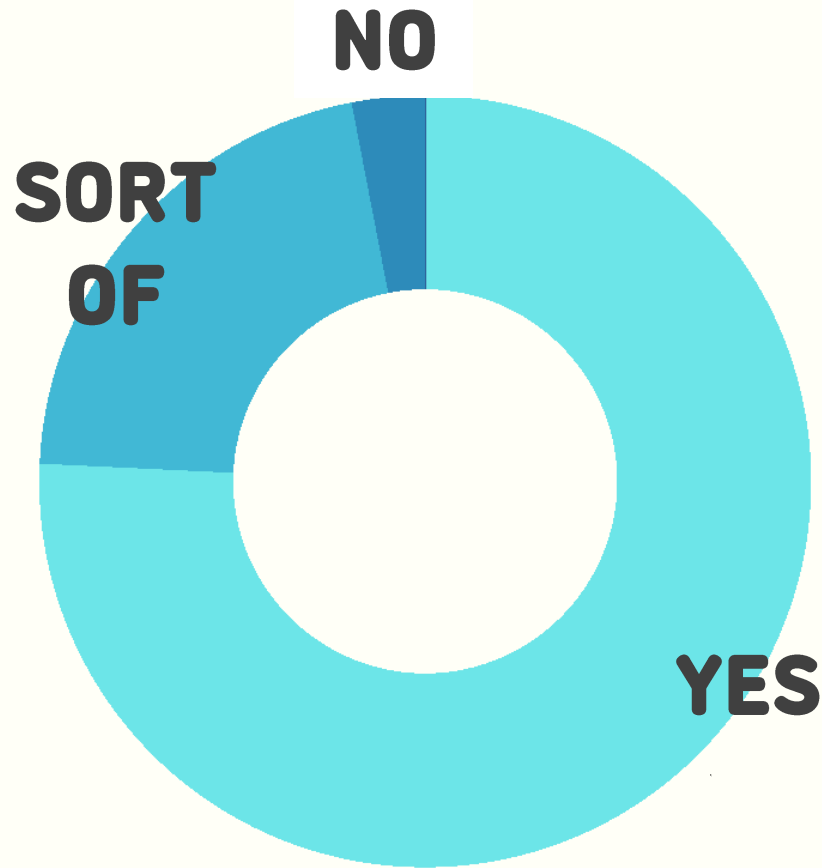
Explore **options and strategies** for funding and implementation

# Project Process + Schedule





# What We Heard



Does the Vision capture Soldotna's values around Nature & Gathering?

# Vision

Downtown Soldotna is a place where **nature and urban gathering spaces** coexist, expanding and enhancing one another.

Future circulation improvements and redevelopment should **incorporate elements of gathering and nature.**



# Guiding Principles

“The Kenai River is envisioned as the centerpiece of a walkable, connected downtown and plays a vital role in the local and regional economy of the central peninsula”

## IDENTITY

Reinforce what is valued in the community---history, nature, gathering, active, art, & local.

## PLACE

Support a hub of activity that is walkable and engages the river, with indoor and outdoor spaces for gathering.

## CONNECTED

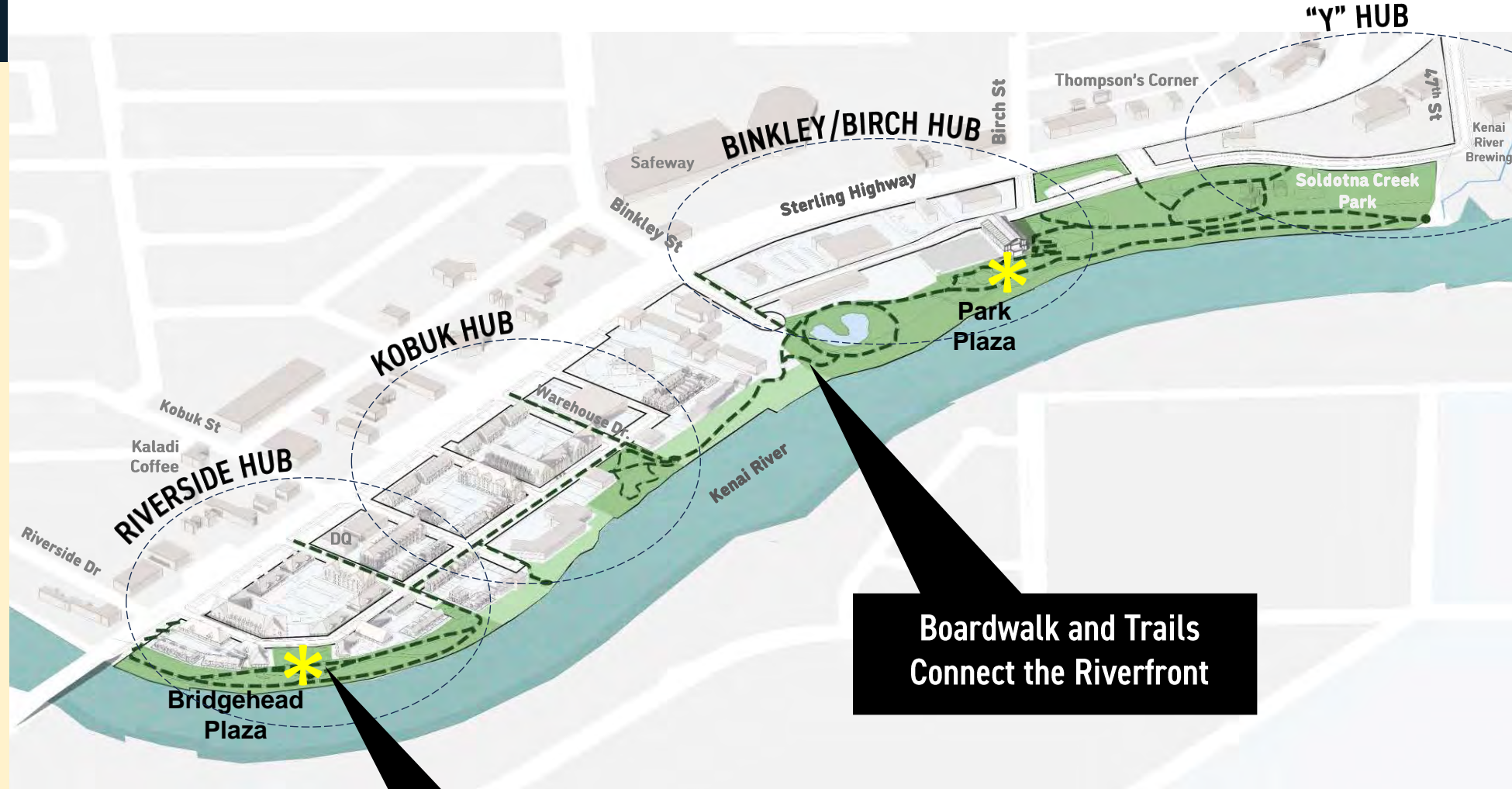
Provide for streets, trails, and boardwalks with safe, direct, and continuous access to destinations for all ages, abilities and users.



# The "Big Ideas"



The Kenai River corridor is a woven blend of nature, wildlife, recreation & gathering



**"Bookend"  
Public Plazas**

**Boardwalk and Trails  
Connect the Riverfront**

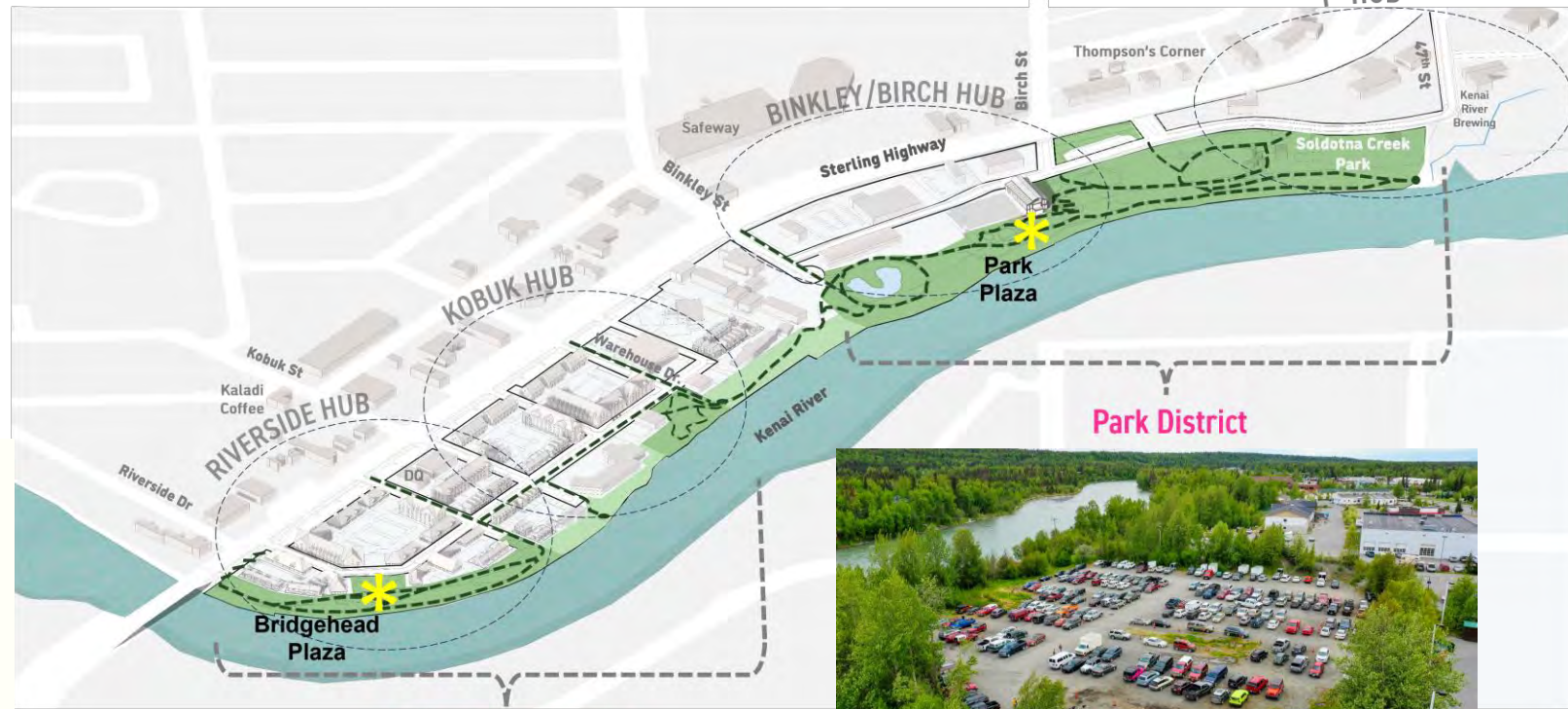
# What We Heard

## “Bookends” Public Gathering

Not  
Important

Somewhat  
Important

Very  
Important



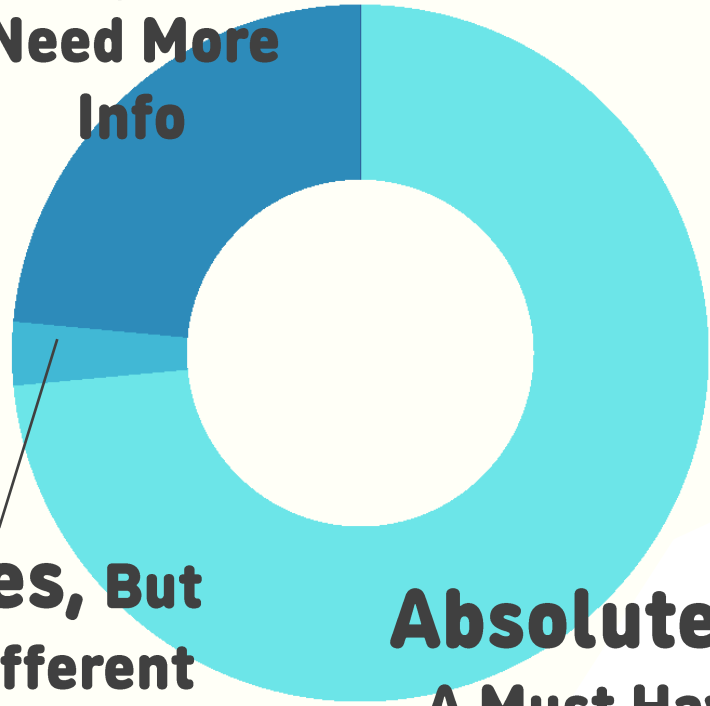
Bridgehead District



# What We Heard

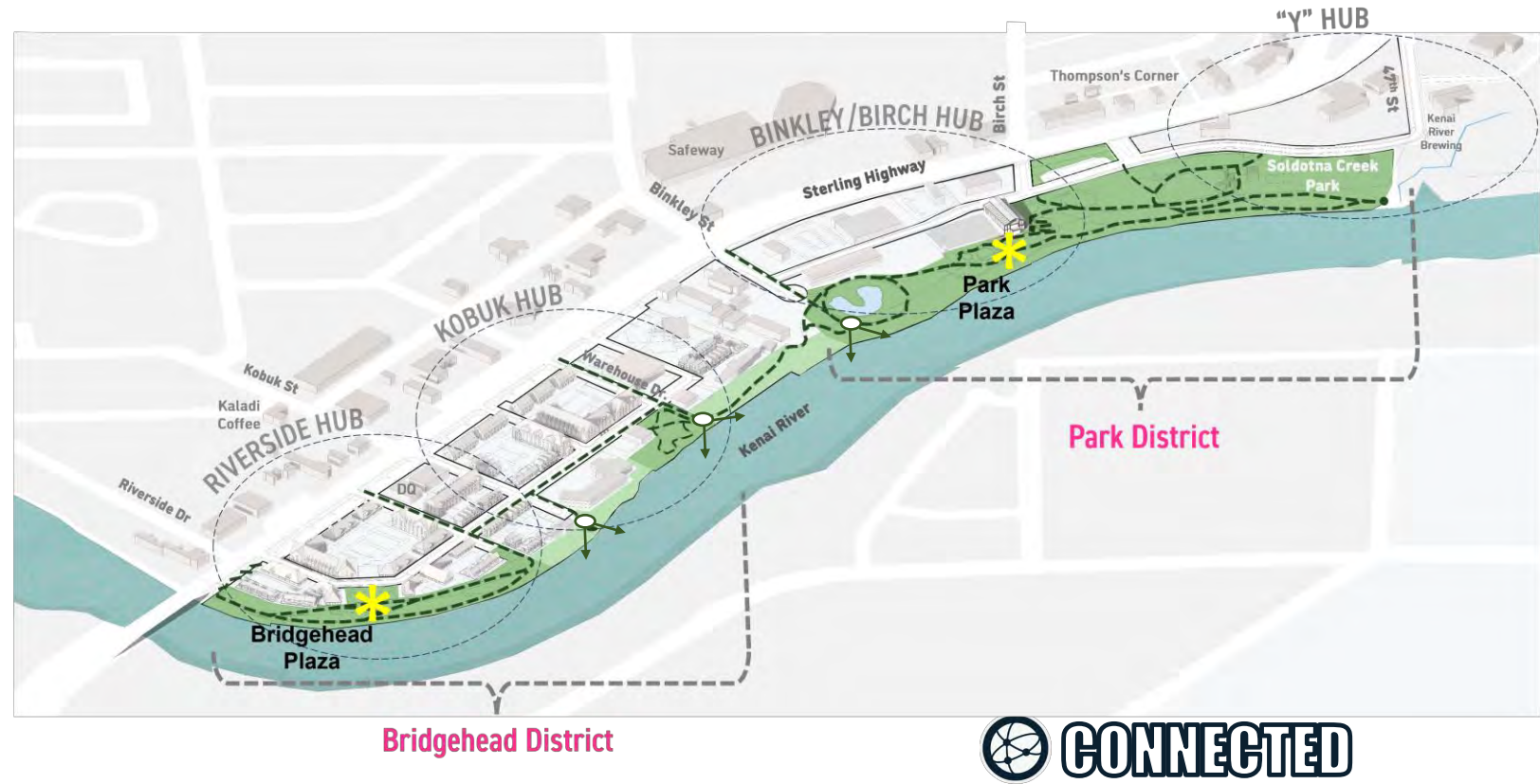
## Riverfront Trail

Maybe,  
Need More  
Info



Yes, But  
different

Absolutely,  
A Must Have



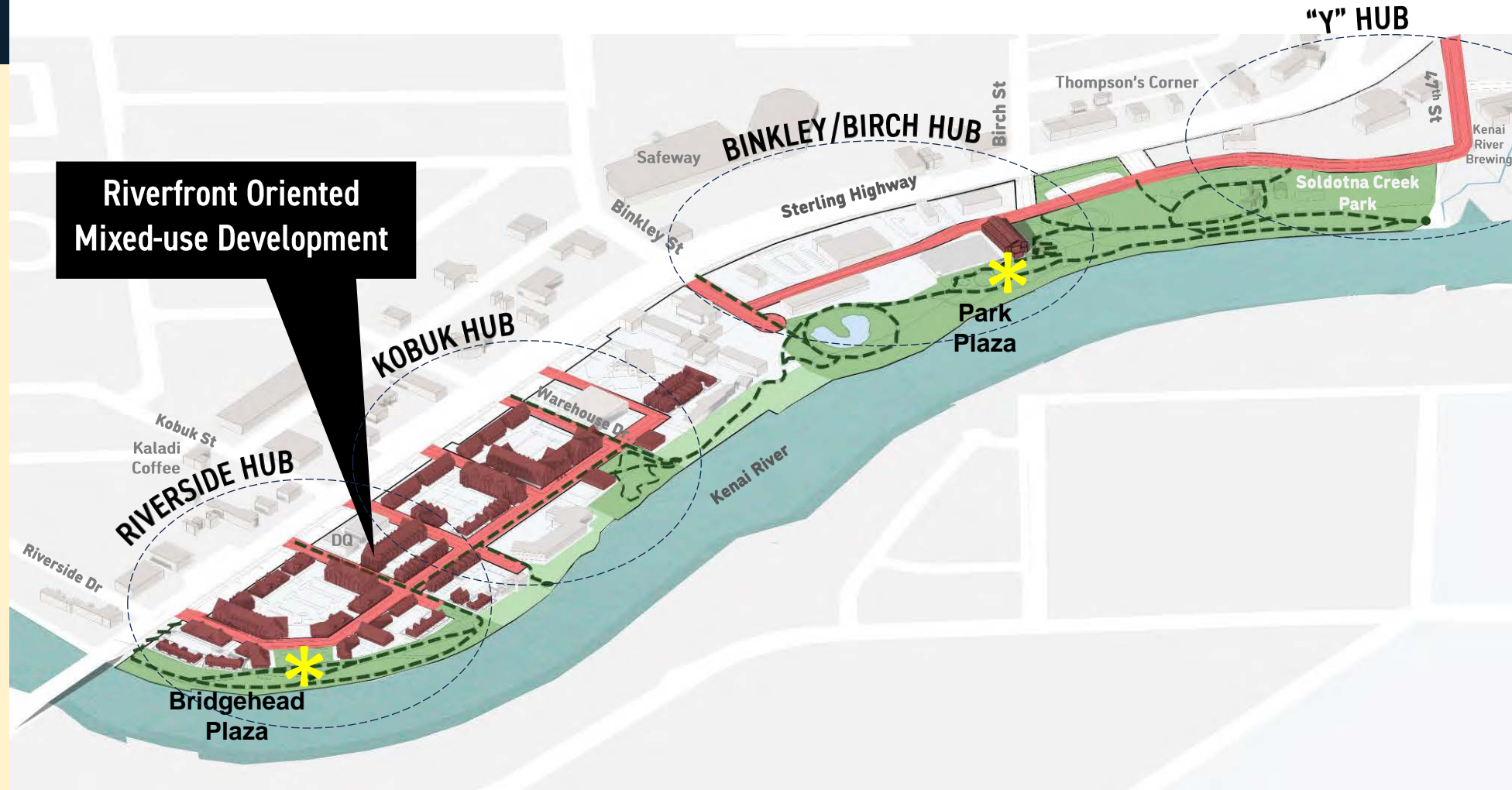
# The “Big Ideas”

## IDENTITY

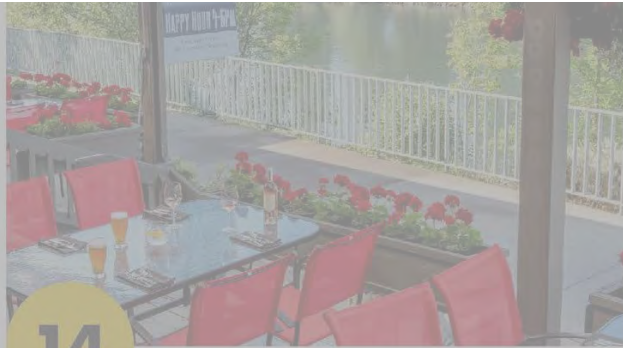
The Kenai River corridor is a woven blend of nature, wildlife, recreation & gathering

## PLACE

Support street oriented Downtown Hubs as places to live, work, and play



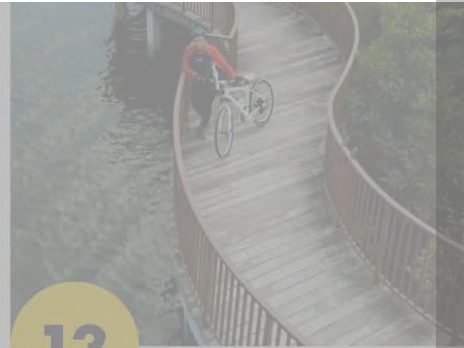
# What We Heard!



14

## Riverfront Dining

category ranked the highest with 26 dots total.



13

## Riverwalk

category ranked second with 25 dots total.



12

## Main Street

category ranked the highest with 20 dots total.

## What would you like to see in the downtown & riverfront?

A mix of uses.  
New businesses and fun places to spend time downtown.

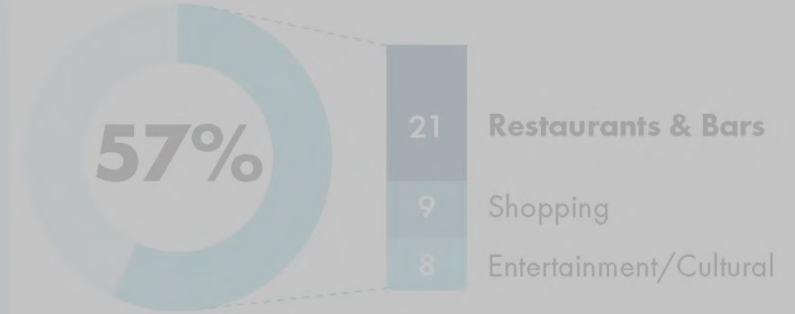
"An awesome bowling alley with bar"

"Activities for families and adults, not bar related"

"Bistros"

"Beer gardens"

"Walkable shopping and dining with a view of the river"



## Rank the most desirable experiences for downtown

65%

of respondents ranked **WALKABLE MAIN STREET** in the **top two** most desirable experiences.

47%

of respondents ranked **RIVERFRONT ENGAGEMENT** in the **top two** most desirable experiences.



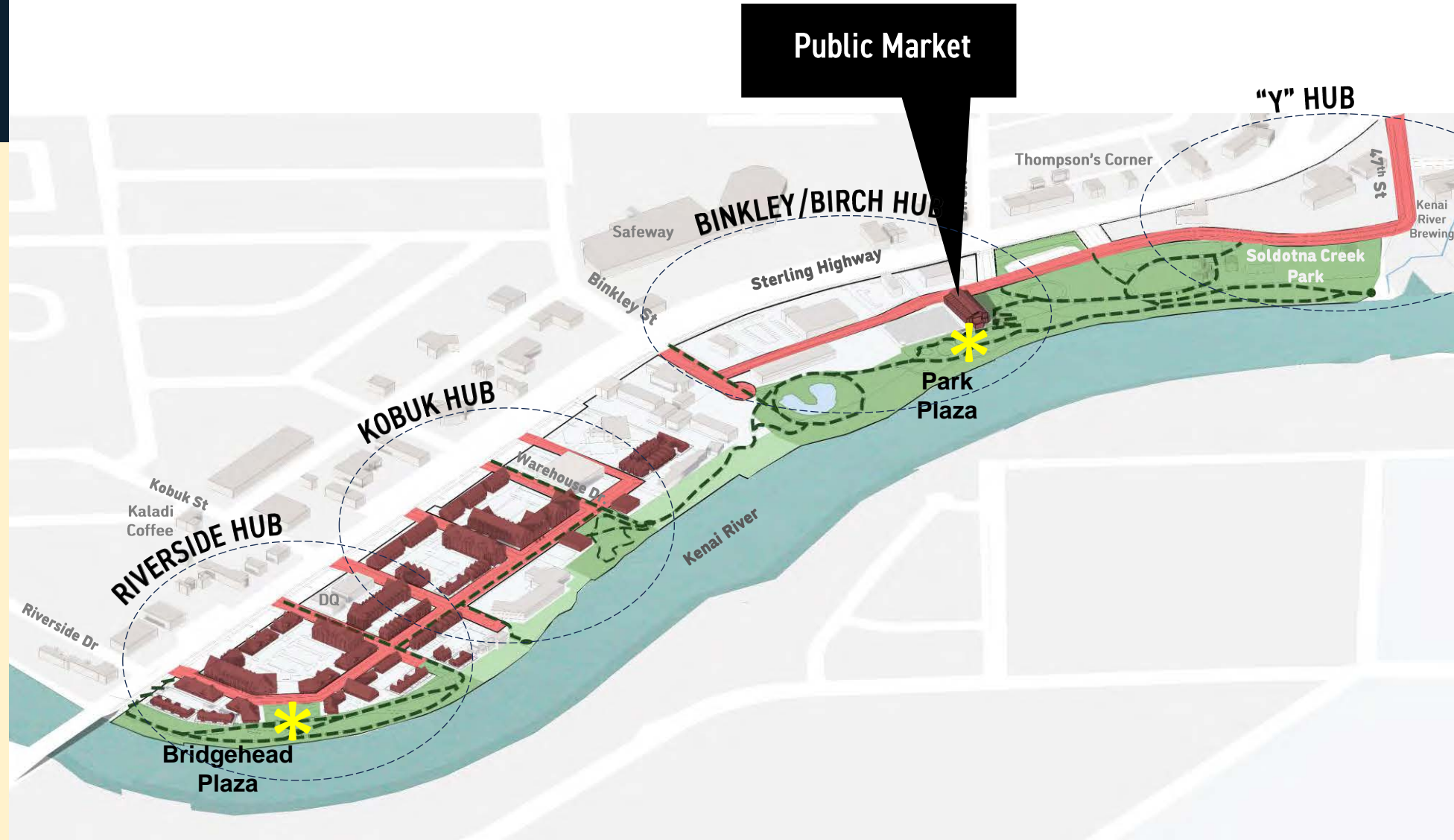
# The “Big Ideas”

## IDENTITY

The Kenai River corridor is a woven blend of nature, wildlife, recreation & gathering

## PLACE

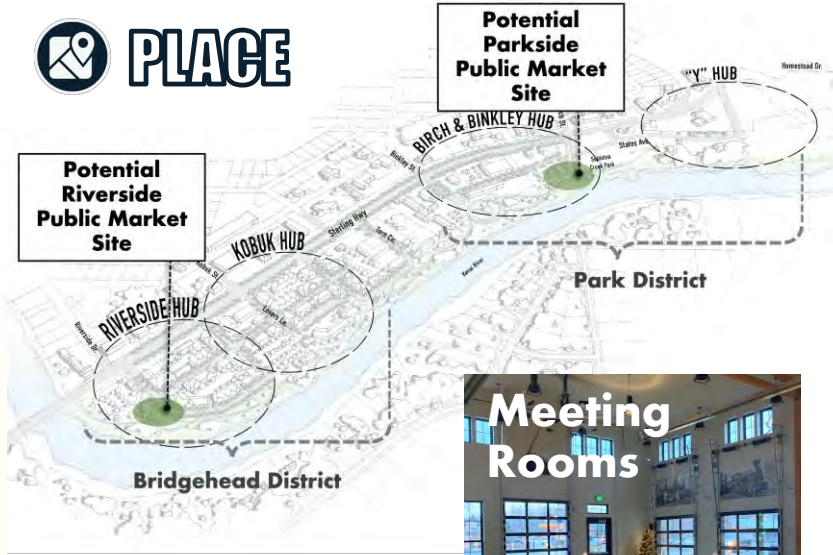
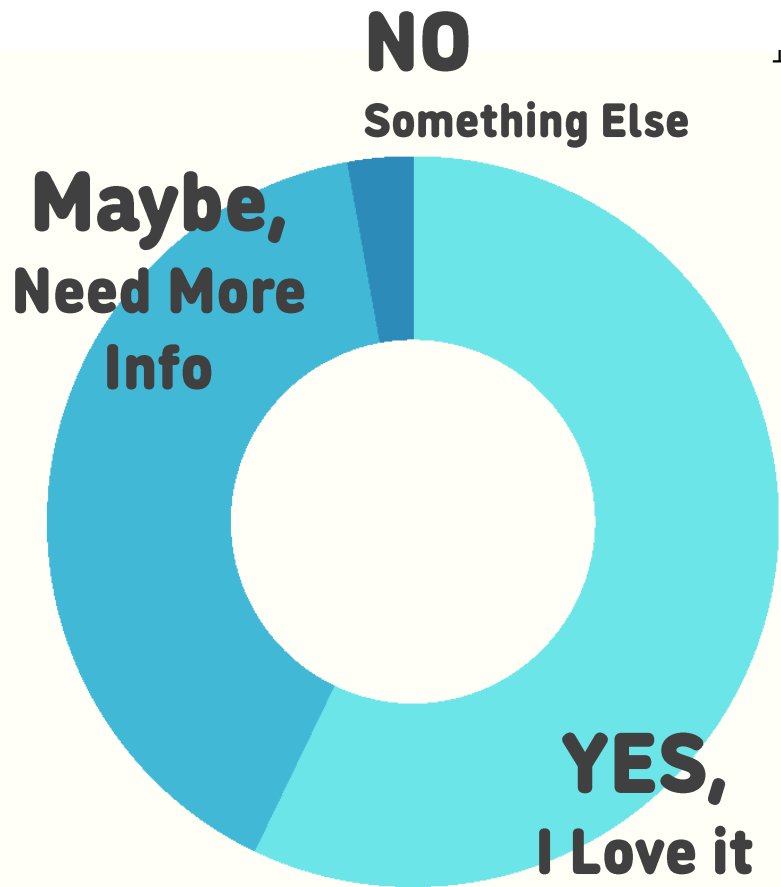
Support street oriented Downtown Hubs as places to live, work, and play





# What We Heard

## Public Market



Food and local goods are regularly showcased seasonally at Soldotna Creek Park. A public market could serve as a **year-round destination** to showcase these assets



# The "Big Ideas"

## IDENTITY

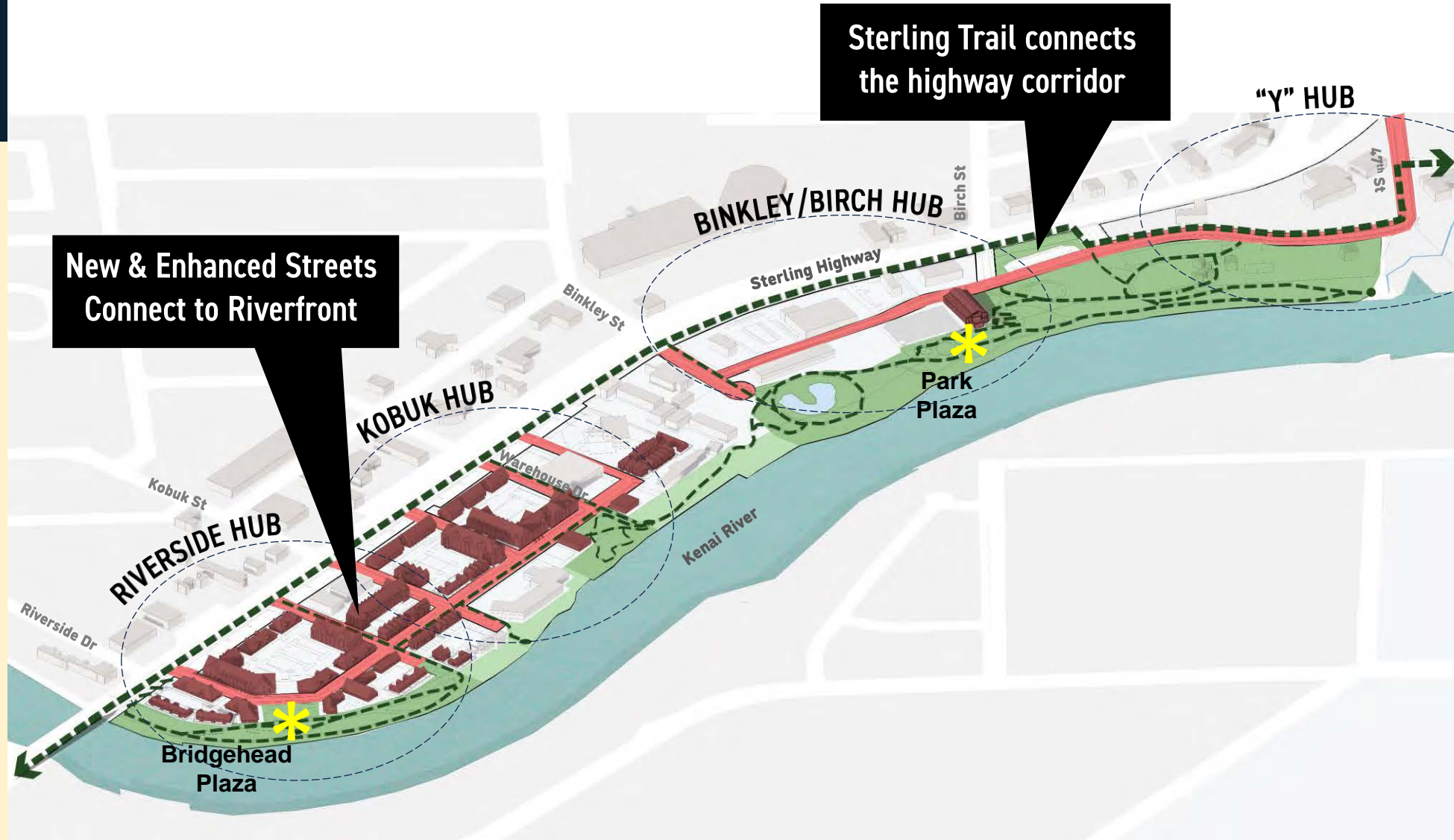
The Kenai River corridor is a woven blend of nature, wildlife, recreation & gathering

## PLACE

Support street oriented Downtown Hubs as places to live, work, and play

## CONNECTED

Key pathways and new streets connect to the river and destinations along Sterling Highway



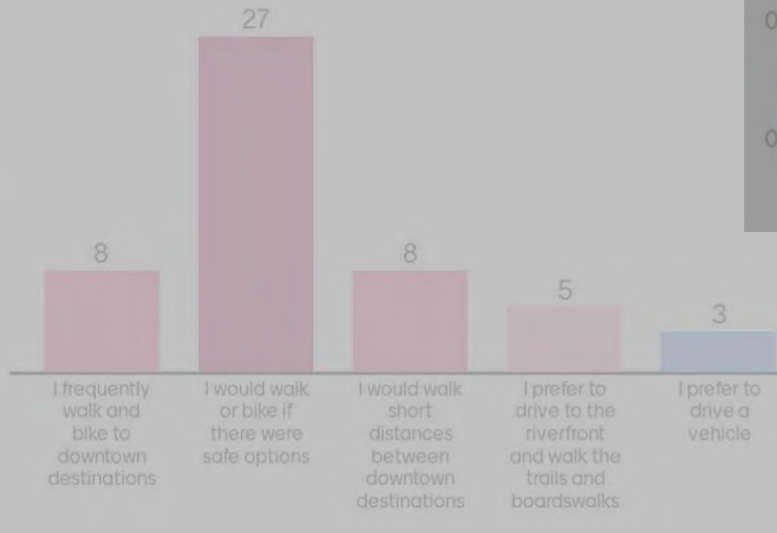
# What We Heard!



How desirable is walking and biking to downtown & riverfront destinations?



Desire some sort of WALKING and/or BIKING option.



Rate safety, access, and visual challenges along Sterling Highway?



## "Walkability"



Ranked in **Top 2** aspirations for the downtown and riverfront area

# The "Big Ideas"

## IDENTITY

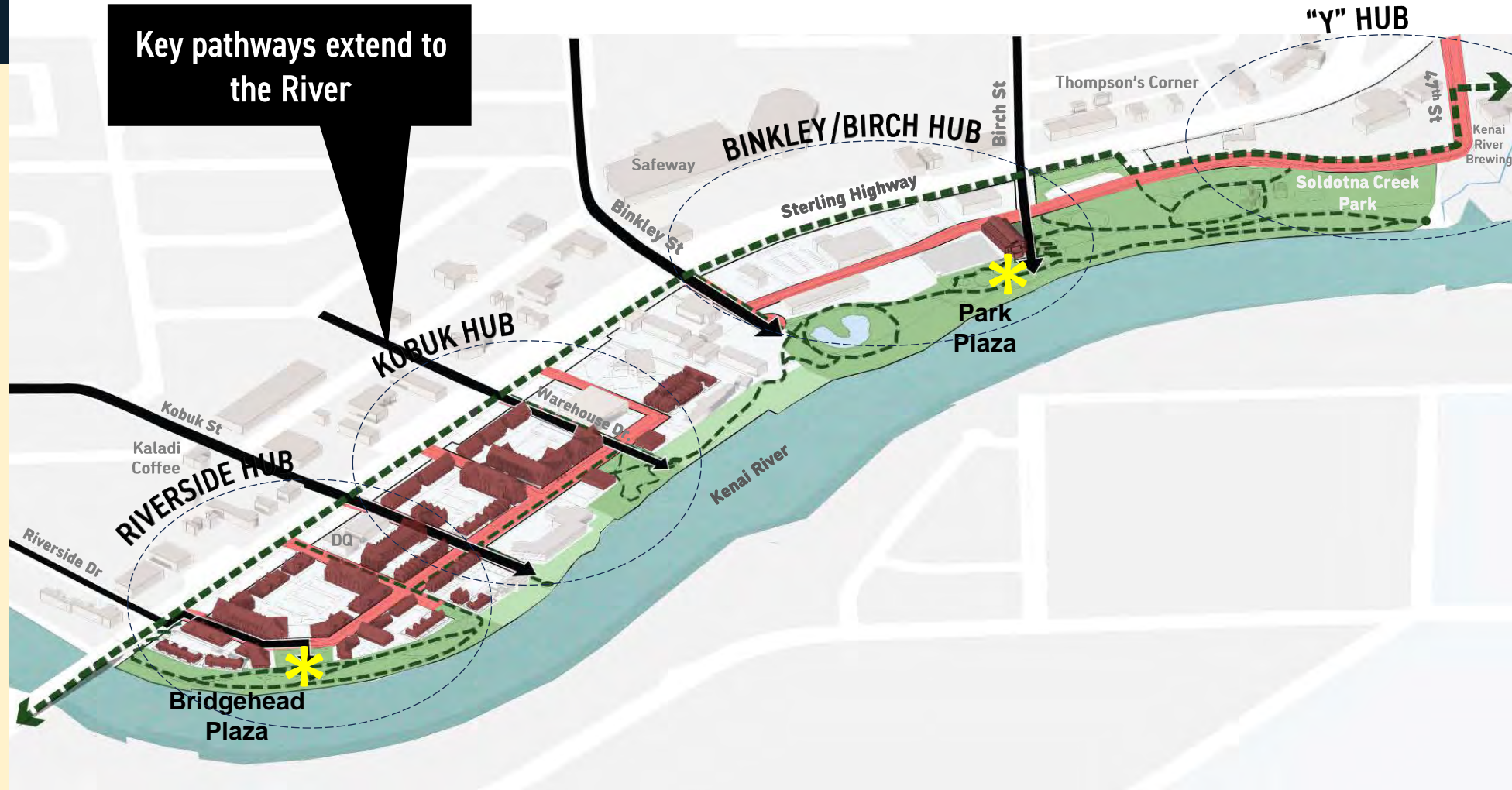
The Kenai River corridor is a woven blend of nature, wildlife, recreation & gathering

## PLACE

New & enhanced streets support Downtown Hubs as places to live, work, and play

## CONNECTED

Key pathways reconnect neighborhoods to the river and destinations along Sterling Highway

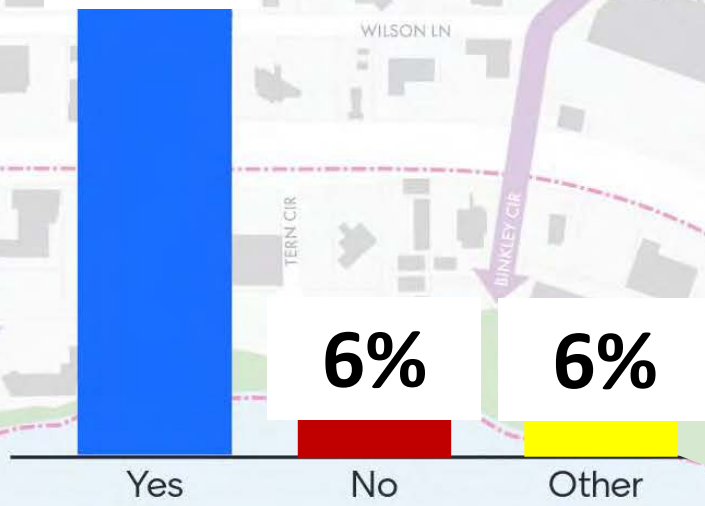


# What We Heard

## Key Pathways Extend to the Riverfront

Should these key pathways be enhanced to connect to the riverfront?

88%



Mentimeter

# The “Big Ideas”

## IDENTITY

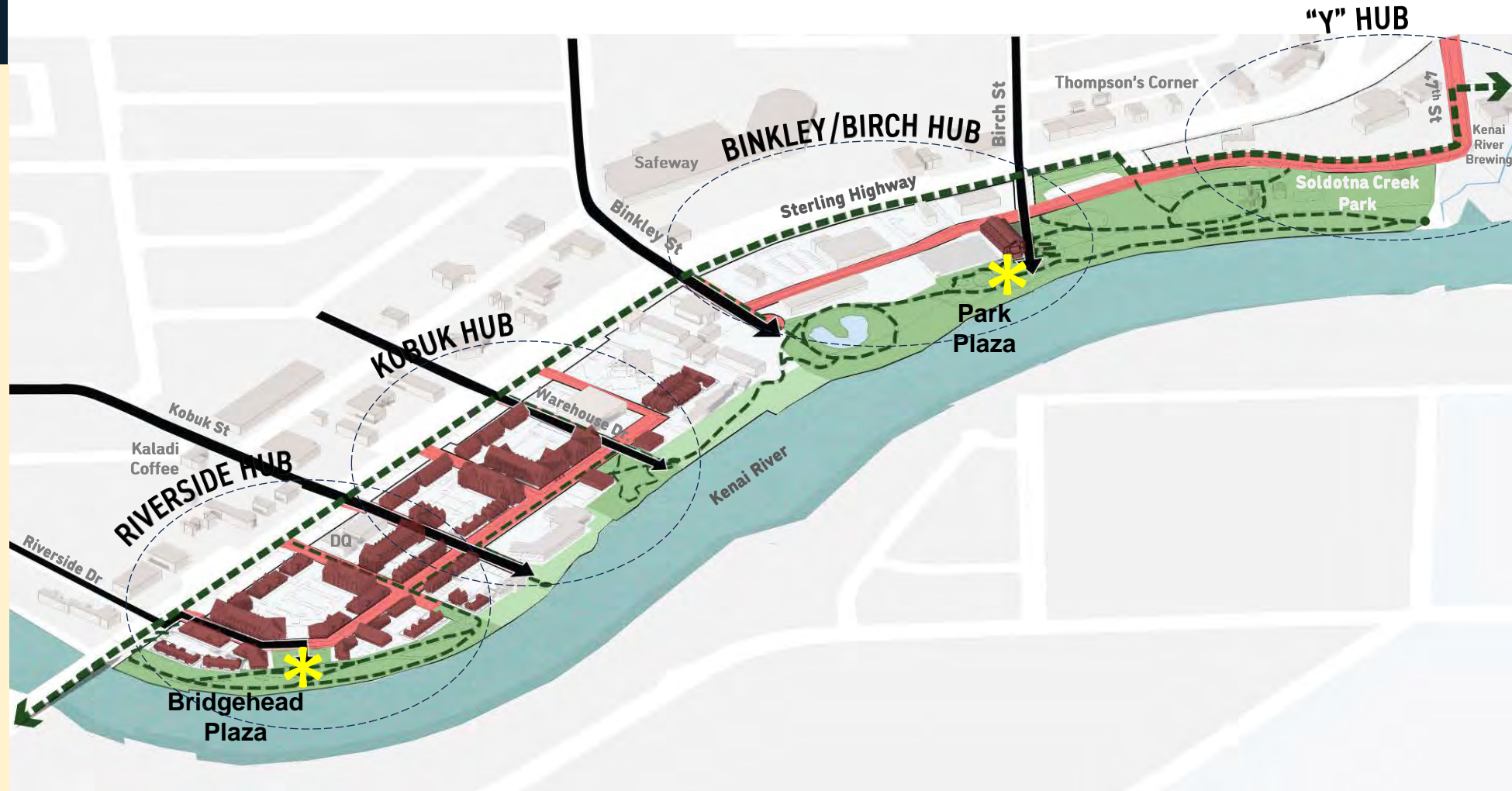
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## PLACE

New & enhanced streets support Downtown Hubs as places to live, work, and play

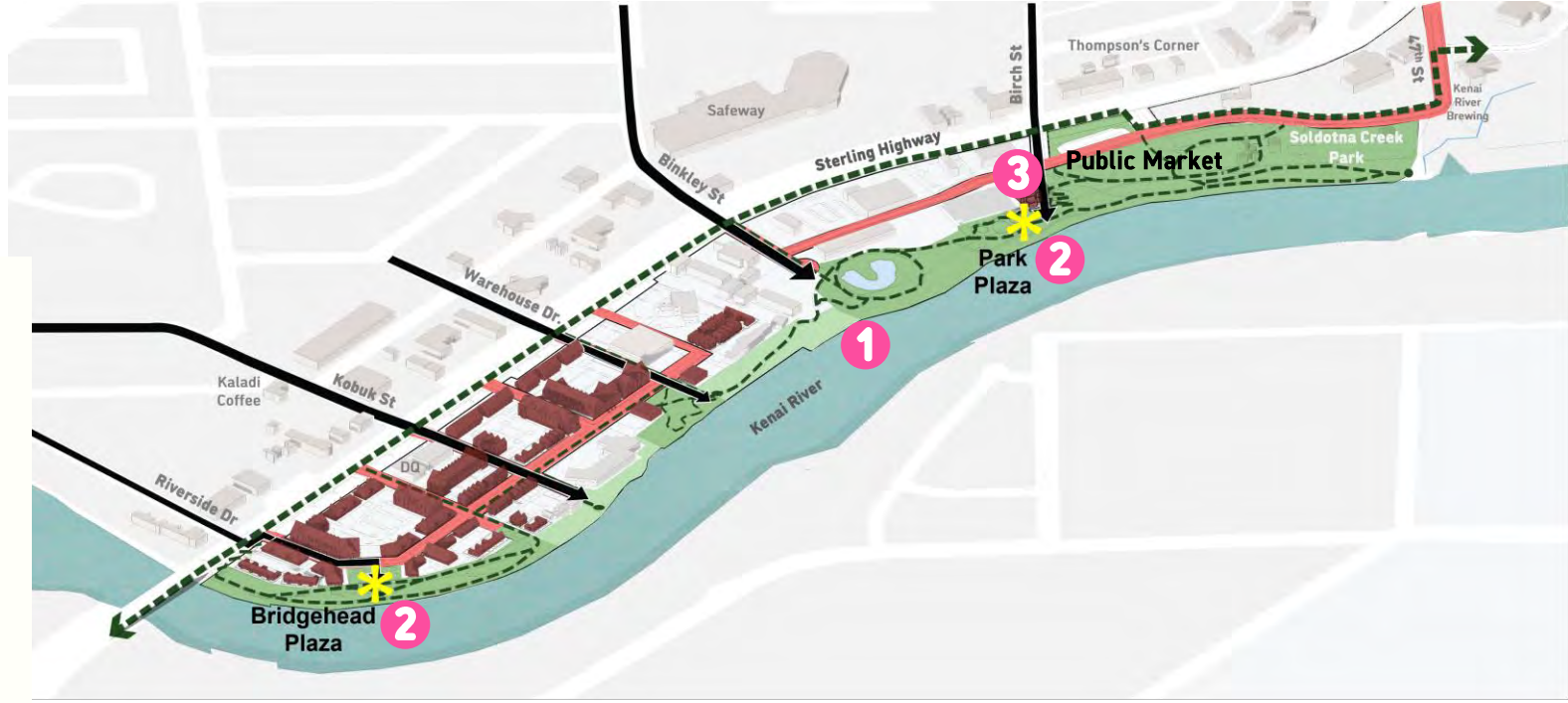
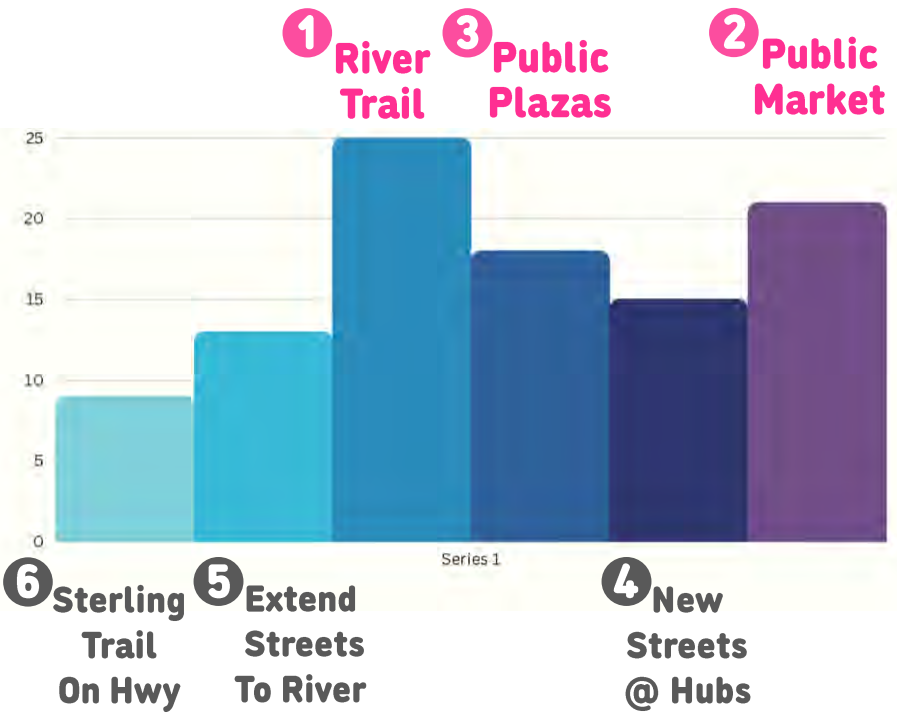
## CONNECTED

Key pathways reconnect neighborhoods to the river and destinations along Sterling Highway



# What We Heard

## The "Big Ideas"



# FRAMEWORKS

Land Use

Mobility

Utility

Regulatory

## Land Use

- Retail, Dining, & Entertainment
- Commercial, Office, & Services
- Hotel, Dining & Public Market
- Multifamily Residential
- Single-Family Townhome
- Park & Open Space

## Mobility

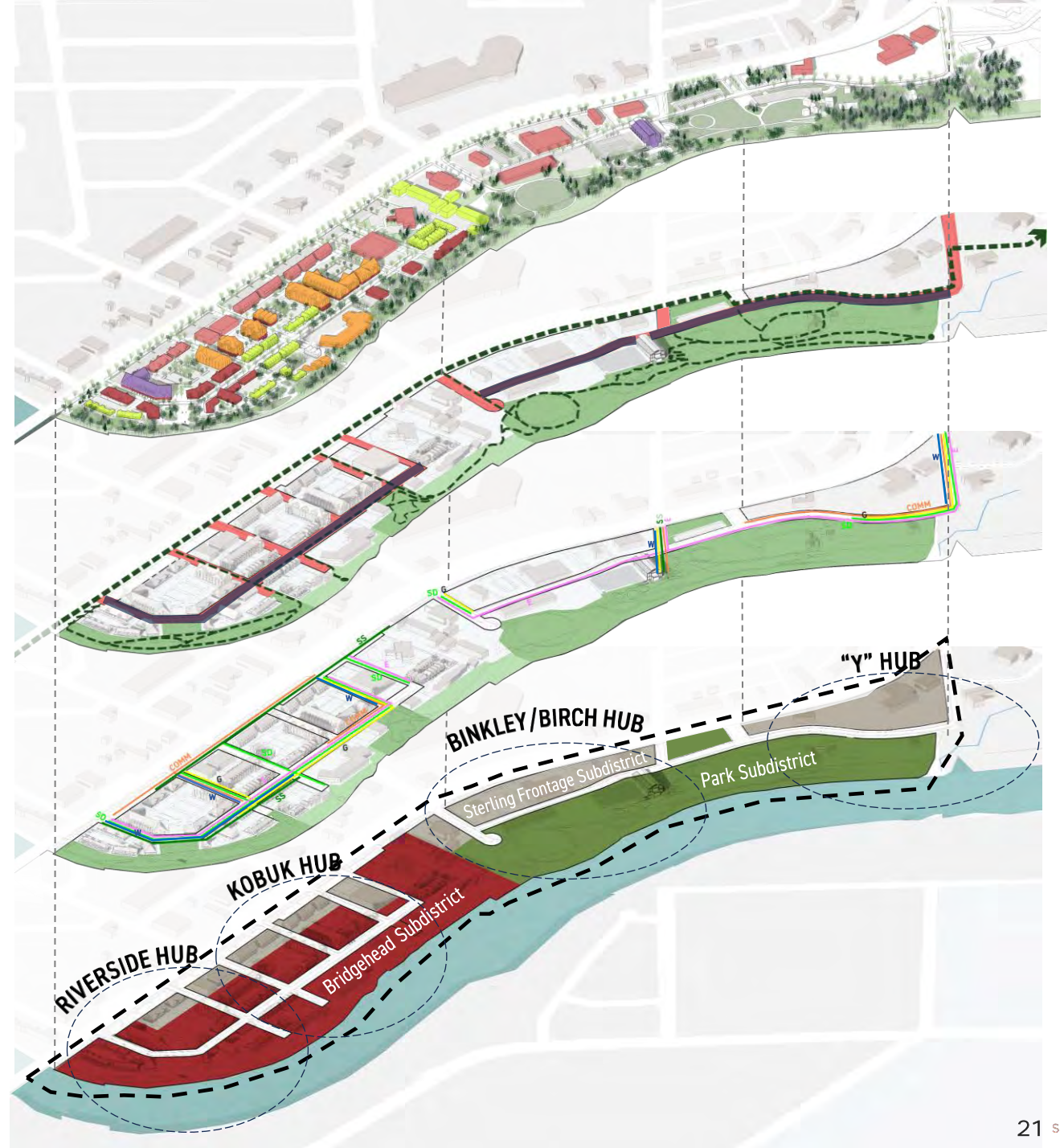
- River Street & States Avenue
- New & Enhanced Streets
- Sterling Trail
- Trails & Boardwalks

## Utility

- Water (W)
- Sanitary (SS)
- Storm Sewer (SD)
- Electrical (E)
- Natural Gas (G)
- Communication/Fiber (COMM)

## Regulatory

- Downtown Riverfront MU District
- Bridgehead Subdistrict
- Park Subdistrict
- Sterling Frontage Subdistrict

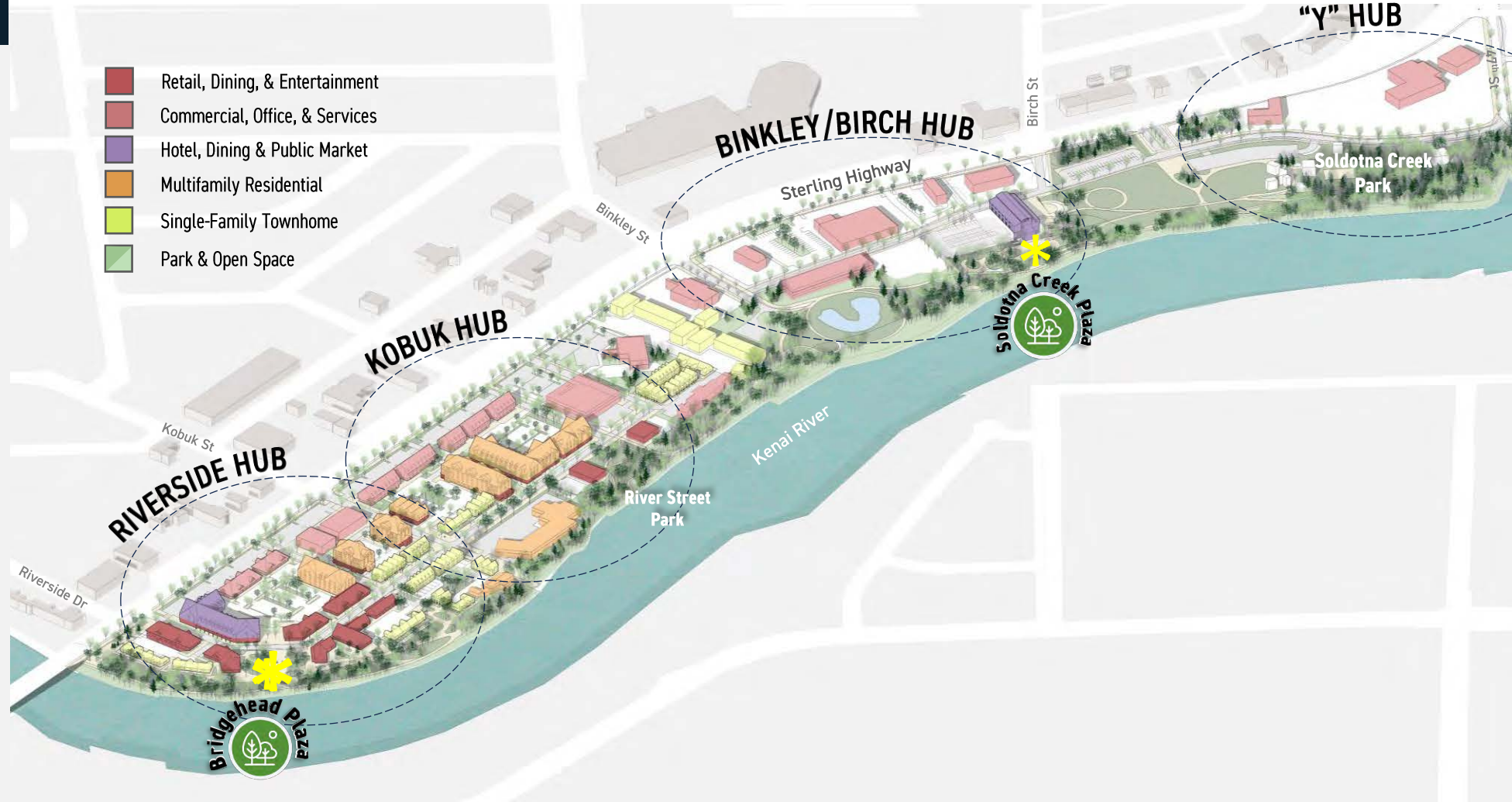




# FRAMEWORKS

## Land Use

- Supports a mix of uses
- Provides Housing Options
- Encourages river oriented and highway-oriented development
- Expands River Focused Amenities

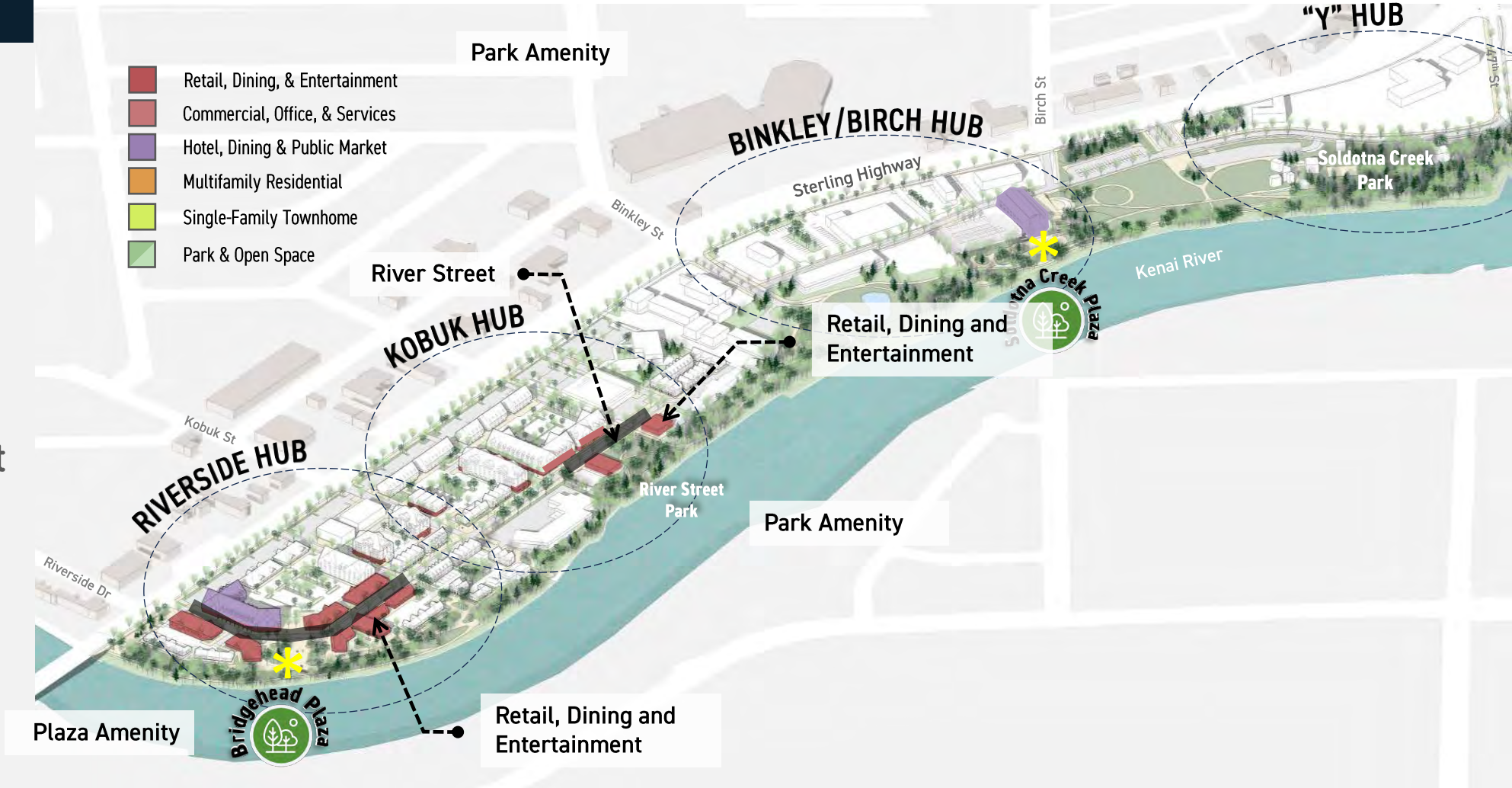


# FRAMEWORKS

## Land Use

### Retail, Dining and Entertainment

- Clustered along the River Street
- Oriented to riverfront amenities



# FRAMEWORKS

Old Mill District

**Retail, Dining &  
Entertainment Hub**

**Hotel**

**River Street Oriented  
Buildings**

**Trails &  
Public Plaza**

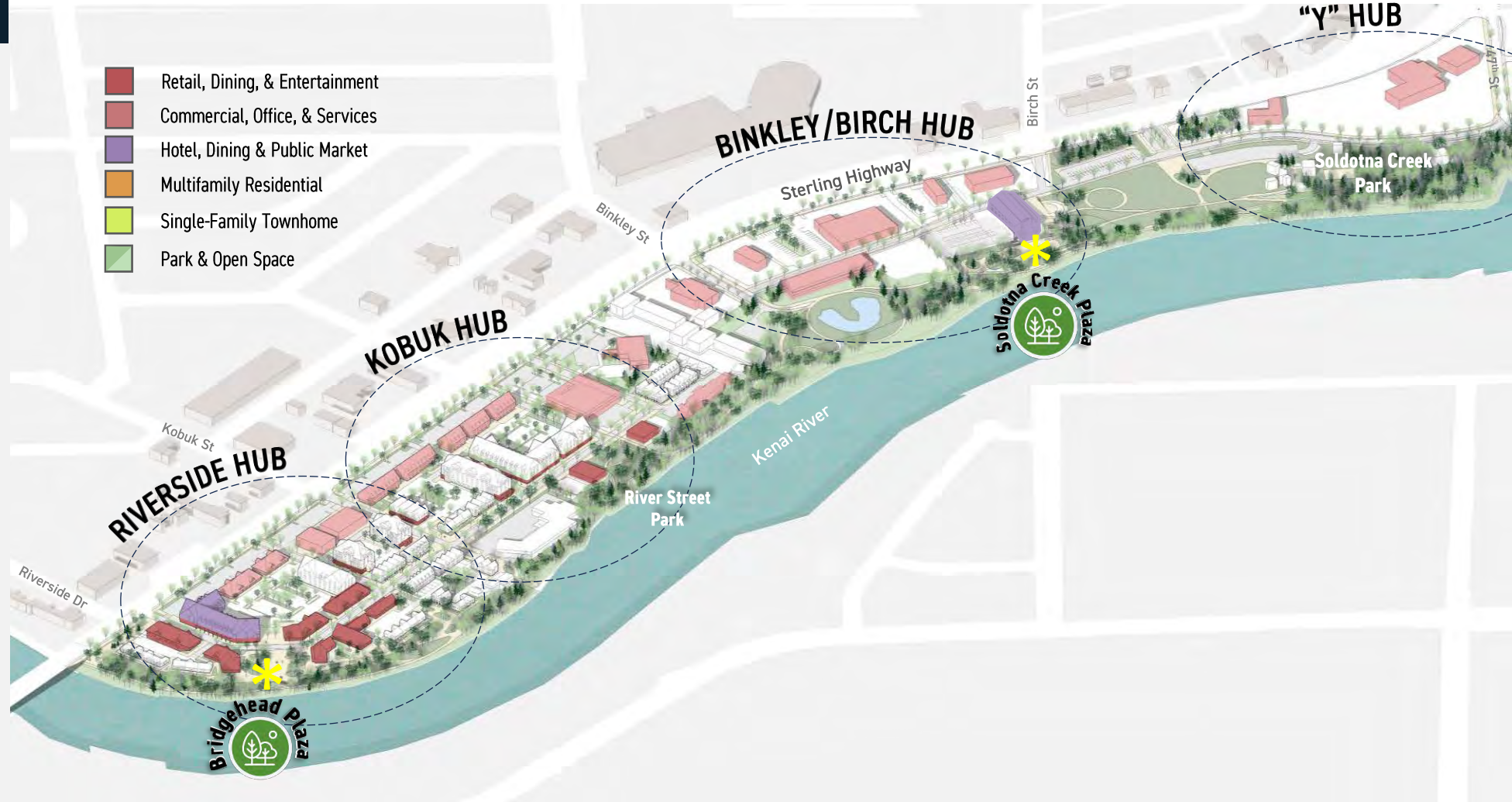


# FRAMEWORKS

## Land Use

### Sterling Commercial

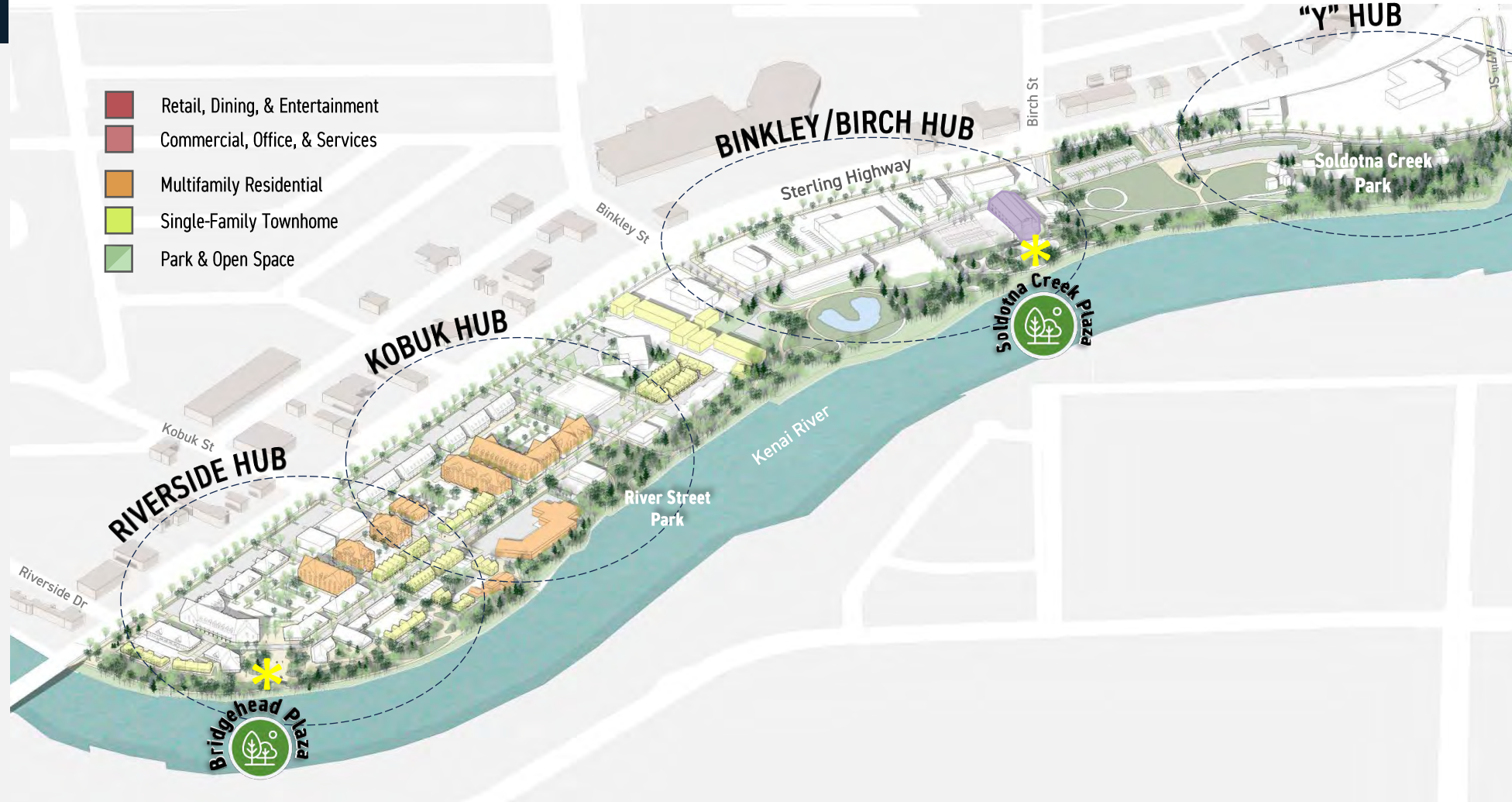
- Highway Oriented
- Supports a Broad Mix of Commercial uses
- Allows for Housing on Upper Floors



# FRAMEWORKS

## Land Use Riverfront Neighborhood

- Market rate and Affordable Housing
- Mixed Use Apartments over Commercial
  - Townhomes



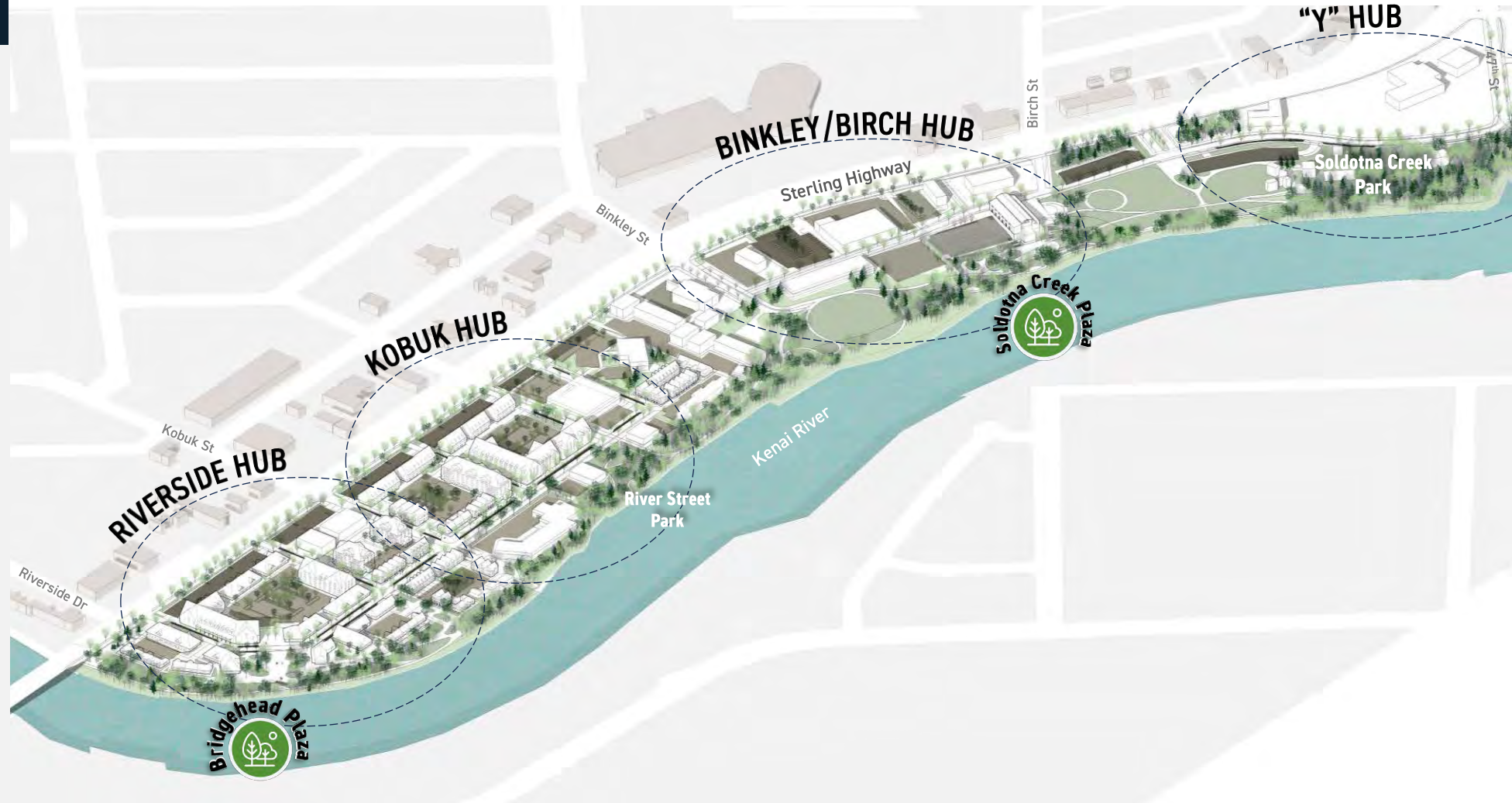
# FRAMEWORKS

## Parking

### Minimum Parking Requirement:

- 1 Space per 400 Square Feet of Development
- 1 space per unit

Allow On-street Parking and Sterling Frontage to count toward requirement

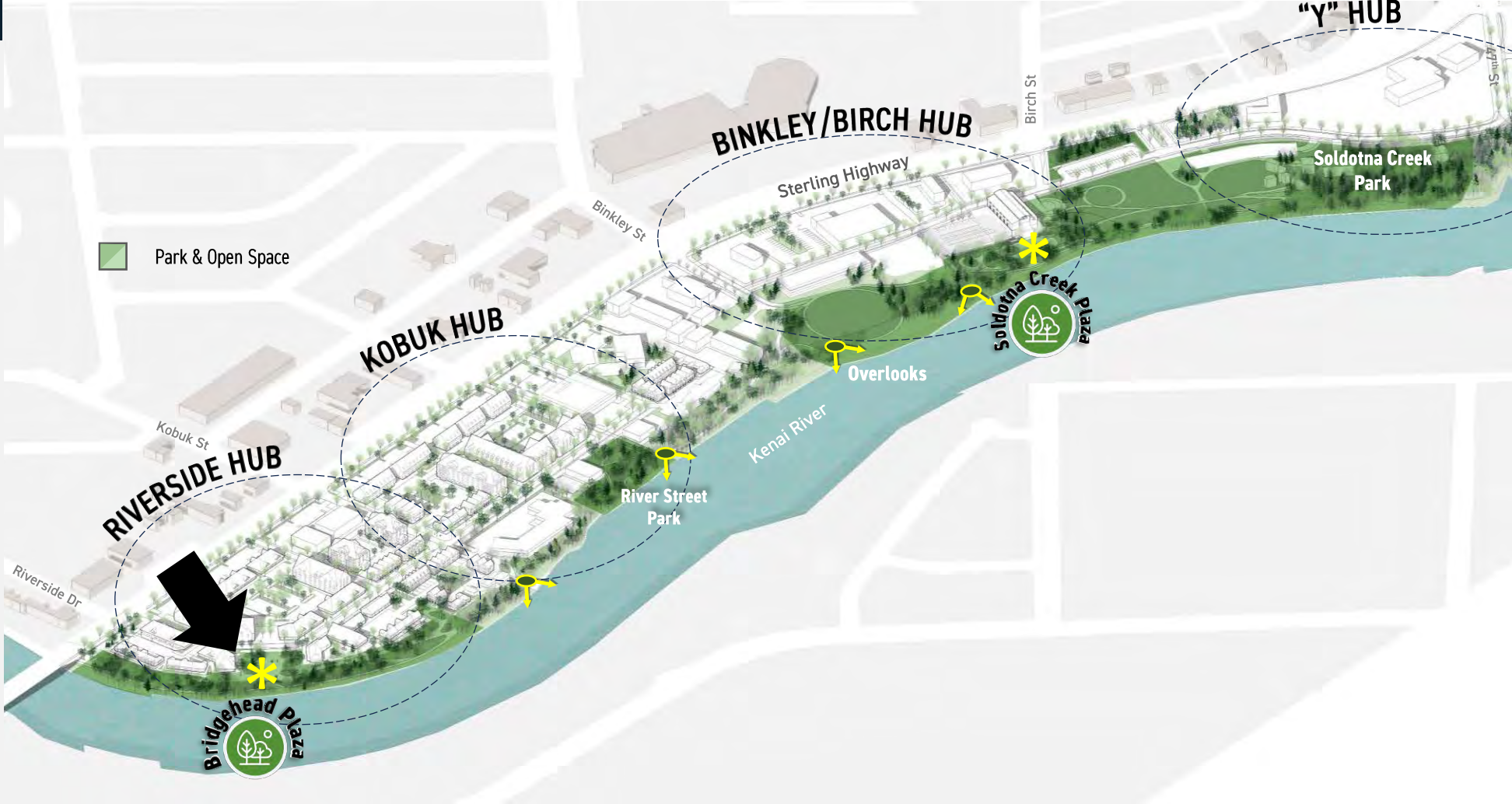


# FRAMEWORKS

## Land Use

### Public Gathering :

- *Parks*
- *Plazas*
- *Open Space*



# Bridgehead Plaza



- New Development
- New Street
- River Street

- Bridgehead Plaza
- Trails + Boardwalks

Kenai River



# Bridgehead Plaza



River access

Public Gathering

Retail, Dining, &  
Entertainment Destination

Walkable Streets

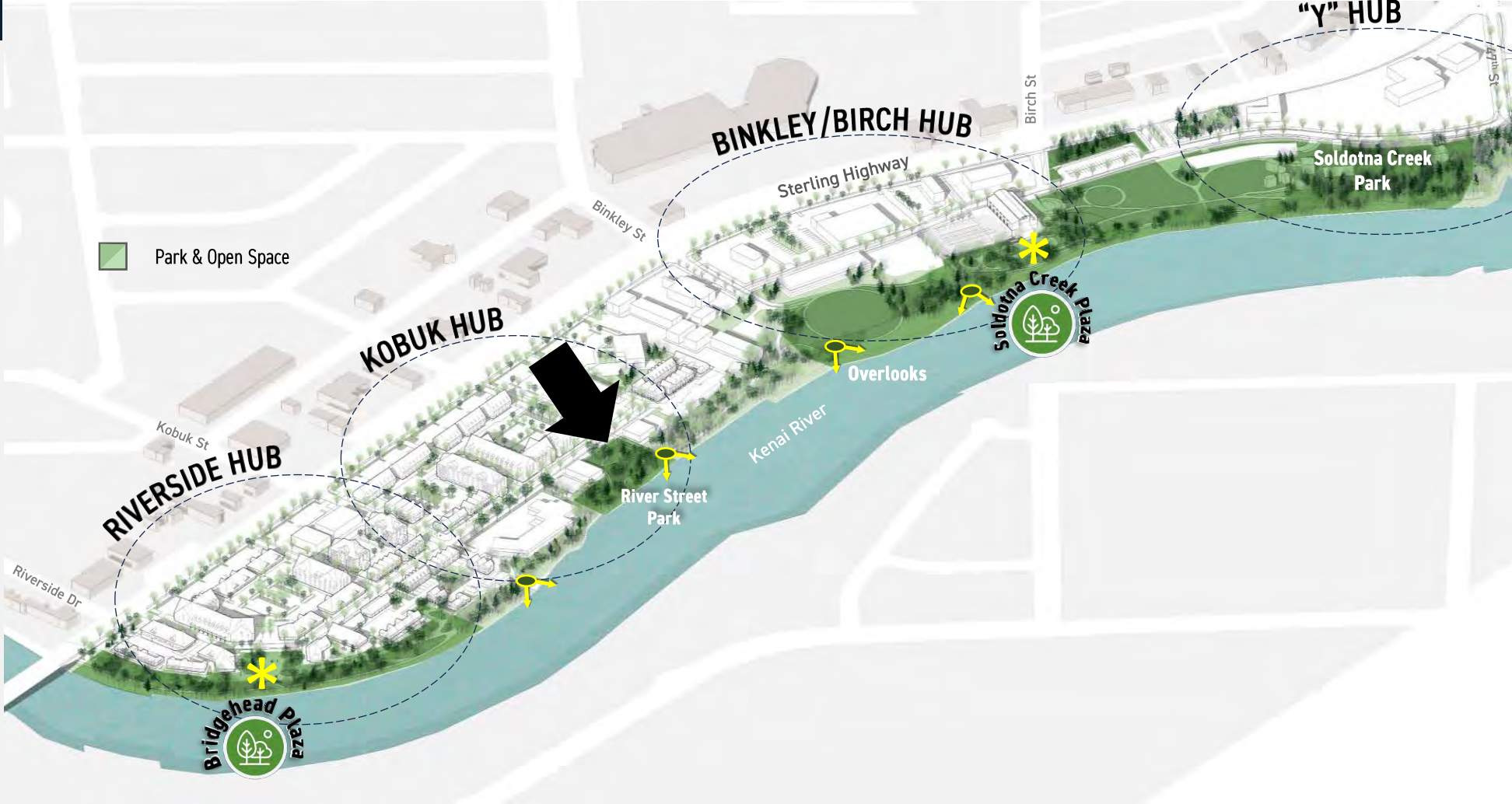
River Street

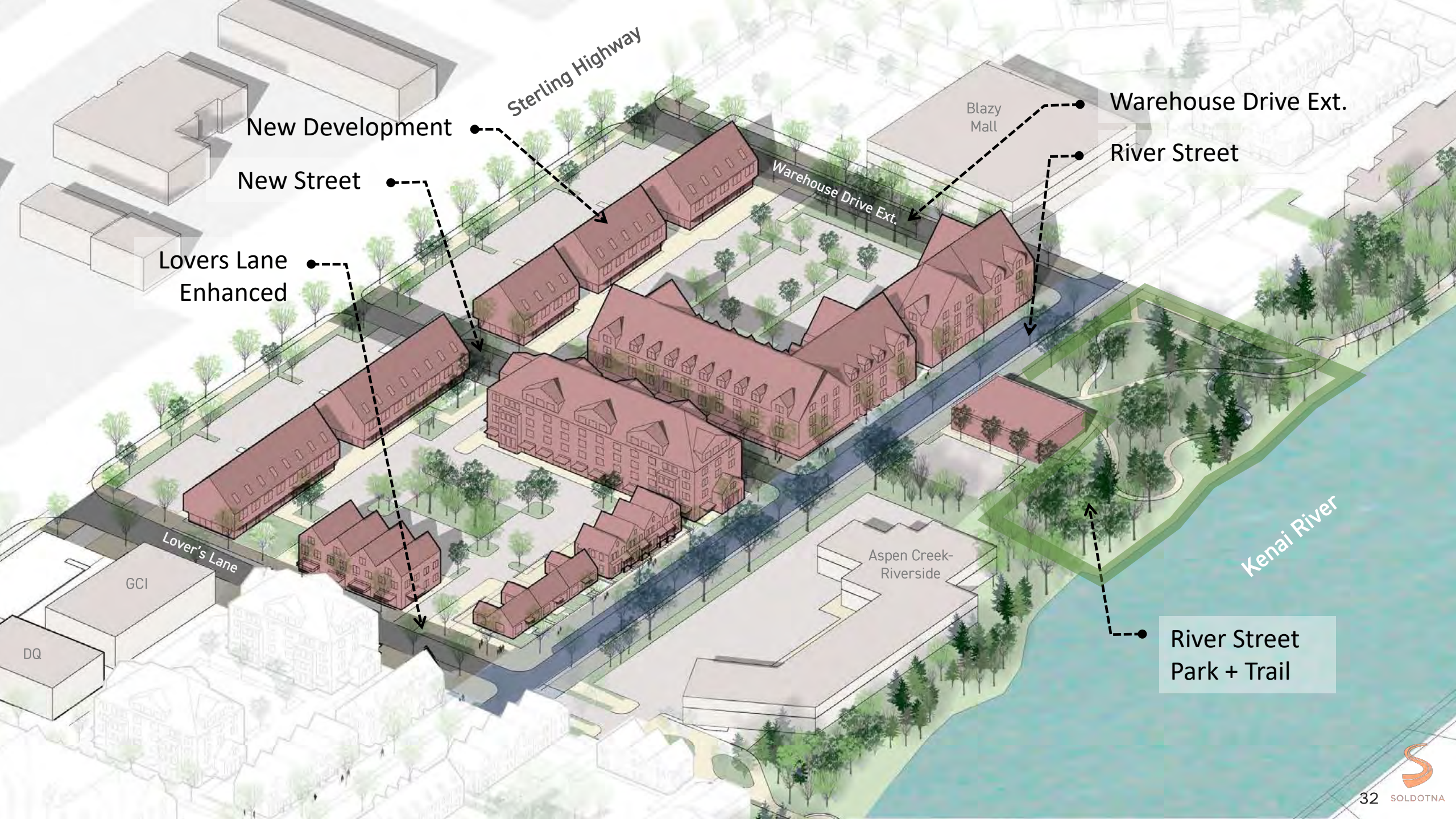
# FRAMEWORKS

## Land Use

### Public Gathering :

- *Parks*
- *Plazas*
- *Open Space*





New Development

New Street

Lovers Lane  
Enhanced

Sterling Highway

Warehouse Drive Ext.

Blazy  
Mall

Warehouse Drive Ext.

River Street

Lover's Lane

GCI

DQ

Aspen Creek-  
Riverside

Kenai River

River Street  
Park + Trail

# River Street Park

Mixed Use Residential Over Storefronts

Park Oriented Storefronts

Riverfront Amenity with Trail Access

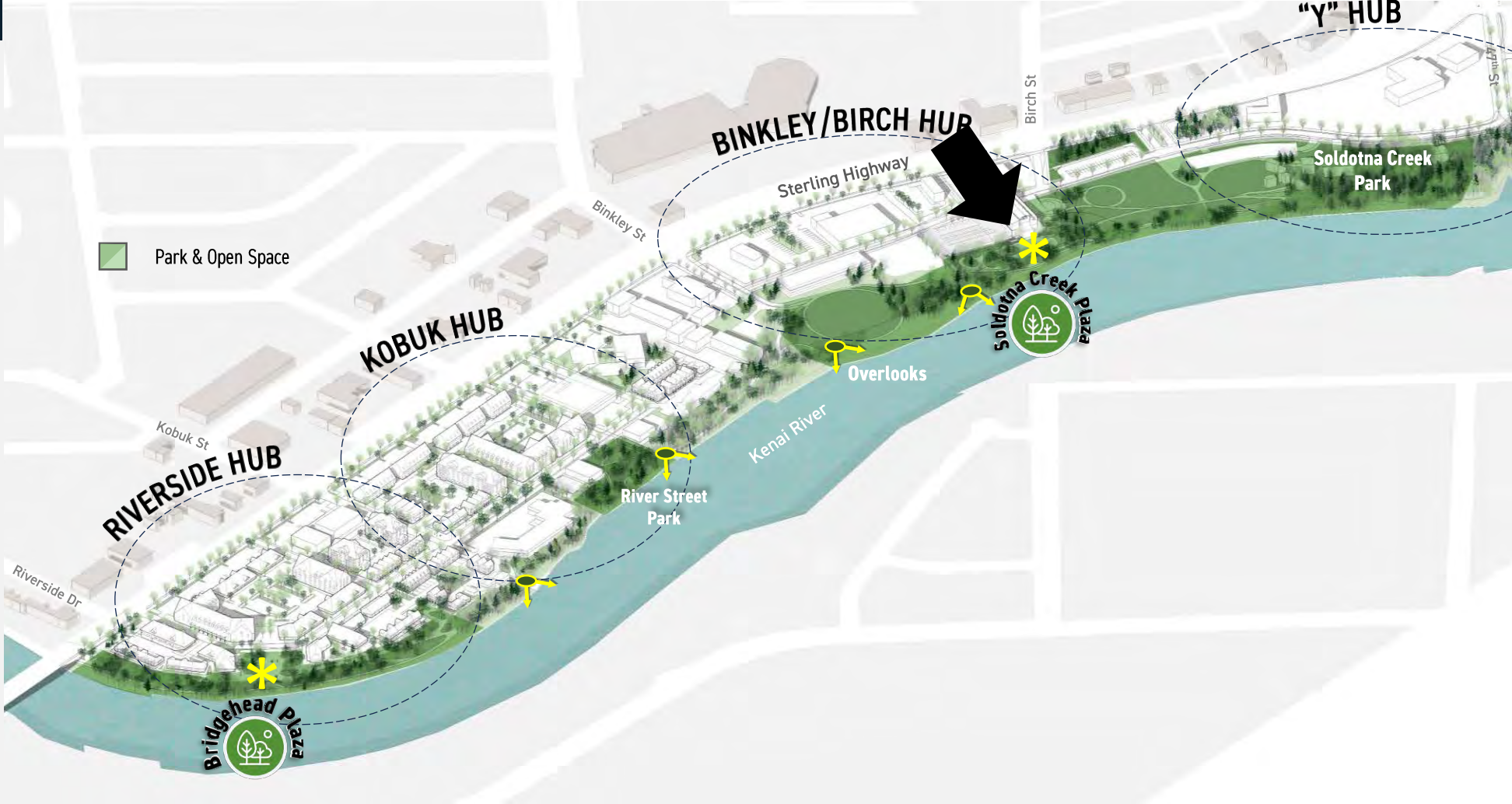


# FRAMEWORKS

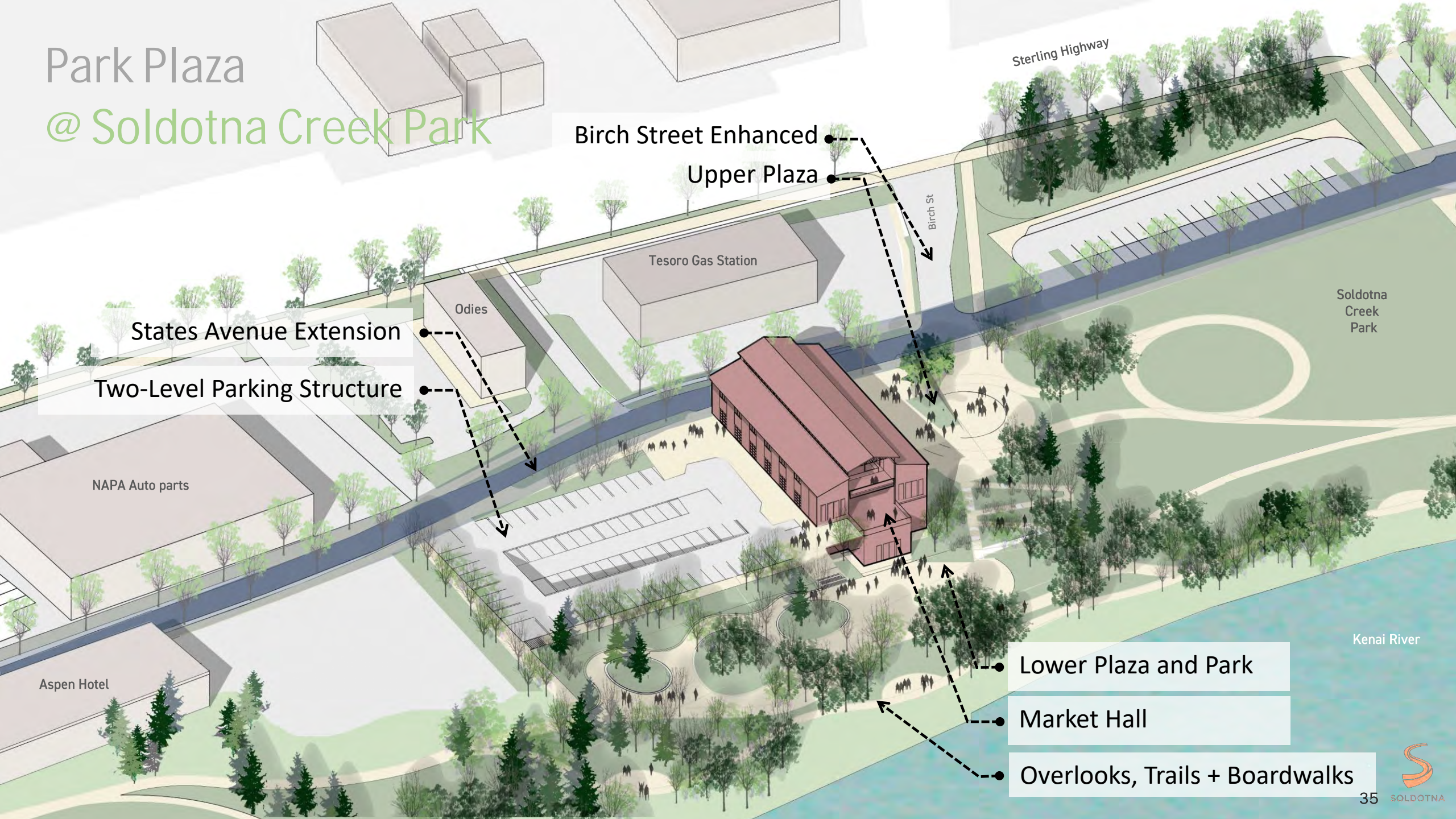
## Land Use

### Public Gathering :

- *Parks*
- *Plazas*
- *Open Space*



# Park Plaza @ Soldotna Creek Park



Birch Street Enhanced

Upper Plaza

States Avenue Extension

Two-Level Parking Structure

NAPA Auto parts

Aspen Hotel

Tesoro Gas Station

Odies

Sterling Highway

Birch St

Soldotna Creek Park

Kenai River

Lower Plaza and Park

Market Hall

Overlooks, Trails + Boardwalks

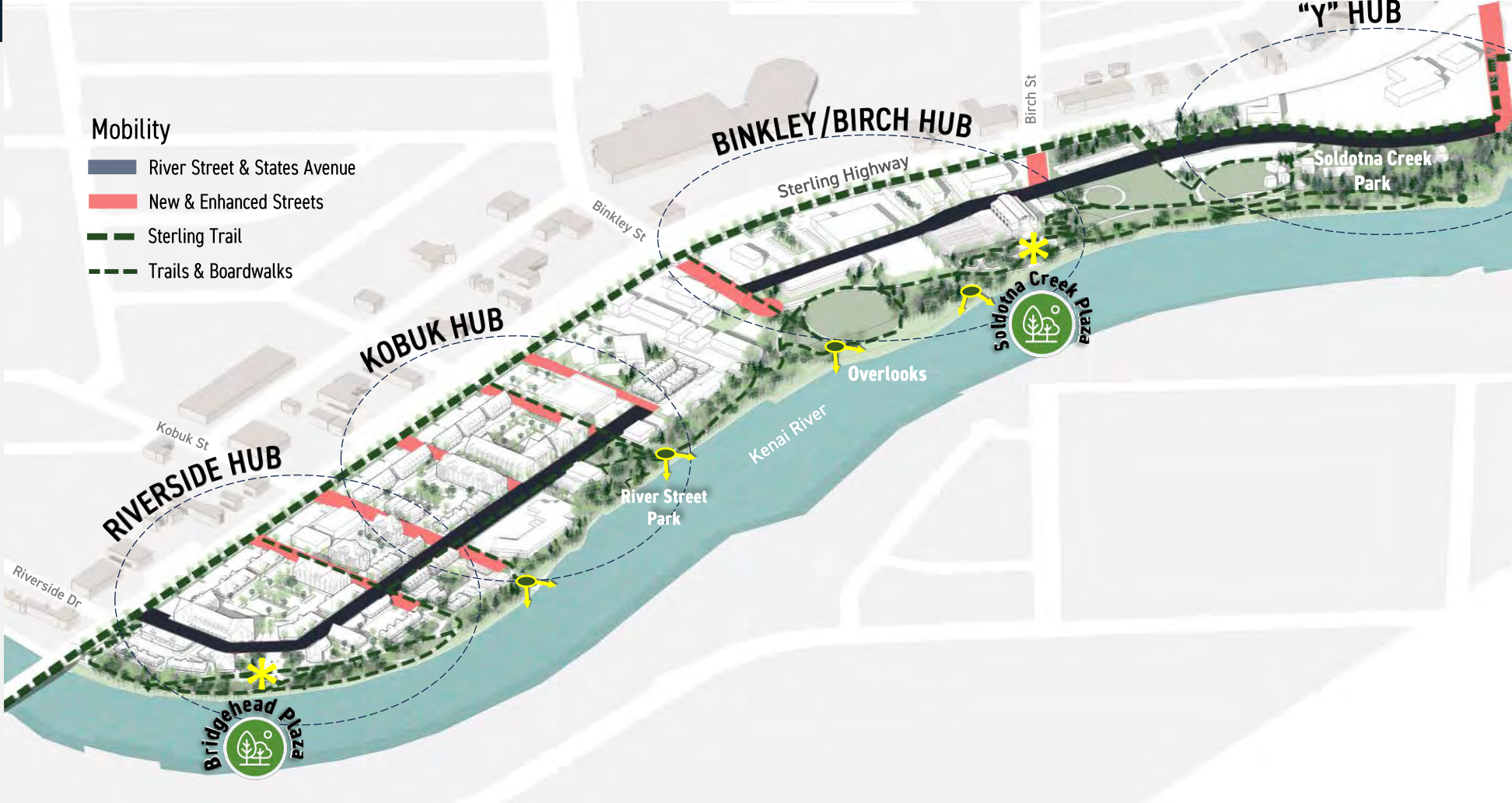
# Park Plaza @ Soldotna Creek Park



# FRAMEWORKS

## Mobility

- *River Street*
- *States Avenue*
- *New & Enhanced Streets*
- *Trails & Boardwalks*

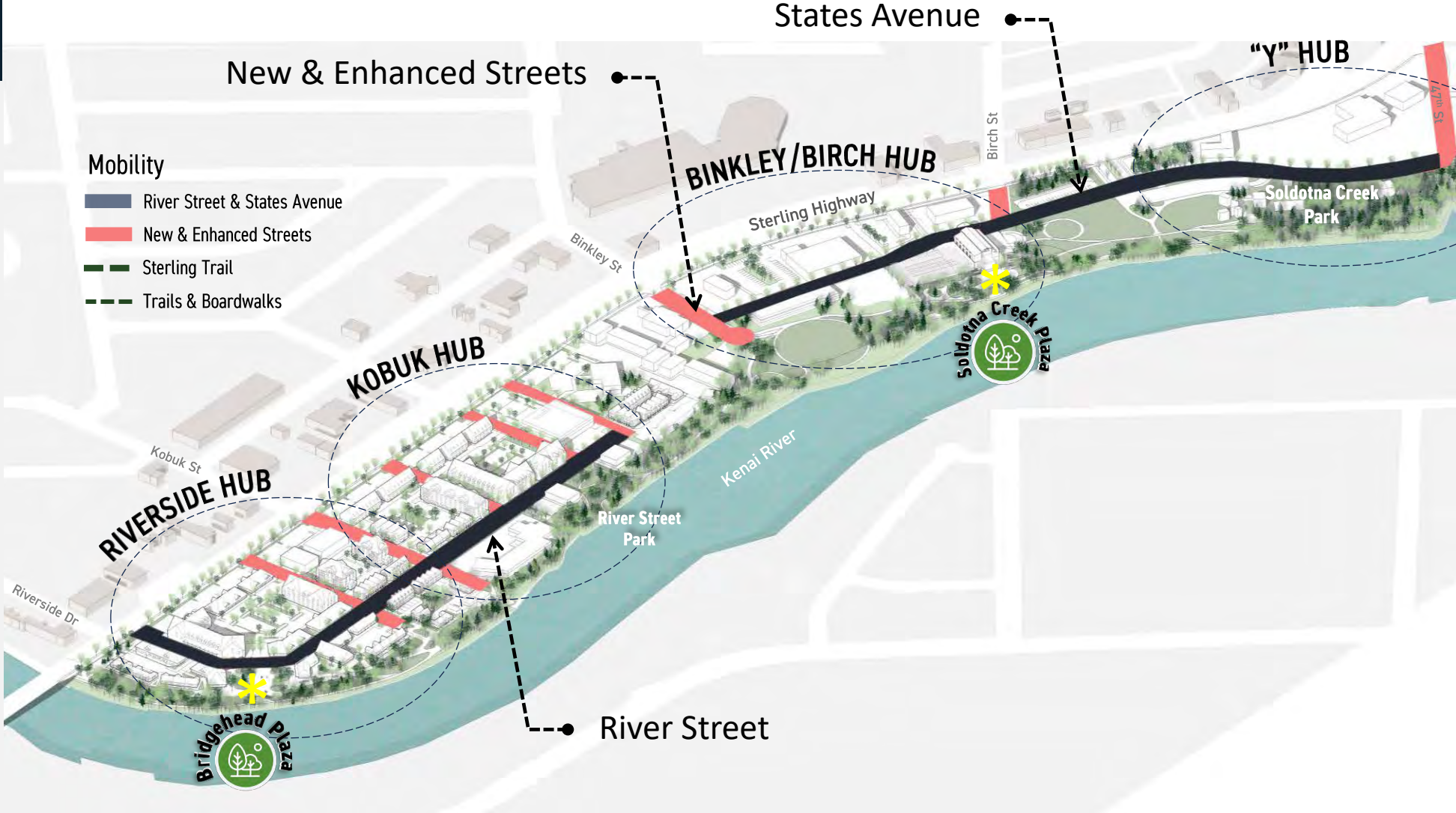




# FRAMEWORKS

## Mobility

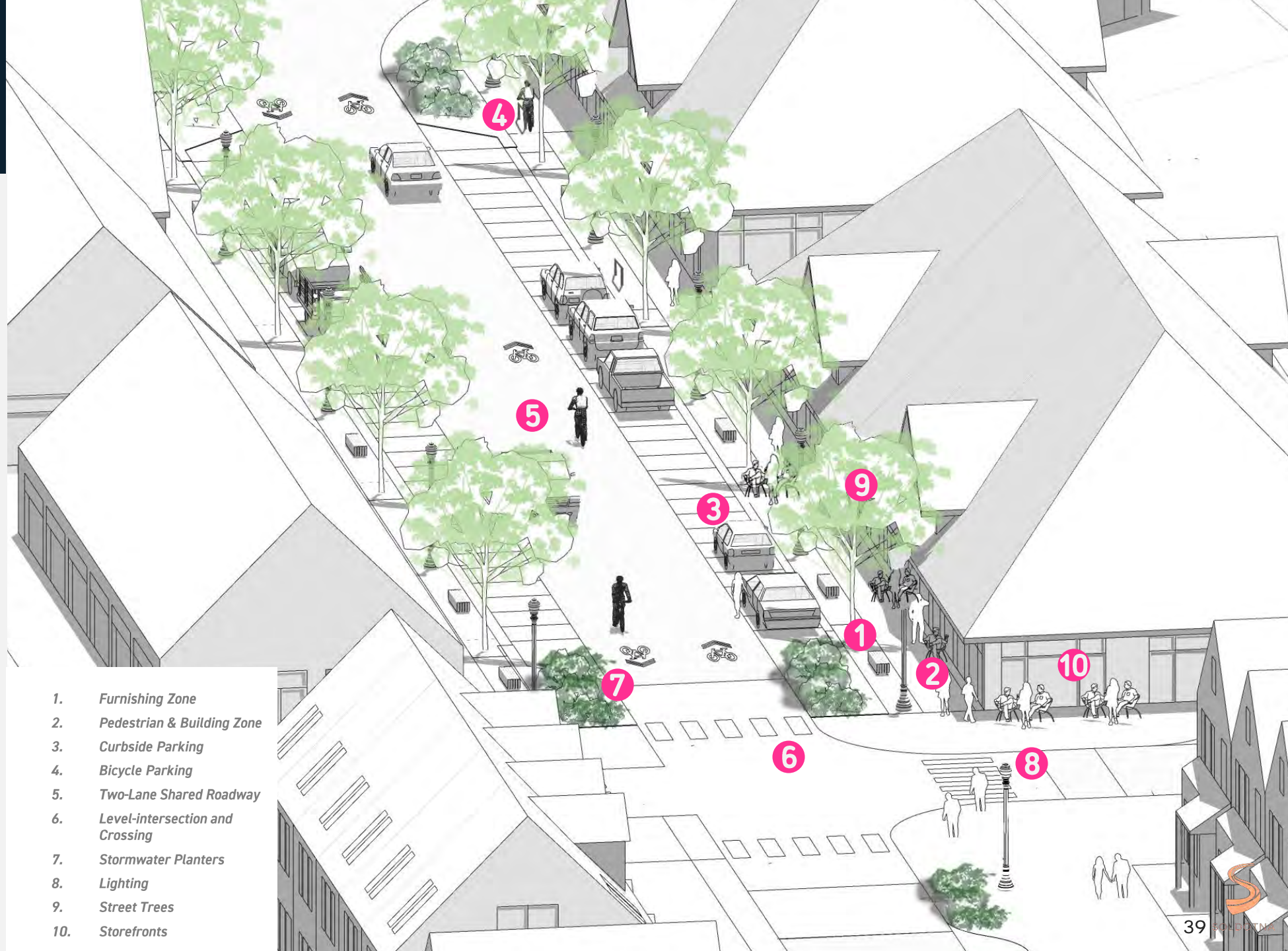
- *River Street*
- *States Avenue*
- *New & Enhanced Streets*



# FRAMEWORKS

## Street Anatomy Principles:

- *Prioritize walking and biking*
- *Support outdoor dining & seating*
- *Manage stormwater to promote river habitat*
- *Provide a safe—"slow traffic" and a well-lit street*
- *Promote Universal Access for all Users*



1. Furnishing Zone
2. Pedestrian & Building Zone
3. Curbside Parking
4. Bicycle Parking
5. Two-Lane Shared Roadway
6. Level-intersection and Crossing
7. Stormwater Planters
8. Lighting
9. Street Trees
10. Storefronts

# FRAMEWORKS

## Mobility

### Trails and Boardwalks :

- 1. *Riverfront Trail + Boardwalk*
- 2. *Sterling Trail*
- 3. *Connecting Trail*

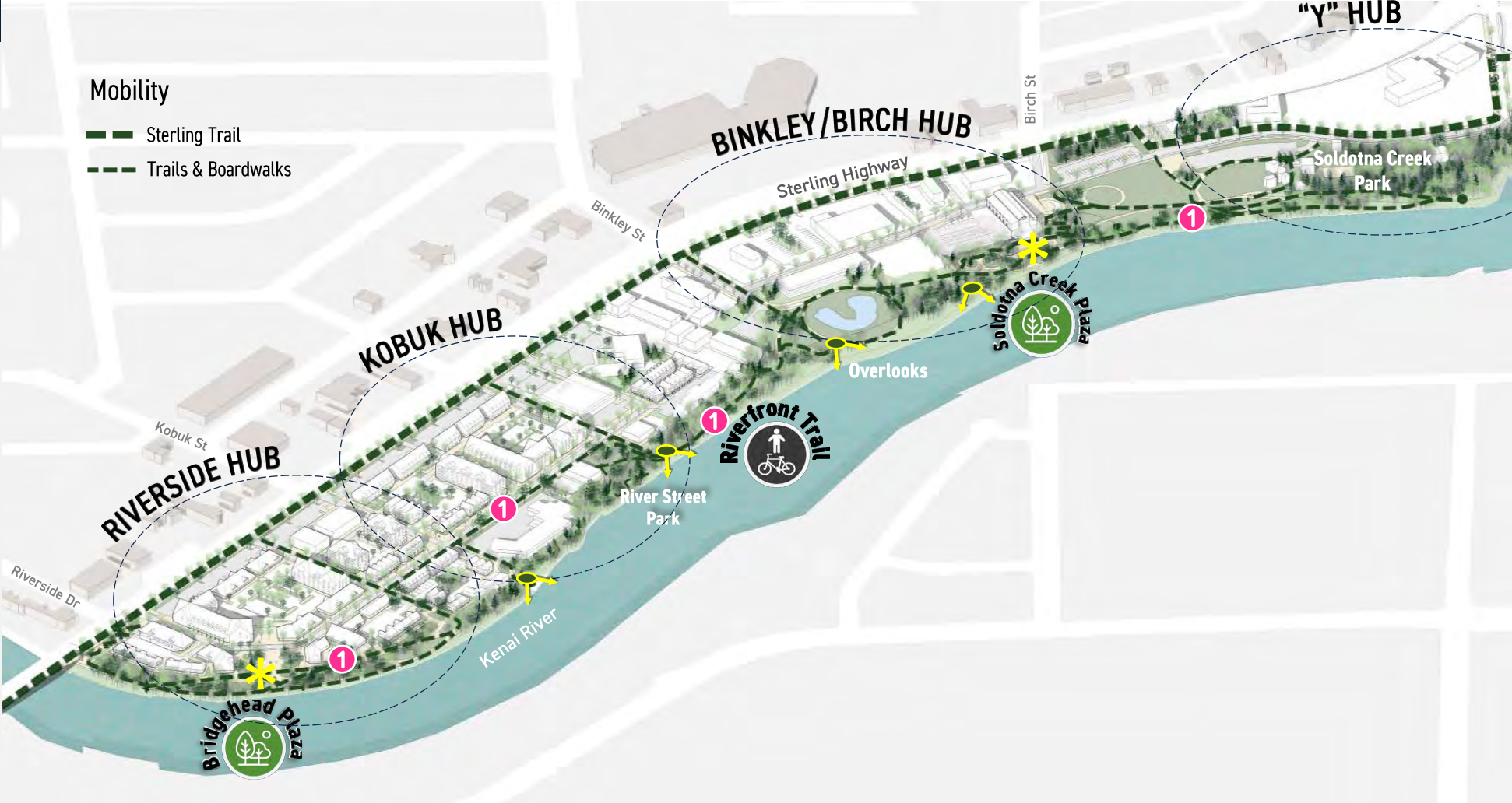


# FRAMEWORKS

## Mobility

### Trails and Boardwalks :

- 1. *Riverfront Trail + Boardwalk*



# Riverfront Trail

Upland Trail @ River Street Park



# FRAMEWORKS

## Mobility

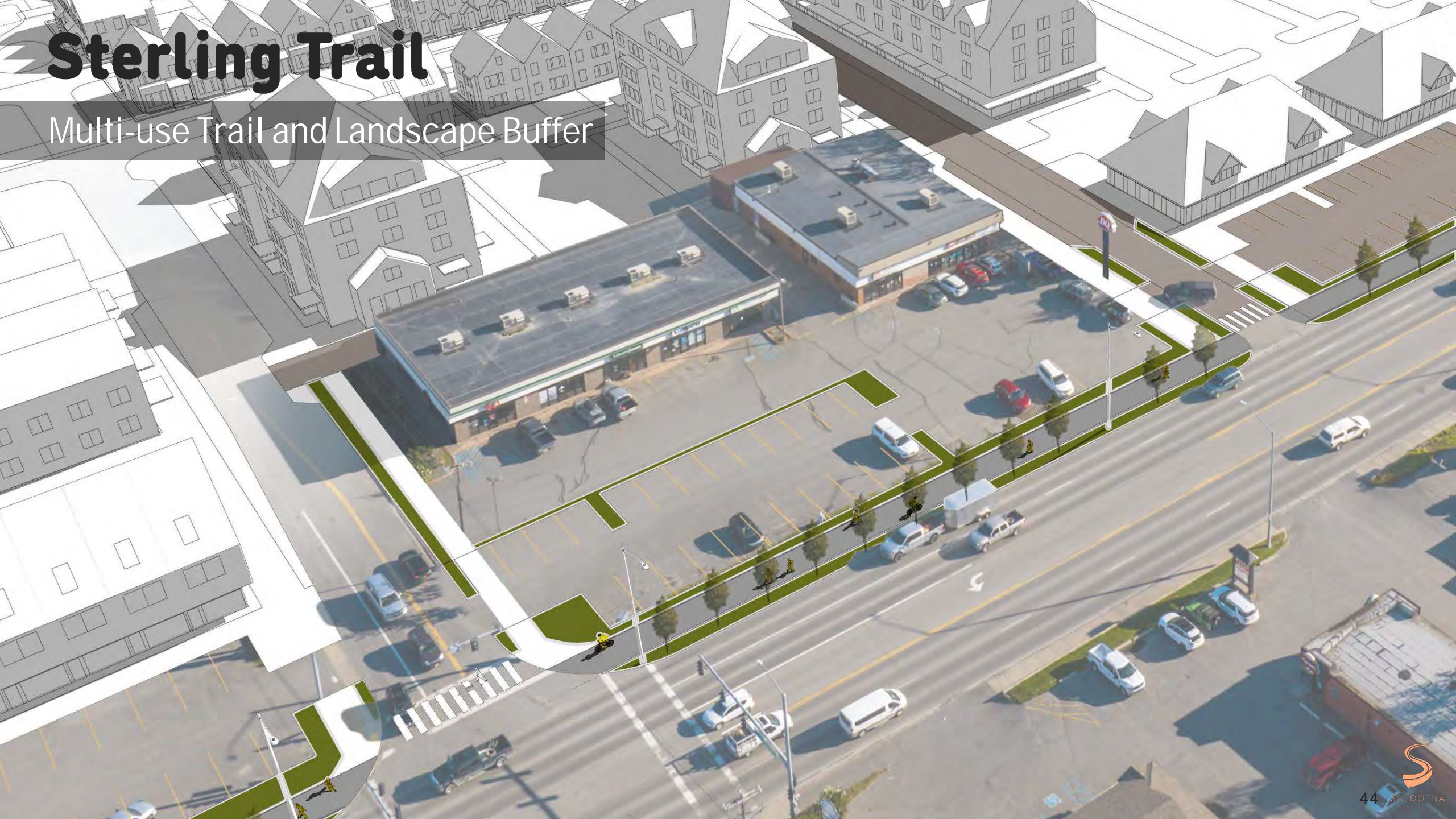
### Trails and Boardwalks :

- 1. Riverfront Trail + Boardwalk
- 2. Sterling Trail



# Sterling Trail

Multi-use Trail and Landscape Buffer

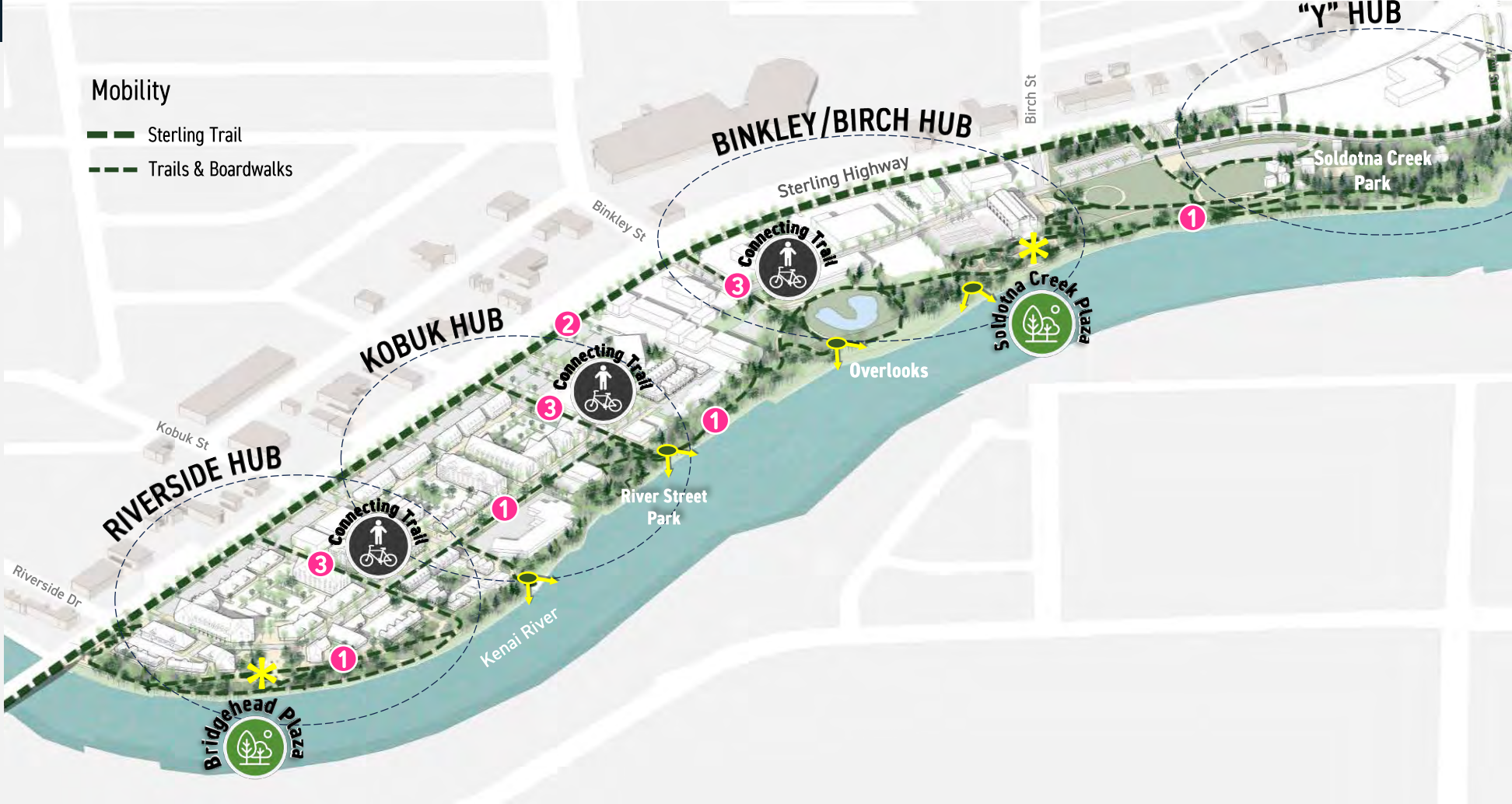


# FRAMEWORKS

## Mobility

### Trails and Boardwalks :

- 1. *Riverfront Trail + Boardwalk*
- 2. *Sterling Trail*
- 3. ***Connecting Trail***





# Connecting Trail

River Street Multi-use Trail



# FRAMEWORKS

## Mobility

### Trails and Boardwalk Principles:

- *Promote Continuous Trail Access*
- *Balance River Access + Riparian Health*
- *Provide a Network of Trail "Loops"*

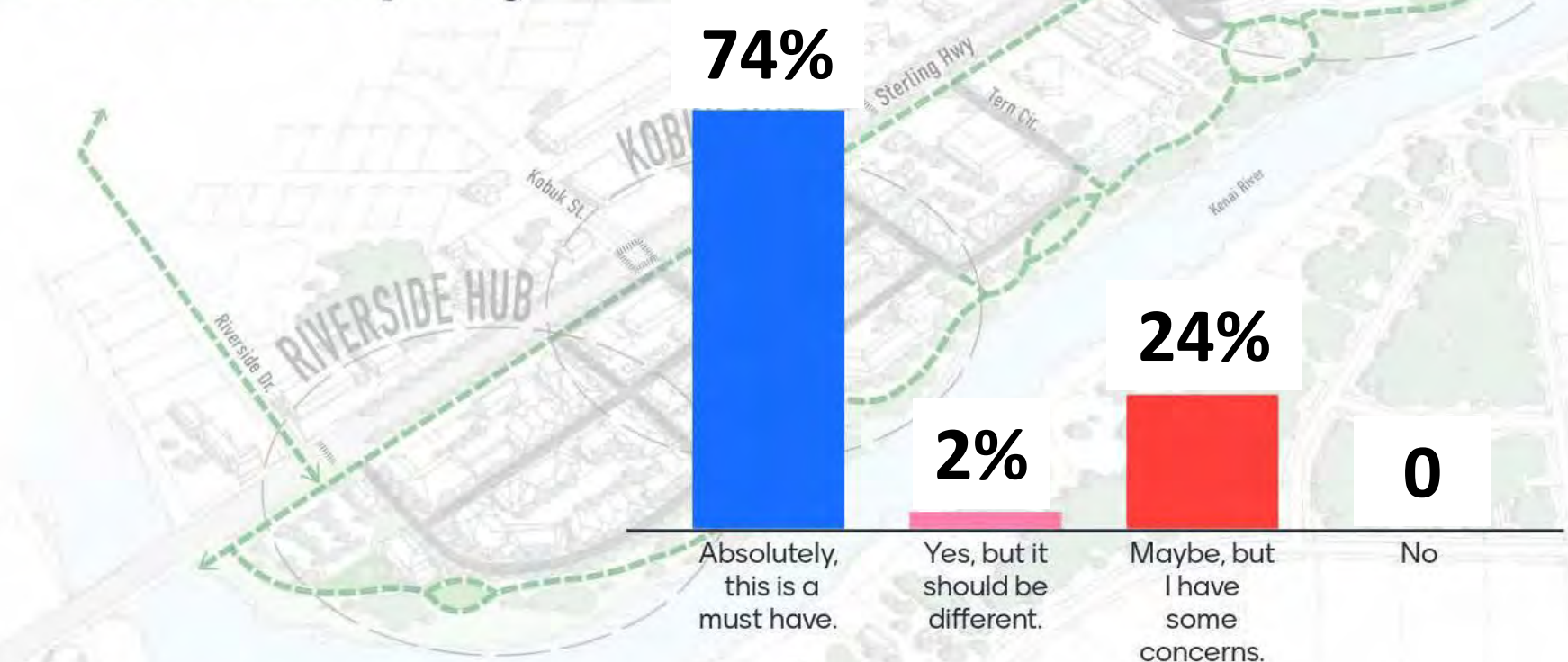


# Promote Continuous Trail Access

Downtown Riverfront  
Redevelopment Plan Workshop

Mentimeter

Should this project continue to pursue a new Riverfront Trail to connect public gathering at each end of the project area?

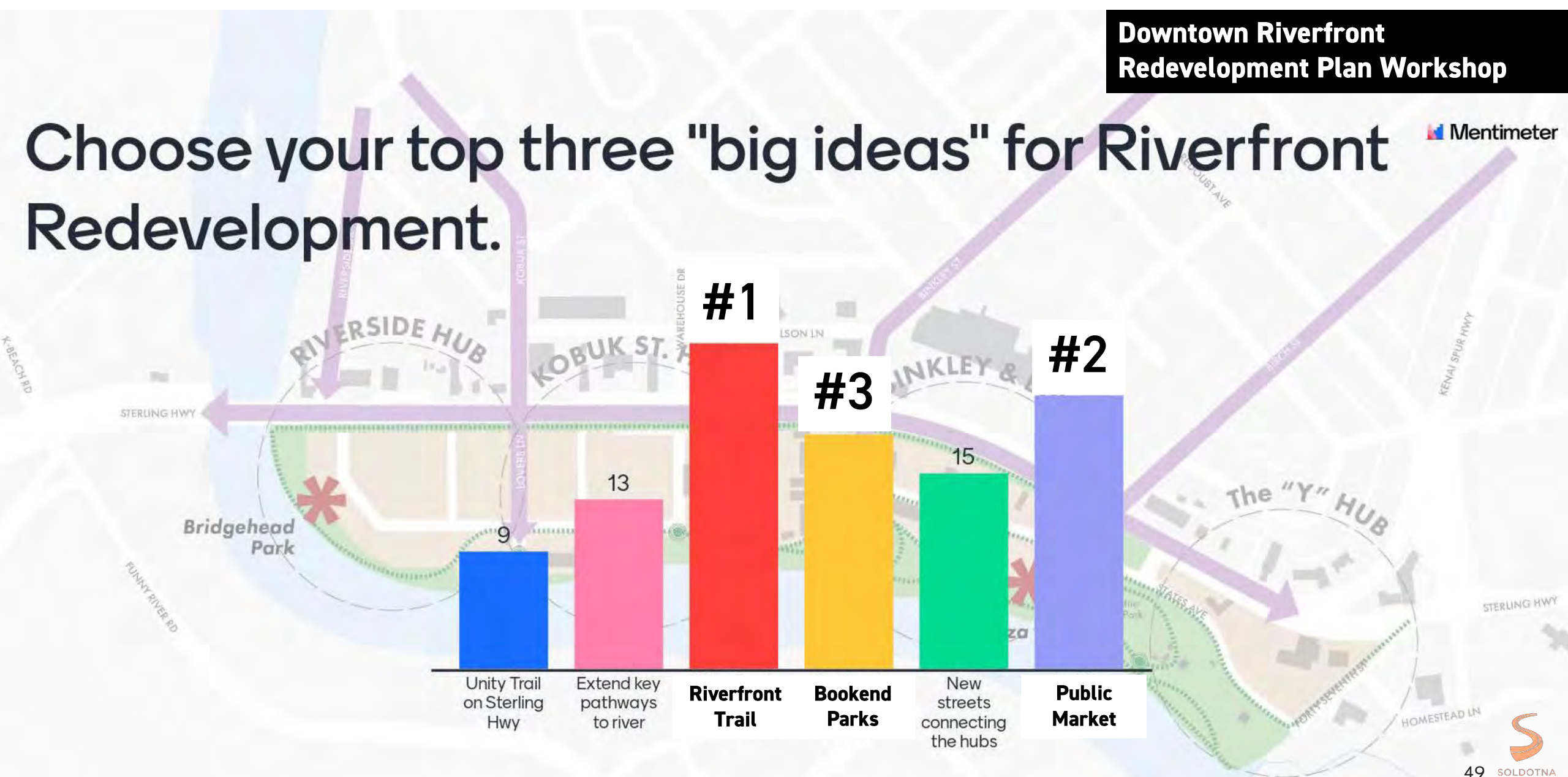
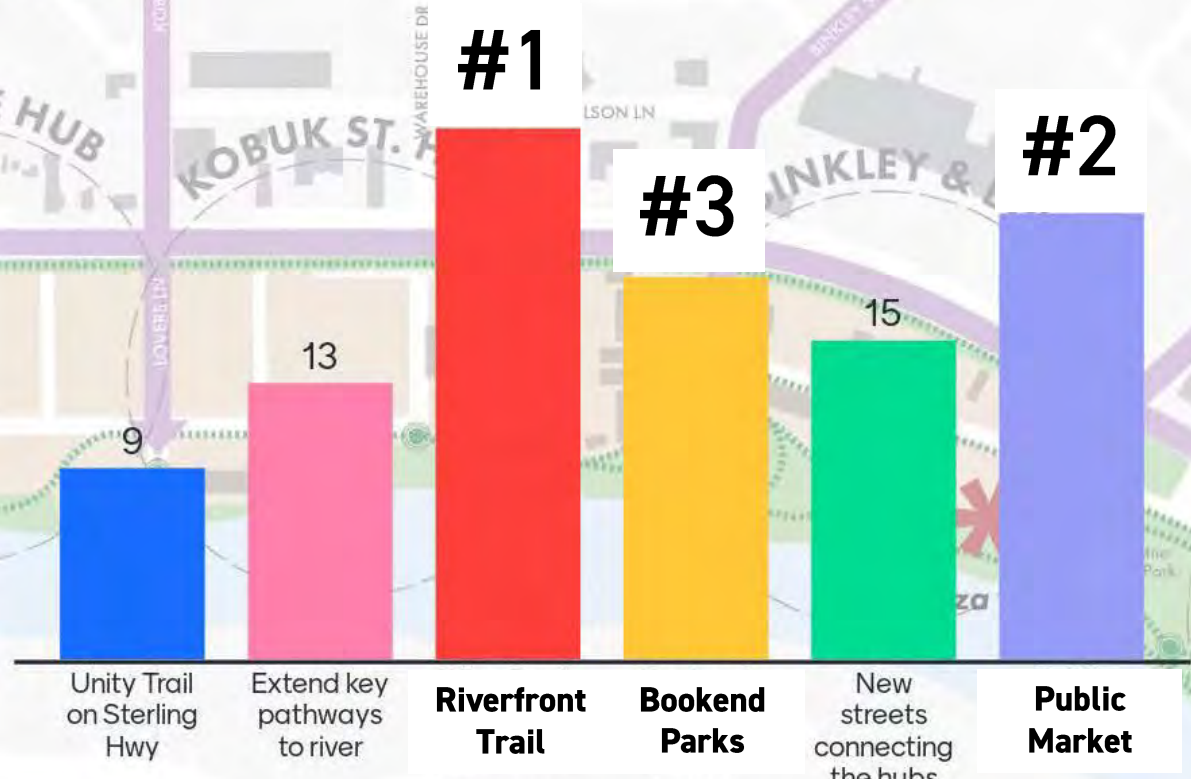


# Promote Continuous Trail Access

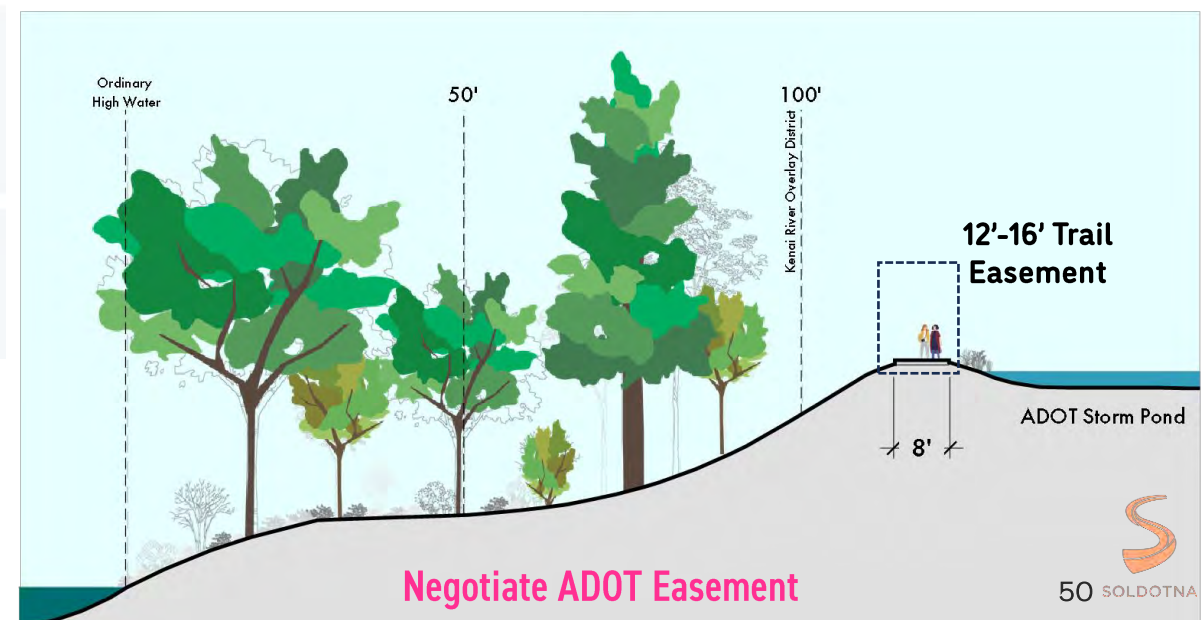
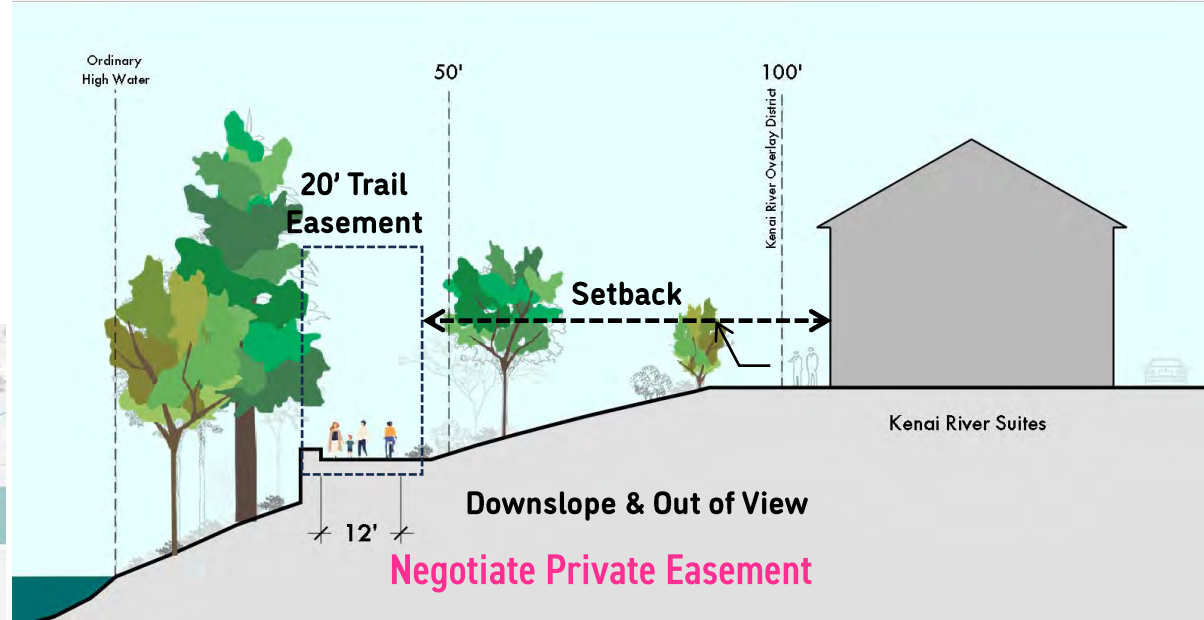
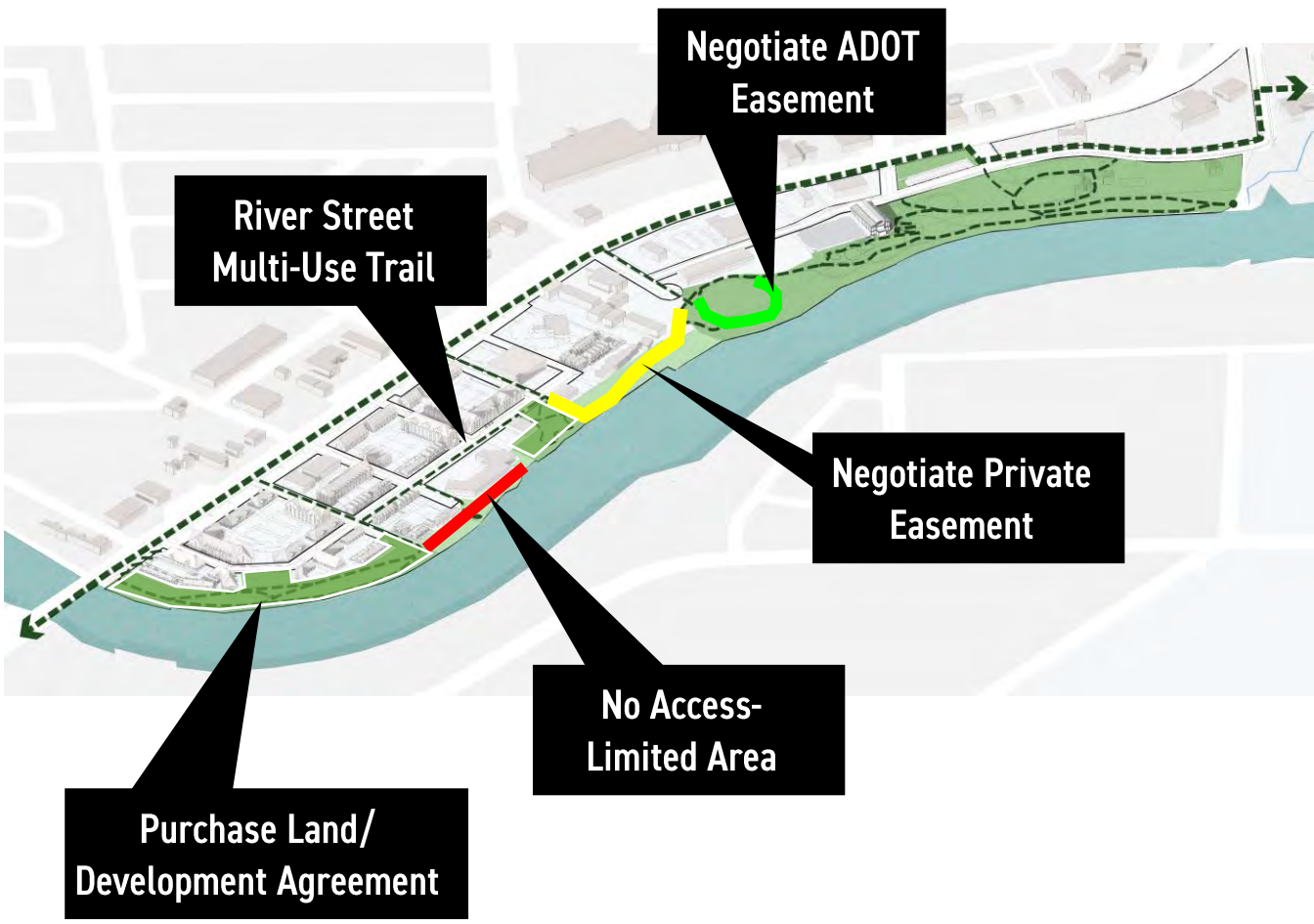
Downtown Riverfront  
Redevelopment Plan Workshop

## Choose your top three "big ideas" for Riverfront Redevelopment.

Mentimeter



# Promote Continuous Trail Access



# Promote Continuous Trail Access



**Negotiate Easements**

# Balance River Access + Riparian Health



Combat Fishing

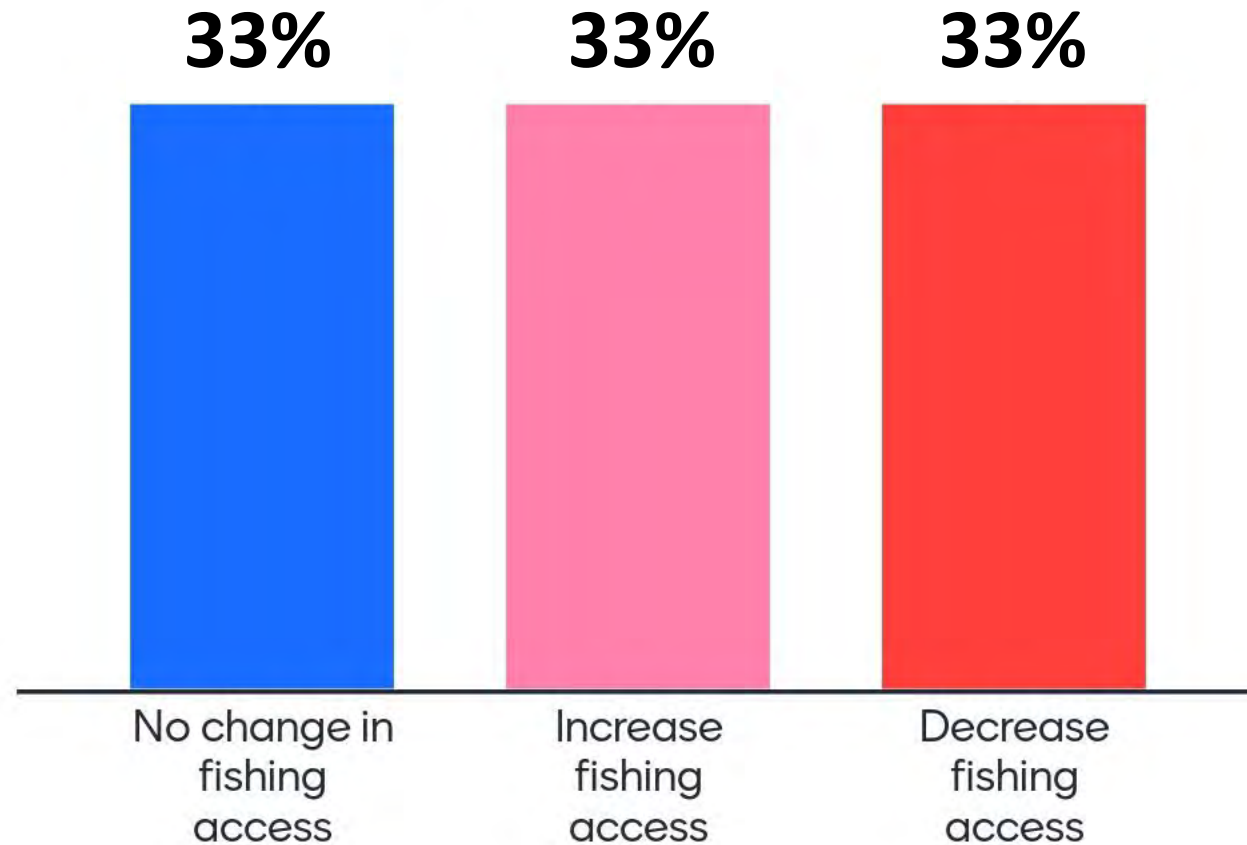
# Balance River Access + Riparian Health



Kenai River Fish Habitat Symposium

Mentimeter

What kind of fishing access can this area of the riverfront support?



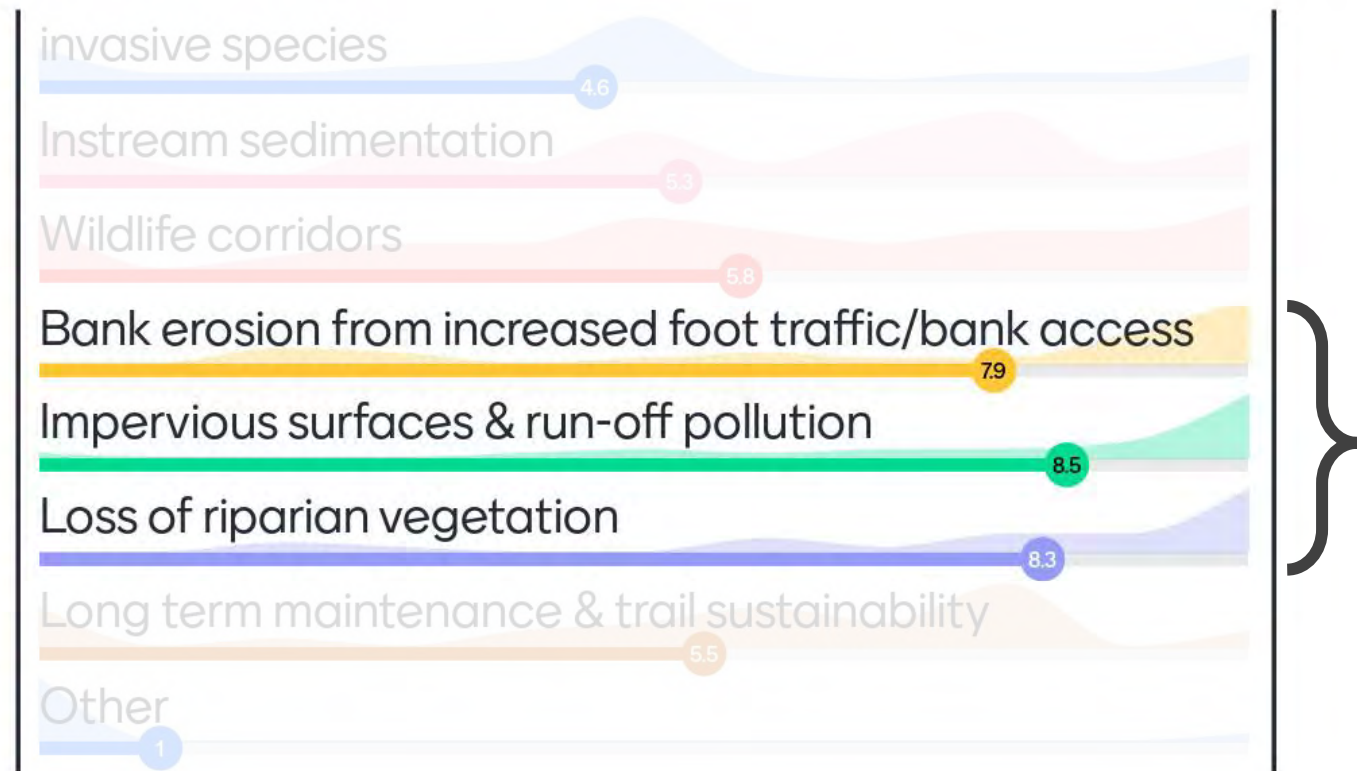


# Balance River Access + Riparian Health

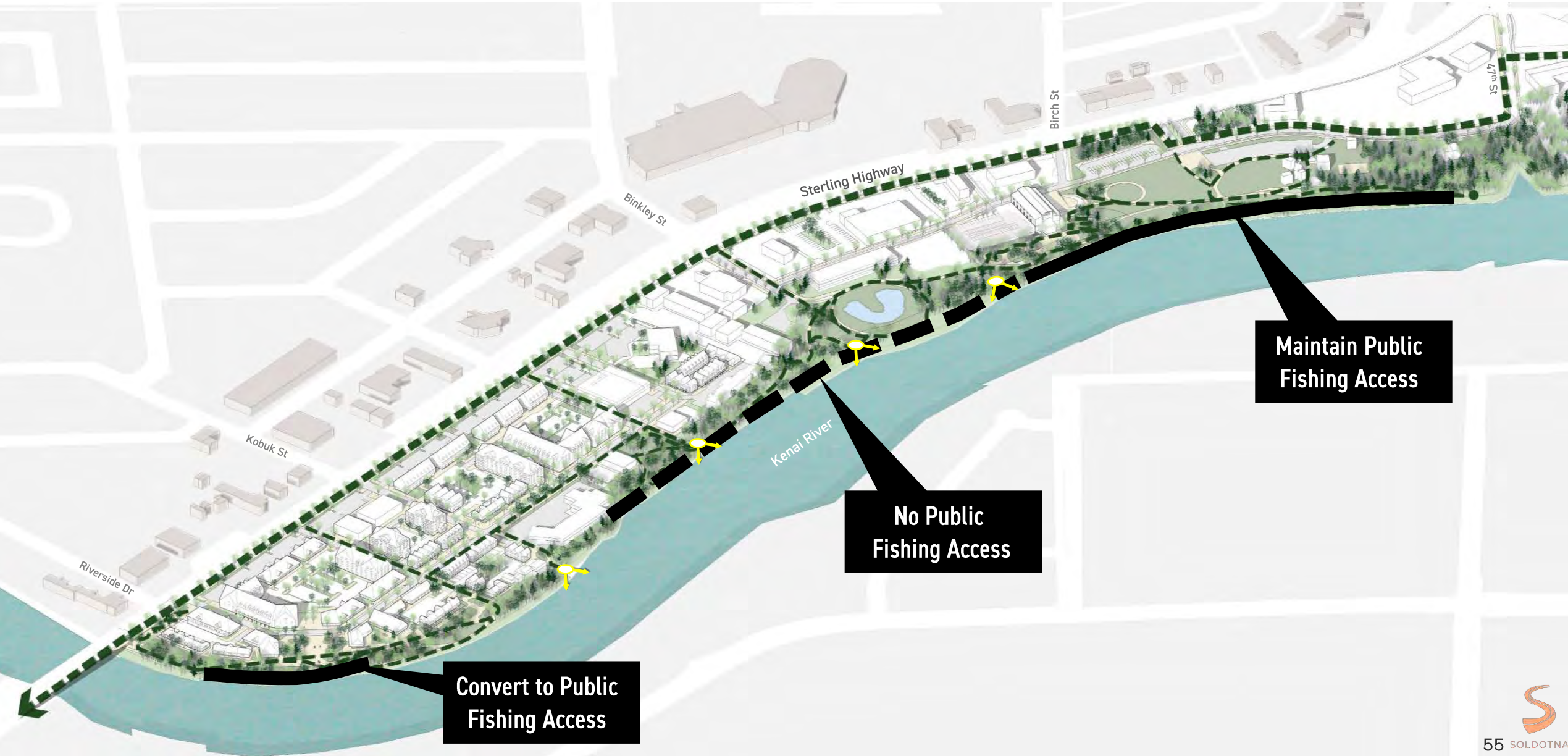
Kenai River Fish Habitat Symposium

## What are major river and riparian habitat concerns with redevelopment?

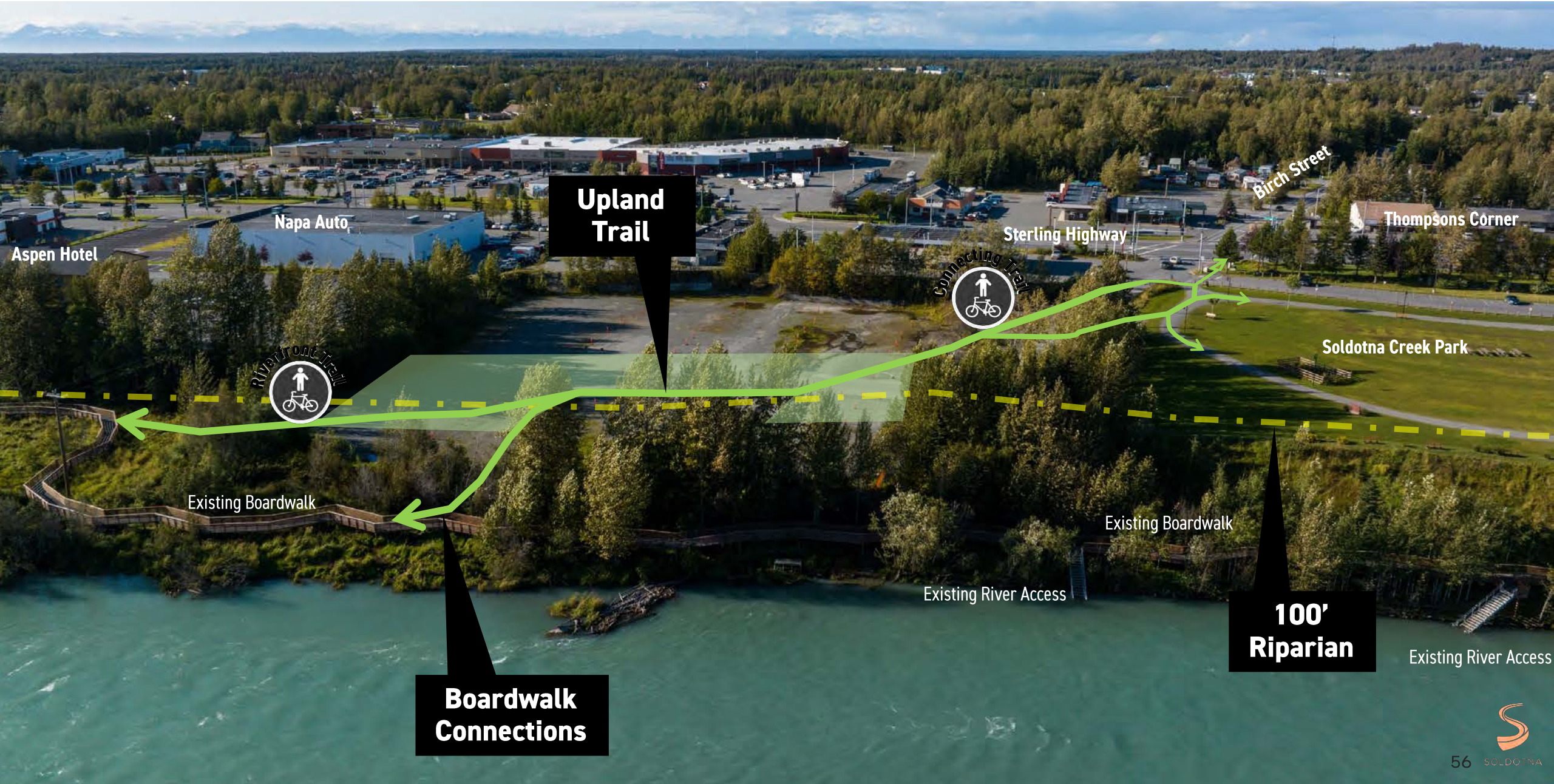
Mentimeter



# Balance River Access + Riparian Health



# Balance River Access + Riparian Health



**Upland Trail**



**100' Riparian**

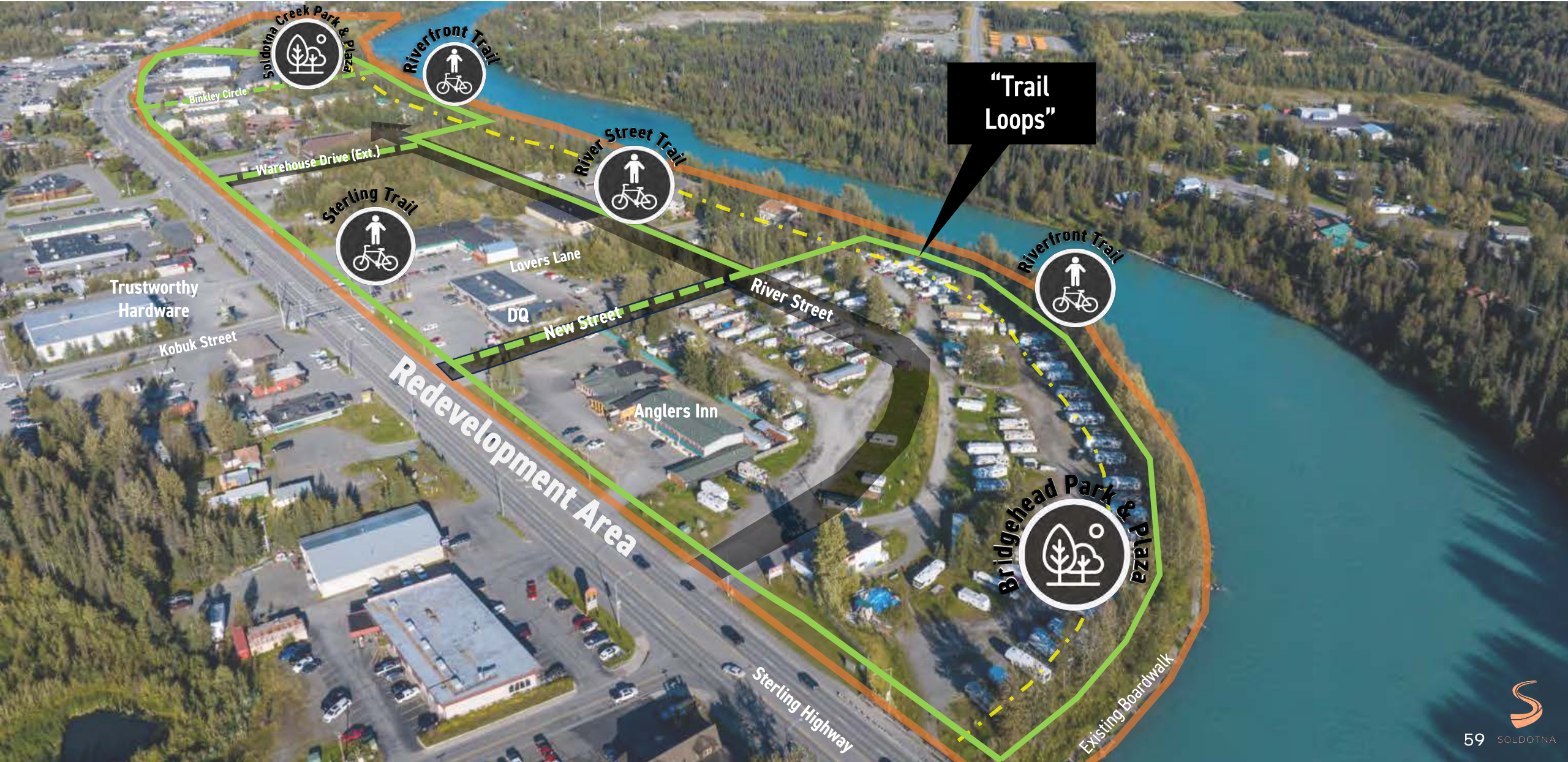
**Boardwalk Connections**

# Balance River Access + Riparian Health





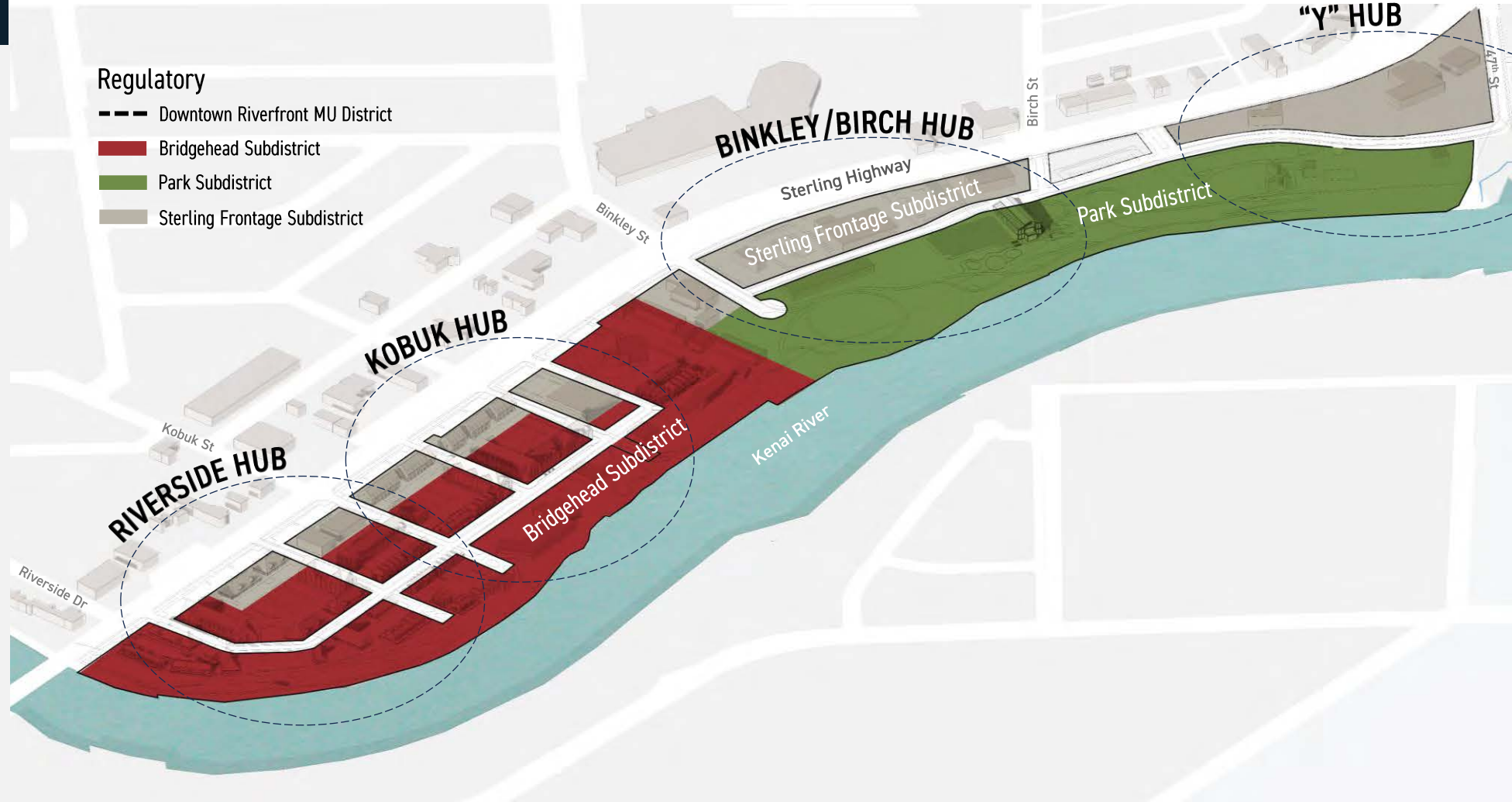
# Provide a Network of "Trail Loops"



# FRAMEWORKS

## Regulatory

- *New Mixed-Use Overlay*
- *Tailor Uses to Distinct Subdistricts*
- *Promote a walkable downtown*

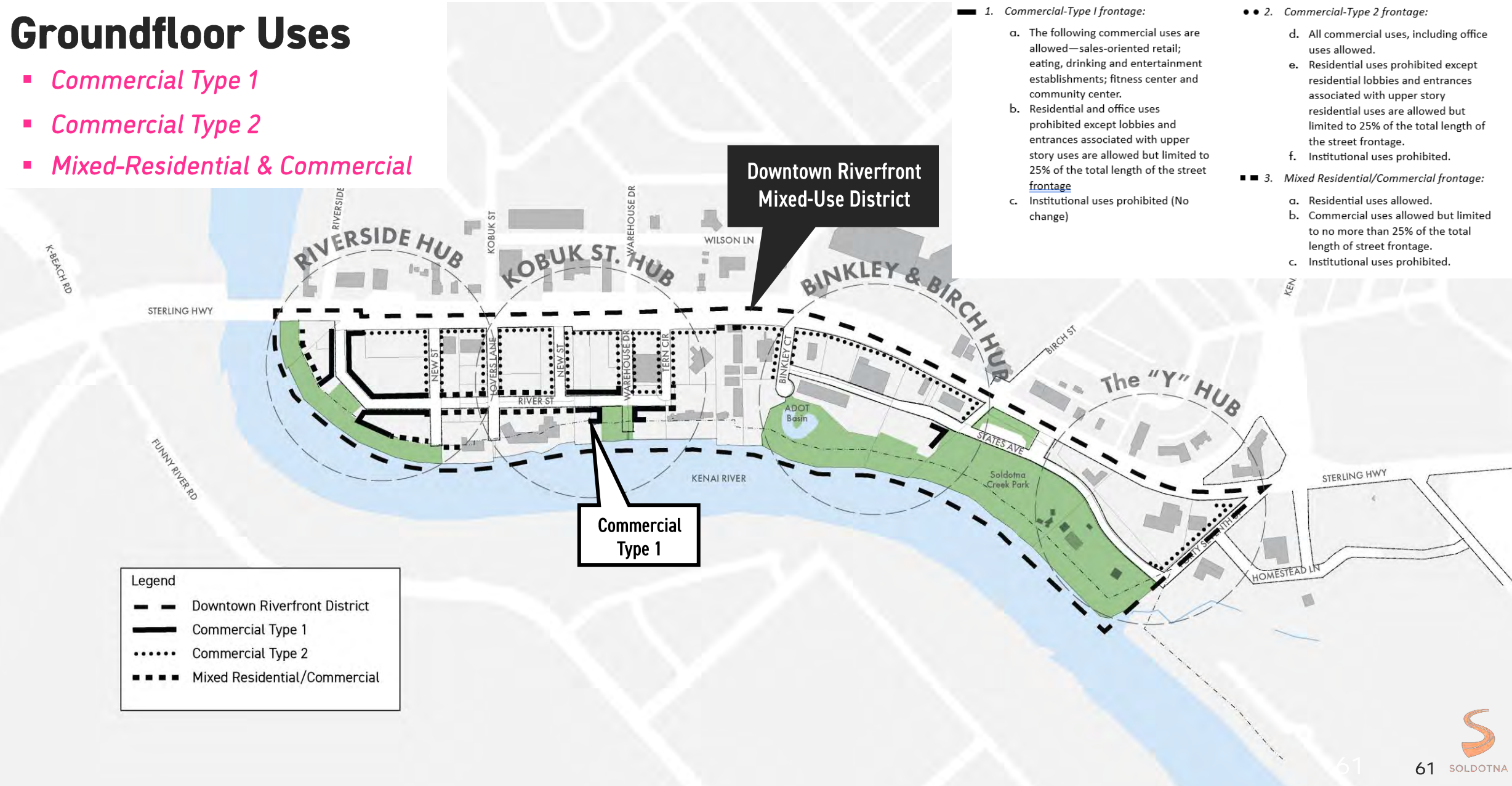


# Downtown Riverfront Mixed-Use District

## Groundfloor Uses

- Commercial Type 1
- Commercial Type 2
- Mixed-Residential & Commercial

1. Commercial-Type 1 frontage:
  - a. The following commercial uses are allowed—sales-oriented retail; eating, drinking and entertainment establishments; fitness center and community center.
  - b. Residential and office uses prohibited except lobbies and entrances associated with upper story uses are allowed but limited to 25% of the total length of the street frontage
  - c. Institutional uses prohibited (No change)
2. Commercial-Type 2 frontage:
  - d. All commercial uses, including office uses allowed.
  - e. Residential uses prohibited except residential lobbies and entrances associated with upper story residential uses are allowed but limited to 25% of the total length of the street frontage.
  - f. Institutional uses prohibited.
3. Mixed Residential/Commercial frontage:
  - a. Residential uses allowed.
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**Legend**

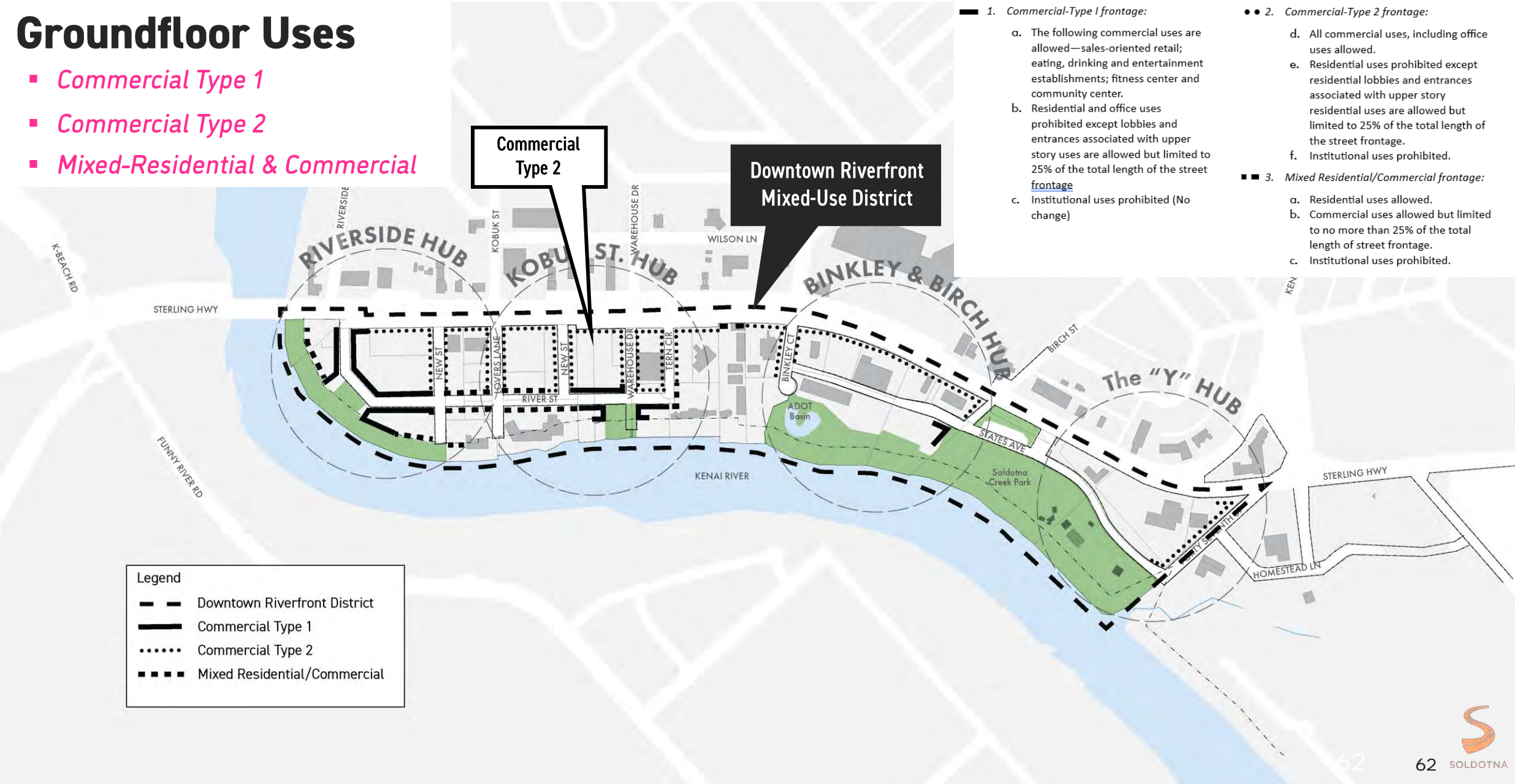
- Downtown Riverfront District
- Commercial Type 1
- ..... Commercial Type 2
- .-.- Mixed Residential/Commercial



# Downtown Riverfront Mixed-Use District

## Groundfloor Uses

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**Legend**

- Downtown Riverfront District
- Commercial Type 1
- ..... Commercial Type 2
- Mixed Residential/Commercial

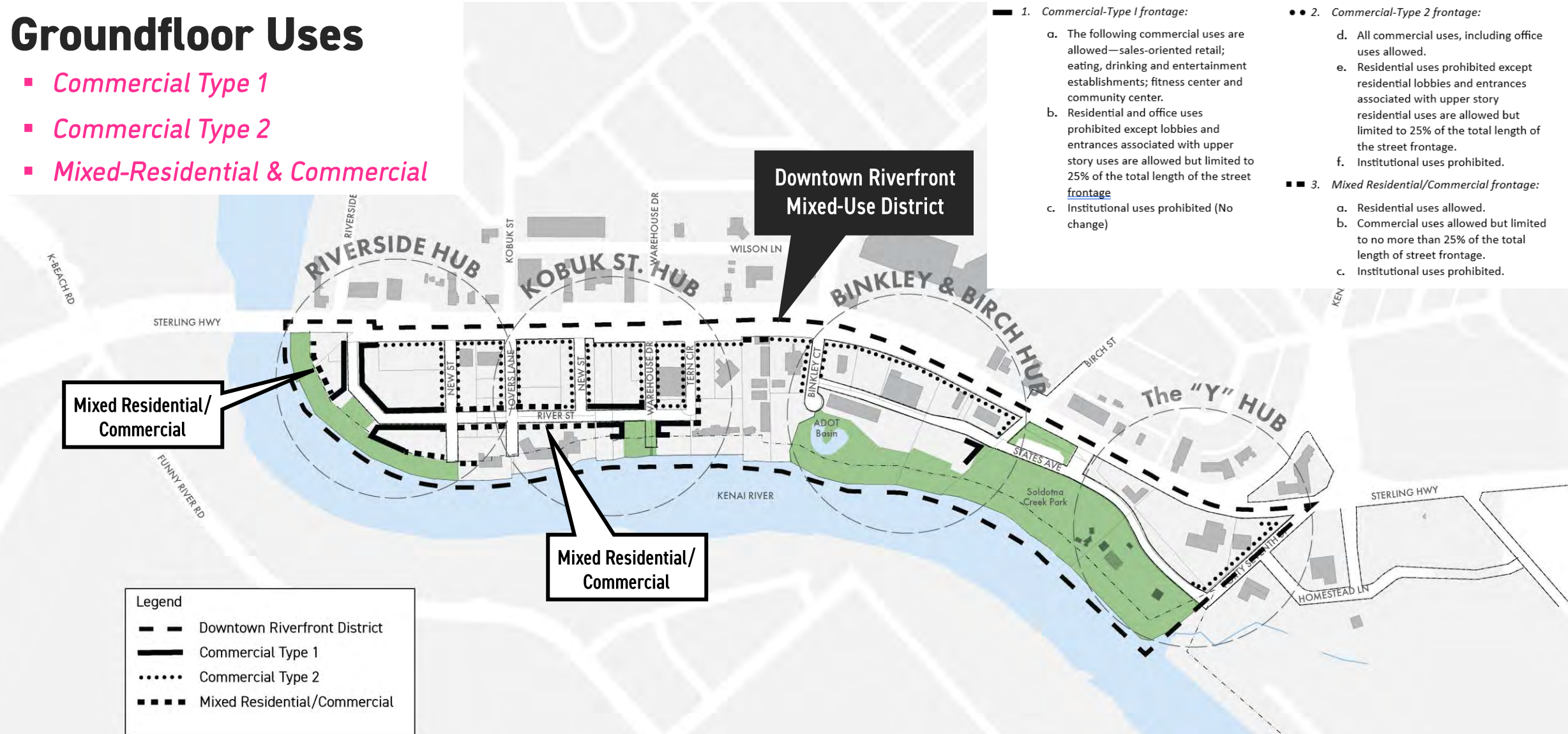
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**Legend**

- Downtown Riverfront District
- Commercial Type 1
- ..... Commercial Type 2
- - - Mixed Residential/Commercial

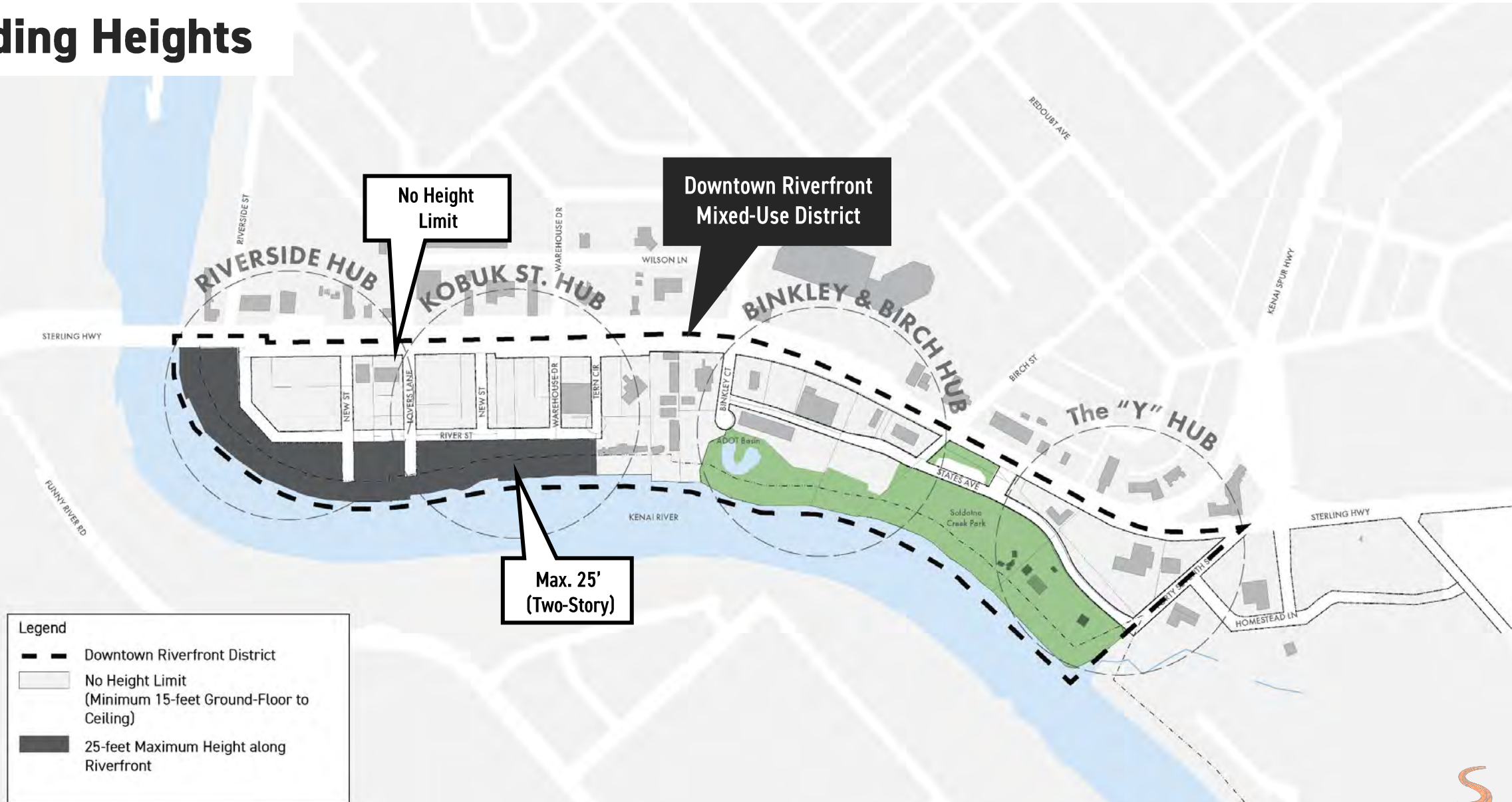
Mixed Residential/  
Commercial

Mixed Residential/  
Commercial

Downtown Riverfront  
Mixed-Use District

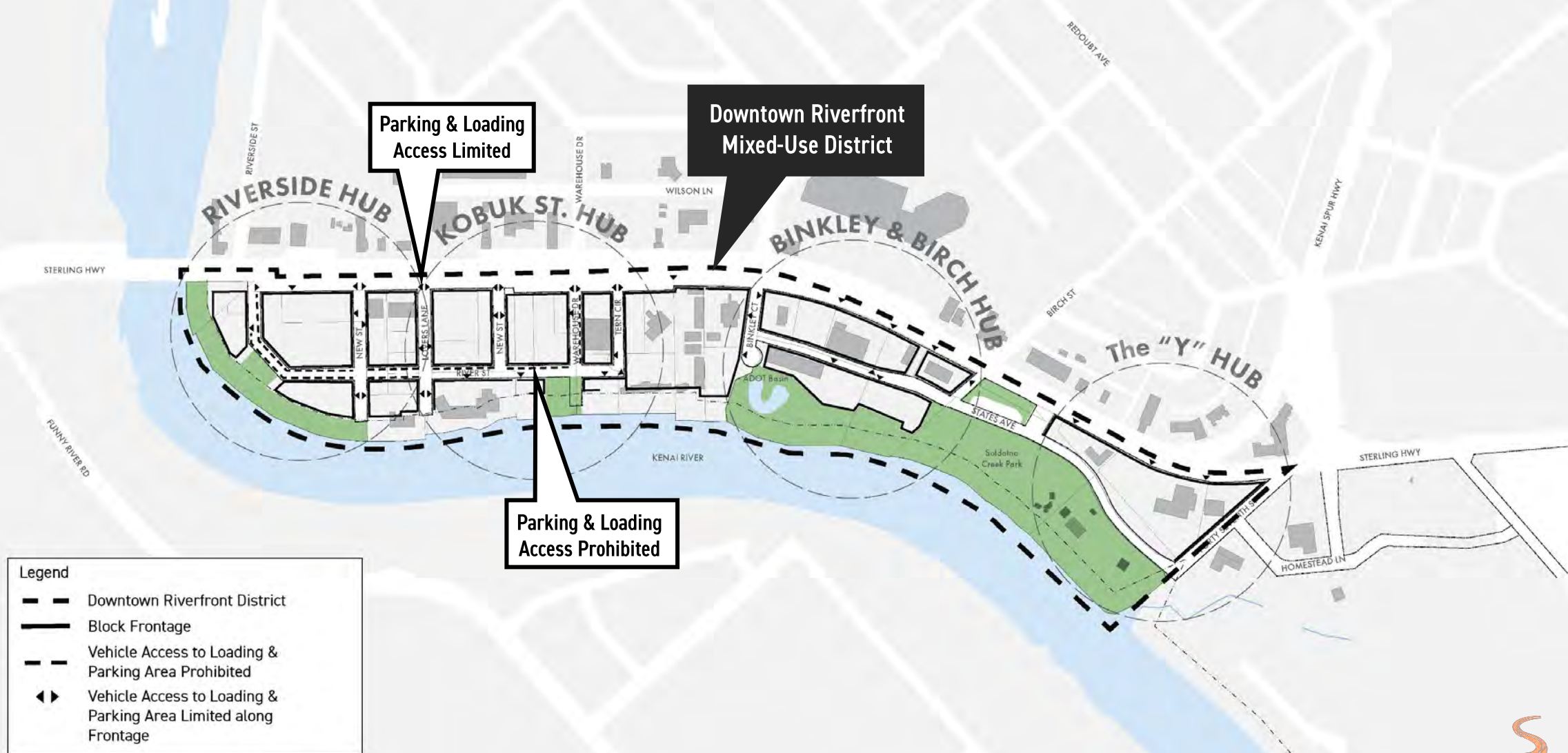
# Downtown Riverfront Mixed-Use District

## Building Heights



# Downtown Riverfront Mixed-Use District

## Parking/Loading Access



# IMPLEMENTATION

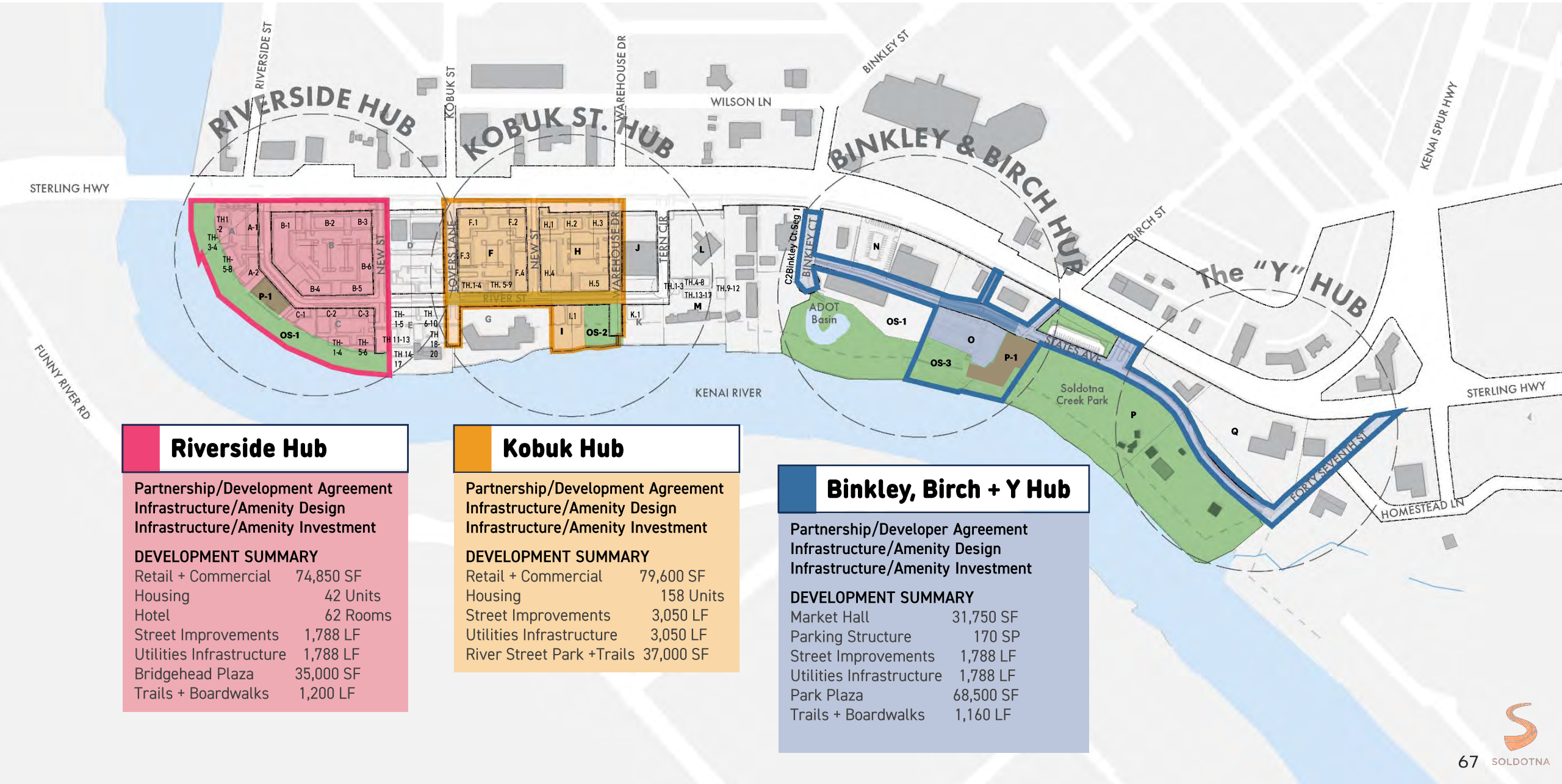
Catalysts + Phasing

Funding

Action Plan



# Implementation- Catalyst Sites + Phasing



### Riverside Hub

Partnership/Development Agreement  
 Infrastructure/Amenity Design  
 Infrastructure/Amenity Investment

**DEVELOPMENT SUMMARY**

Retail + Commercial	74,850 SF
Housing	42 Units
Hotel	62 Rooms
Street Improvements	1,788 LF
Utilities Infrastructure	1,788 LF
Bridgehead Plaza	35,000 SF
Trails + Boardwalks	1,200 LF

### Kobuk Hub

Partnership/Development Agreement  
 Infrastructure/Amenity Design  
 Infrastructure/Amenity Investment

**DEVELOPMENT SUMMARY**

Retail + Commercial	79,600 SF
Housing	158 Units
Street Improvements	3,050 LF
Utilities Infrastructure	3,050 LF
River Street Park +Trails	37,000 SF

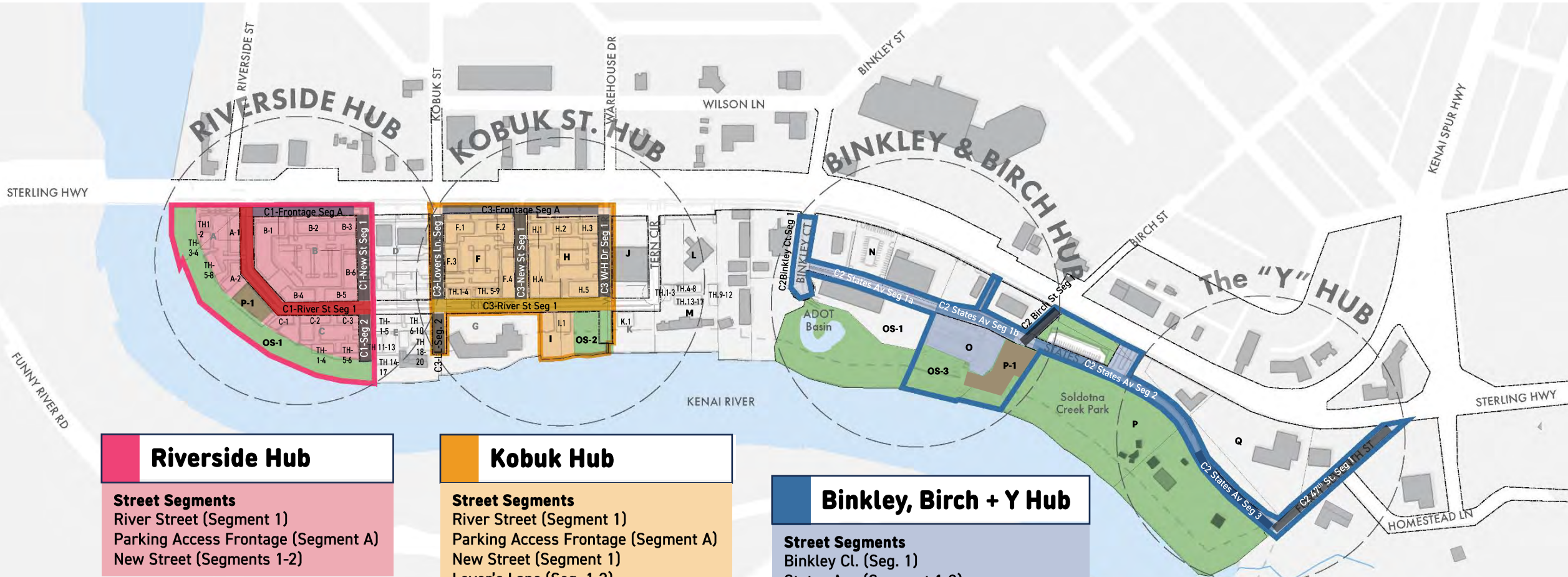
### Binkley, Birch + Y Hub

Partnership/Developer Agreement  
 Infrastructure/Amenity Design  
 Infrastructure/Amenity Investment

**DEVELOPMENT SUMMARY**

Market Hall	31,750 SF
Parking Structure	170 SP
Street Improvements	1,788 LF
Utilities Infrastructure	1,788 LF
Park Plaza	68,500 SF
Trails + Boardwalks	1,160 LF

# Implementation- Catalyst Sites + Phasing

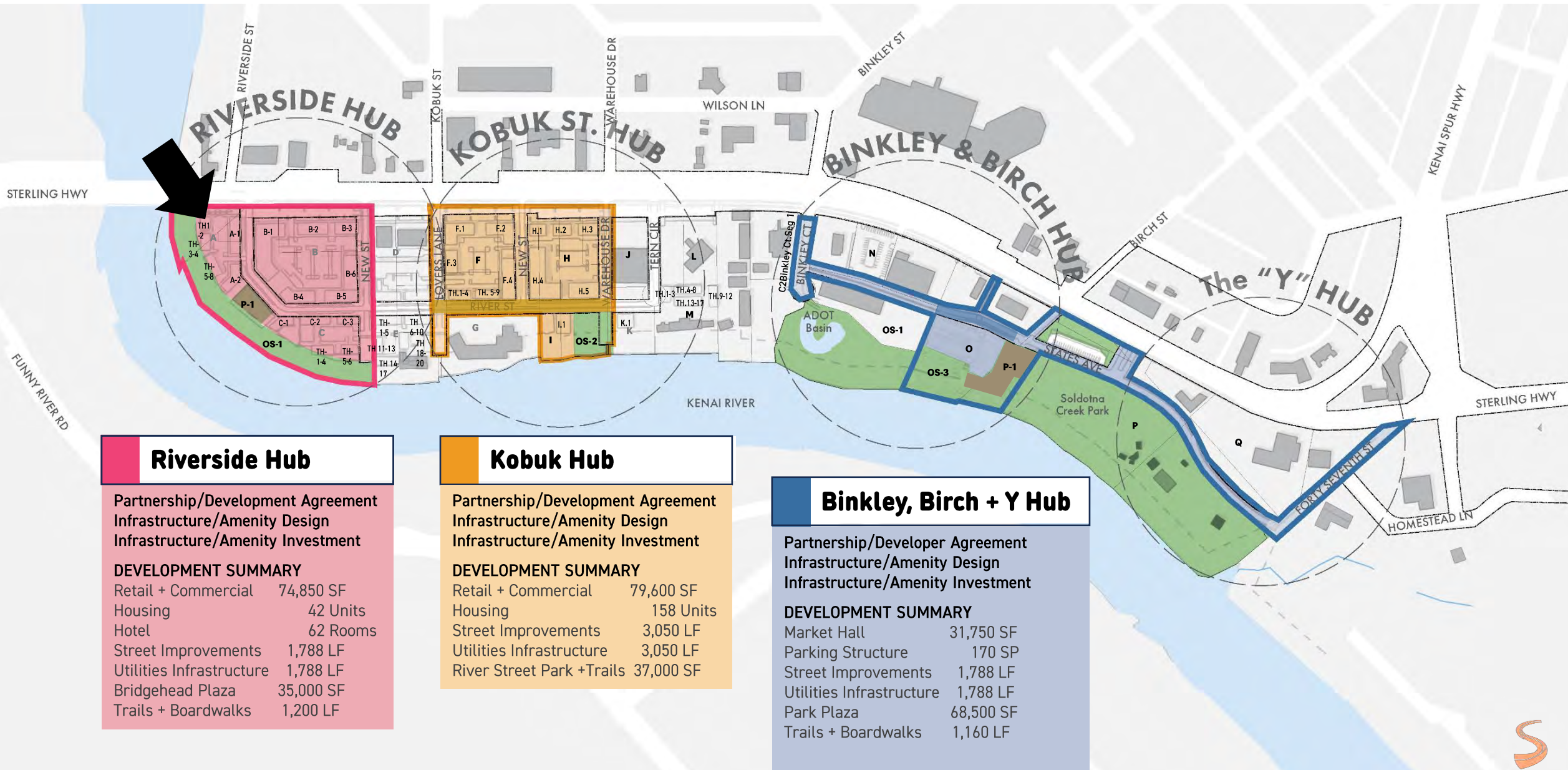


Riverside Hub
<b>Street Segments</b> River Street (Segment 1) Parking Access Frontage (Segment A) New Street (Segments 1-2)
<b>Utilities Segments</b> River Street (Segment 1) Parking Access Frontage (Segment A) New Street (Segments 1-2)

Kobuk Hub
<b>Street Segments</b> River Street (Segment 1) Parking Access Frontage (Segment A) New Street (Segment 1) Lover's Lane (Seg. 1-2) Warehouse Drive (Segment 1)
<b>Utilities Segments</b> River Street (Segment 1) Parking Access Frontage (Segment A) New Street (Segment 1) Lovers Ln (Segment 1-2) Warehouse Drive (Segment 1)

Binkley, Birch + Y Hub
<b>Street Segments</b> Binkley Cl. (Seg. 1) States Ave (Segment 1-3) Birch St (Segment 1) 47 <sup>th</sup> Street (Segment 1)
<b>Utilities Segments</b> Binkley Cl. (Seg. 1) States Ave (Segments 1-3) Birch St (Segment 1) 47 <sup>th</sup> St (Segment 1)

# Implementation- Catalyst Sites + Phasing



### Riverside Hub

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 Infrastructure/Amenity Design  
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# Catalyst Sites + Phasing

## BUILD OUT-Development Summary

### Riverside Hub

#### DEVELOPMENT SUMMARY

	Retail + Commercial	74,850 SF
	Housing	42 Units
	Hotel	62 Rooms
	Street Improvements	1,788 LF
	Utilities Infrastructure	1,788 LF
	Bridgehead Plaza	35,000 SF
	Trails + Boardwalks	1,200 LF

Sterling Commercial

Sterling Highway

Mixed Use Housing + Commercial

New Street

River Street

Riverfront Townhome

River Street Retail

Mixed-Use Hotel, Restaurant & Retail

Trails + Boardwalks

Kenai River




Bridgehead Plaza

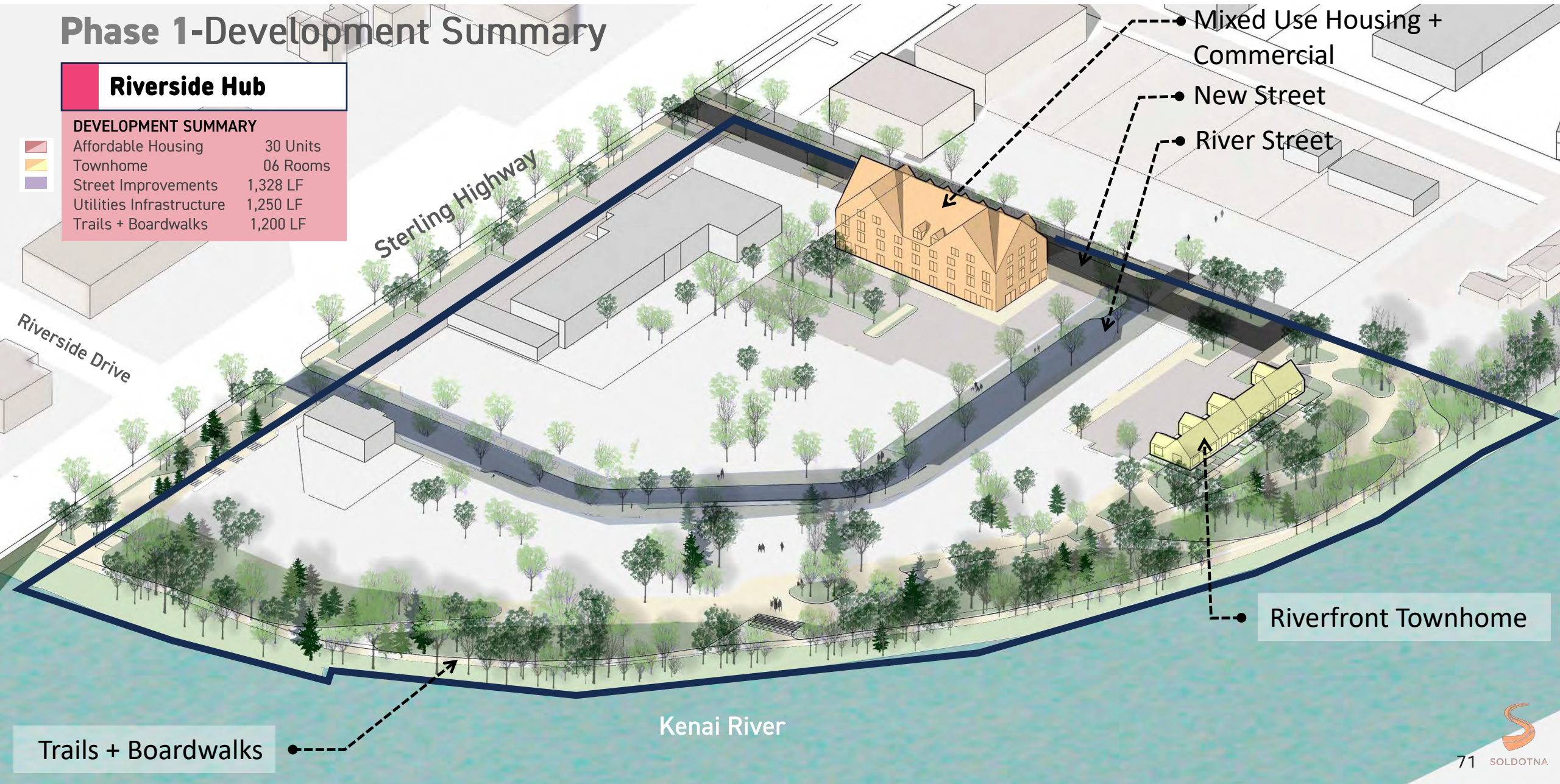
# Catalyst Sites + Phasing

## Phase 1-Development Summary

### Riverside Hub

#### DEVELOPMENT SUMMARY

	Affordable Housing	30 Units
	Townhome	06 Rooms
	Street Improvements	1,328 LF
	Utilities Infrastructure	1,250 LF
	Trails + Boardwalks	1,200 LF



• Mixed Use Housing + Commercial

• New Street

• River Street

• Riverfront Townhome

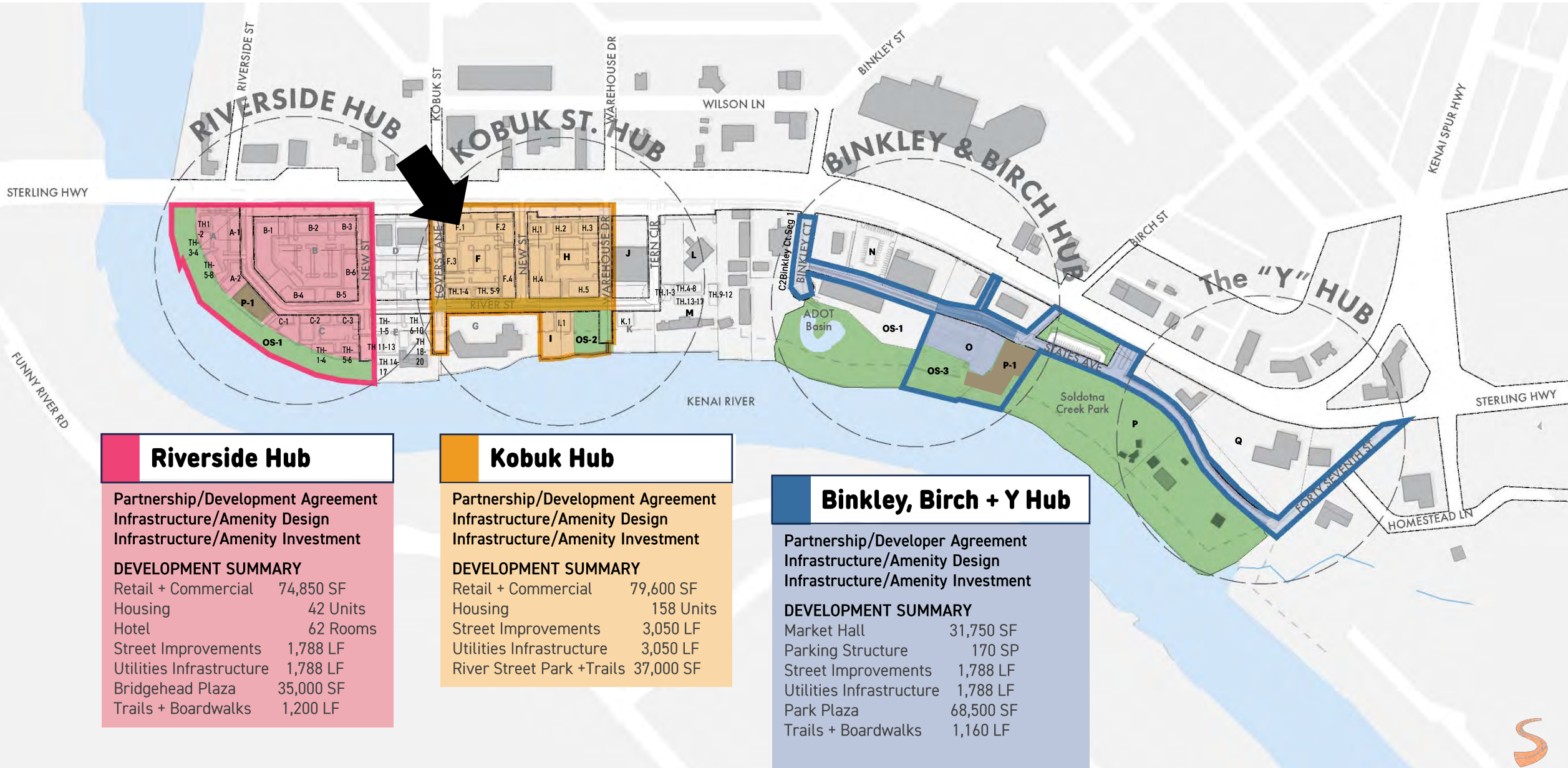
• Trails + Boardwalks

Kenai River

Sterling Highway

Riverside Drive

# Implementation- Catalyst Sites + Phasing



**Riverside Hub**

- Partnership/Development Agreement
- Infrastructure/Amenity Design
- Infrastructure/Amenity Investment

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Utilities Infrastructure	1,788 LF
Bridgehead Plaza	35,000 SF
Trails + Boardwalks	1,200 LF

**Kobuk Hub**

- Partnership/Development Agreement
- Infrastructure/Amenity Design
- Infrastructure/Amenity Investment

**DEVELOPMENT SUMMARY**

Retail + Commercial	79,600 SF
Housing	158 Units
Street Improvements	3,050 LF
Utilities Infrastructure	3,050 LF
River Street Park +Trails	37,000 SF

**Binkley, Birch + Y Hub**

- Partnership/Developer Agreement
- Infrastructure/Amenity Design
- Infrastructure/Amenity Investment

**DEVELOPMENT SUMMARY**

Market Hall	31,750 SF
Parking Structure	170 SP
Street Improvements	1,788 LF
Utilities Infrastructure	1,788 LF
Park Plaza	68,500 SF
Trails + Boardwalks	1,160 LF

# Catalyst Sites + Phasing

## BUILD OUT-Development Summary

### Kobuk Hub

#### DEVELOPMENT SUMMARY

Retail + Commercial	79,600 SF
Housing	158 Units
Street Improvements	3,050 LF
Utilities Infrastructure	3,050 LF
River Street Park + Trails	37,000 SF

New Street

Sterling Commercial

Mixed Use Housing + Commercial

Lovers Lane Enhanced

Warehouse Drive Ext.

Mixed Use Housing + Commercial

River Street

River Street Park + Trail

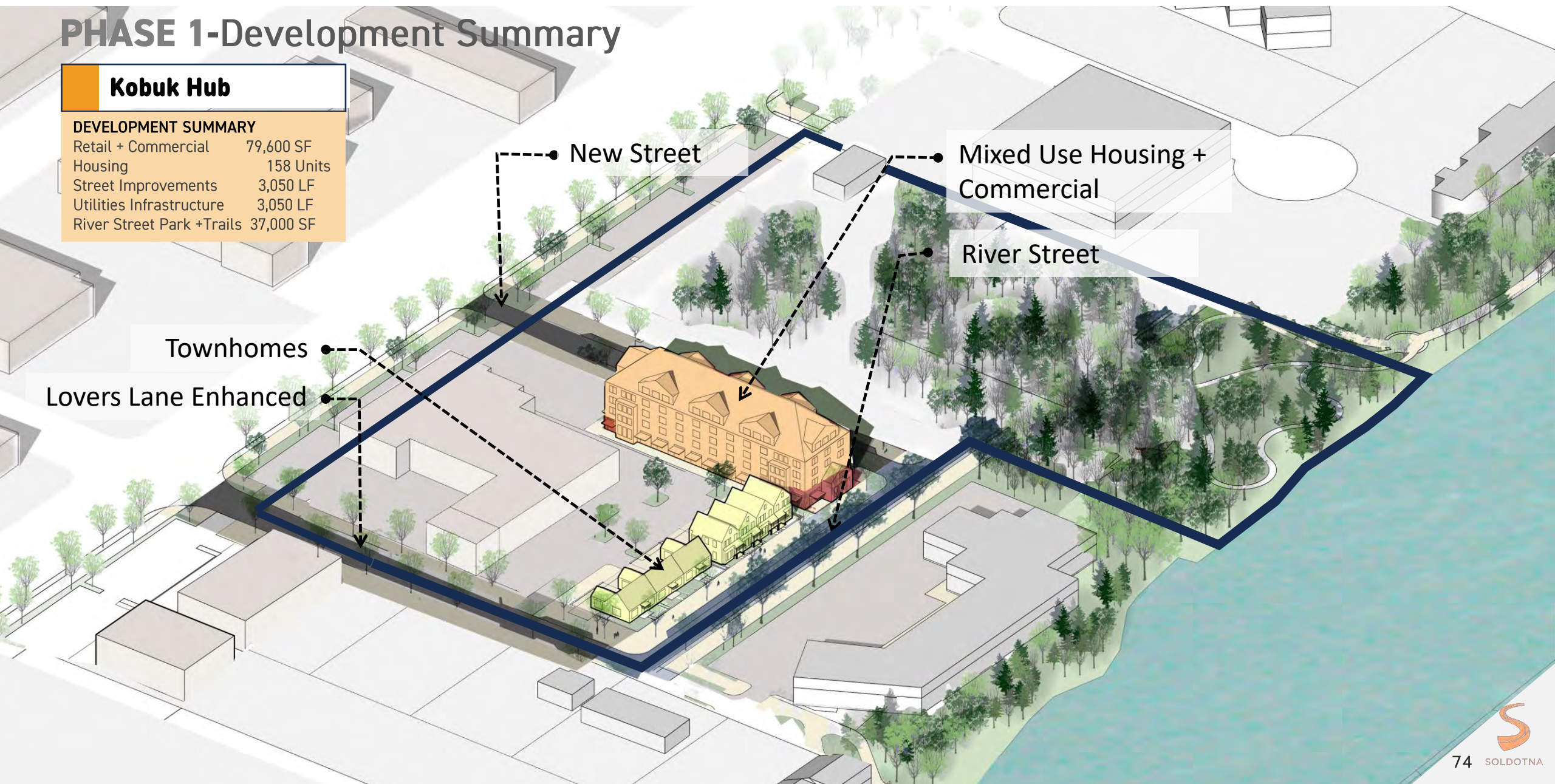
# Catalyst Sites + Phasing

## PHASE 1-Development Summary

### Kobuk Hub

#### DEVELOPMENT SUMMARY

Retail + Commercial	79,600 SF
Housing	158 Units
Street Improvements	3,050 LF
Utilities Infrastructure	3,050 LF
River Street Park + Trails	37,000 SF



New Street

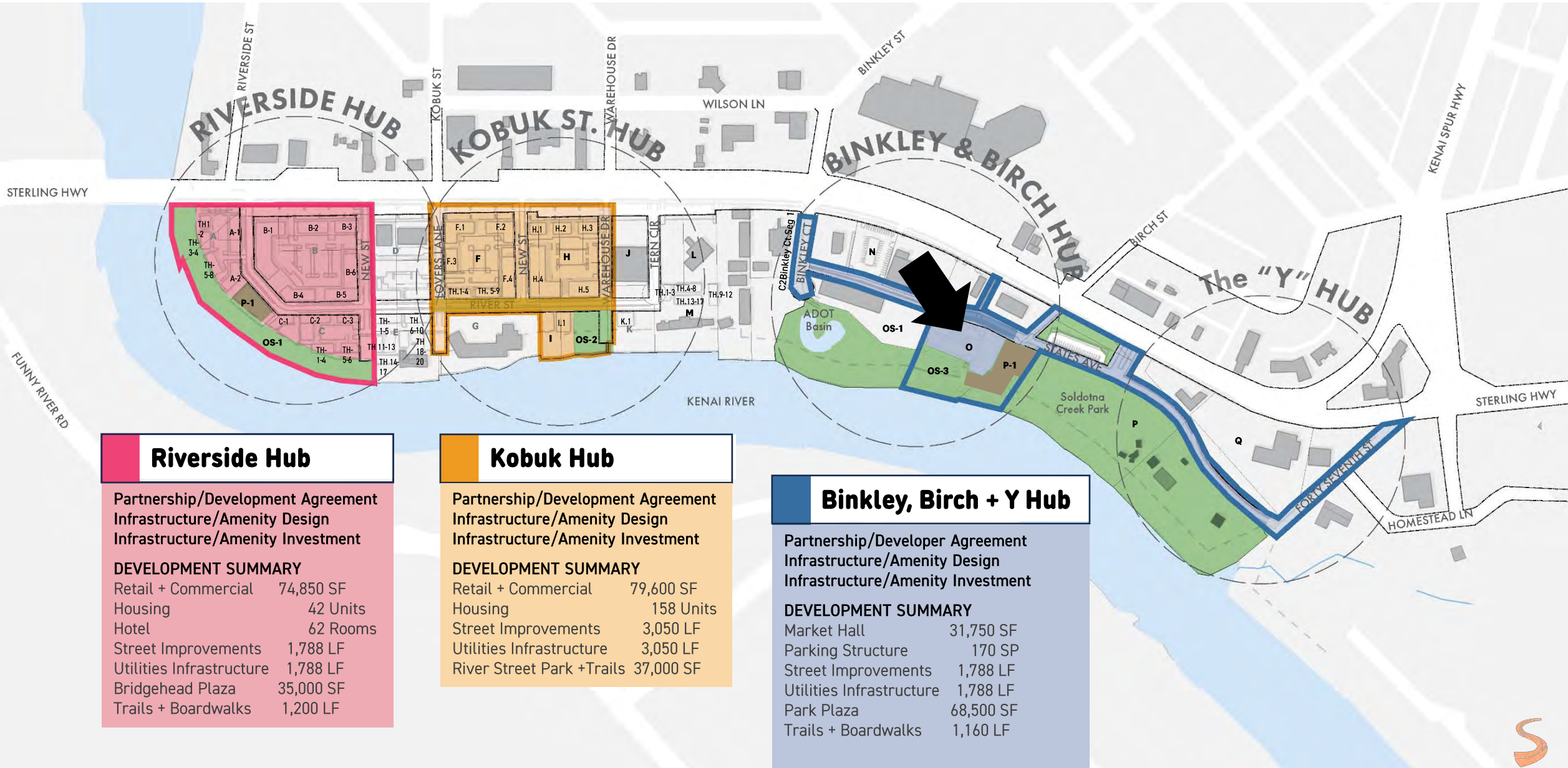
Mixed Use Housing + Commercial

River Street

Townhomes

Lovers Lane Enhanced

# Implementation- Catalyst Sites + Phasing



## Riverside Hub

Partnership/Development Agreement  
 Infrastructure/Amenity Design  
 Infrastructure/Amenity Investment

### DEVELOPMENT SUMMARY

Retail + Commercial	74,850 SF
Housing	42 Units
Hotel	62 Rooms
Street Improvements	1,788 LF
Utilities Infrastructure	1,788 LF
Bridgehead Plaza	35,000 SF
Trails + Boardwalks	1,200 LF

## Kobuk Hub

Partnership/Development Agreement  
 Infrastructure/Amenity Design  
 Infrastructure/Amenity Investment

### DEVELOPMENT SUMMARY

Retail + Commercial	79,600 SF
Housing	158 Units
Street Improvements	3,050 LF
Utilities Infrastructure	3,050 LF
River Street Park +Trails	37,000 SF

## Binkley, Birch + Y Hub

Partnership/Developer Agreement  
 Infrastructure/Amenity Design  
 Infrastructure/Amenity Investment

### DEVELOPMENT SUMMARY

Market Hall	31,750 SF
Parking Structure	170 SP
Street Improvements	1,788 LF
Utilities Infrastructure	1,788 LF
Park Plaza	68,500 SF
Trails + Boardwalks	1,160 LF

# Catalyst Sites + Phasing

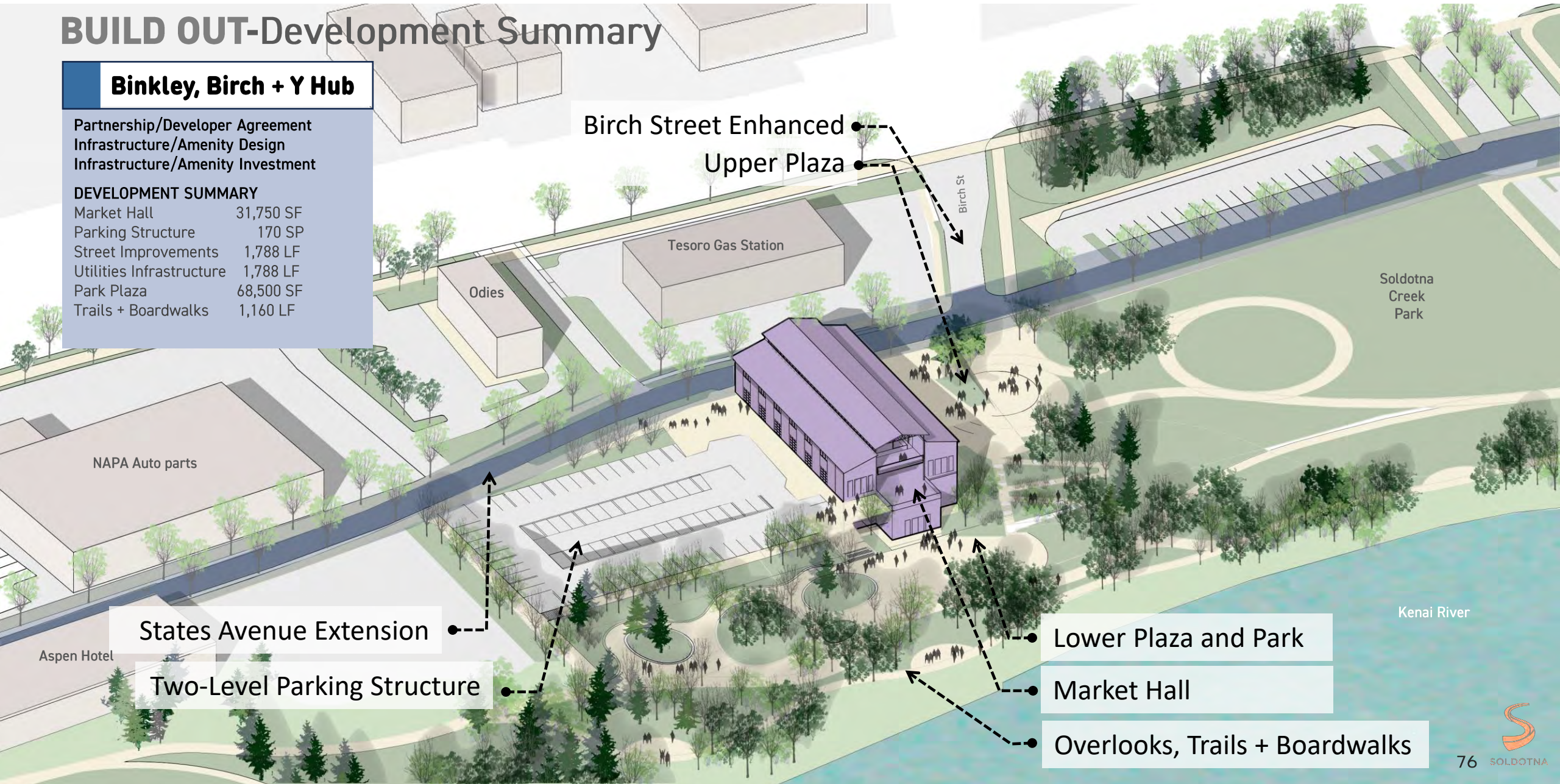
## BUILD OUT-Development Summary

### Binkley, Birch + Y Hub

Partnership/Developer Agreement  
 Infrastructure/Amenity Design  
 Infrastructure/Amenity Investment

#### DEVELOPMENT SUMMARY

Market Hall	31,750 SF
Parking Structure	170 SP
Street Improvements	1,788 LF
Utilities Infrastructure	1,788 LF
Park Plaza	68,500 SF
Trails + Boardwalks	1,160 LF



Birch Street Enhanced  
 Upper Plaza

Tesoro Gas Station

Odies

Soldotna  
 Creek  
 Park

NAPA Auto parts

Kenai River

States Avenue Extension

Lower Plaza and Park

Aspen Hotel

Two-Level Parking Structure

Market Hall

Overlooks, Trails + Boardwalks

# Catalyst Sites + Phasing

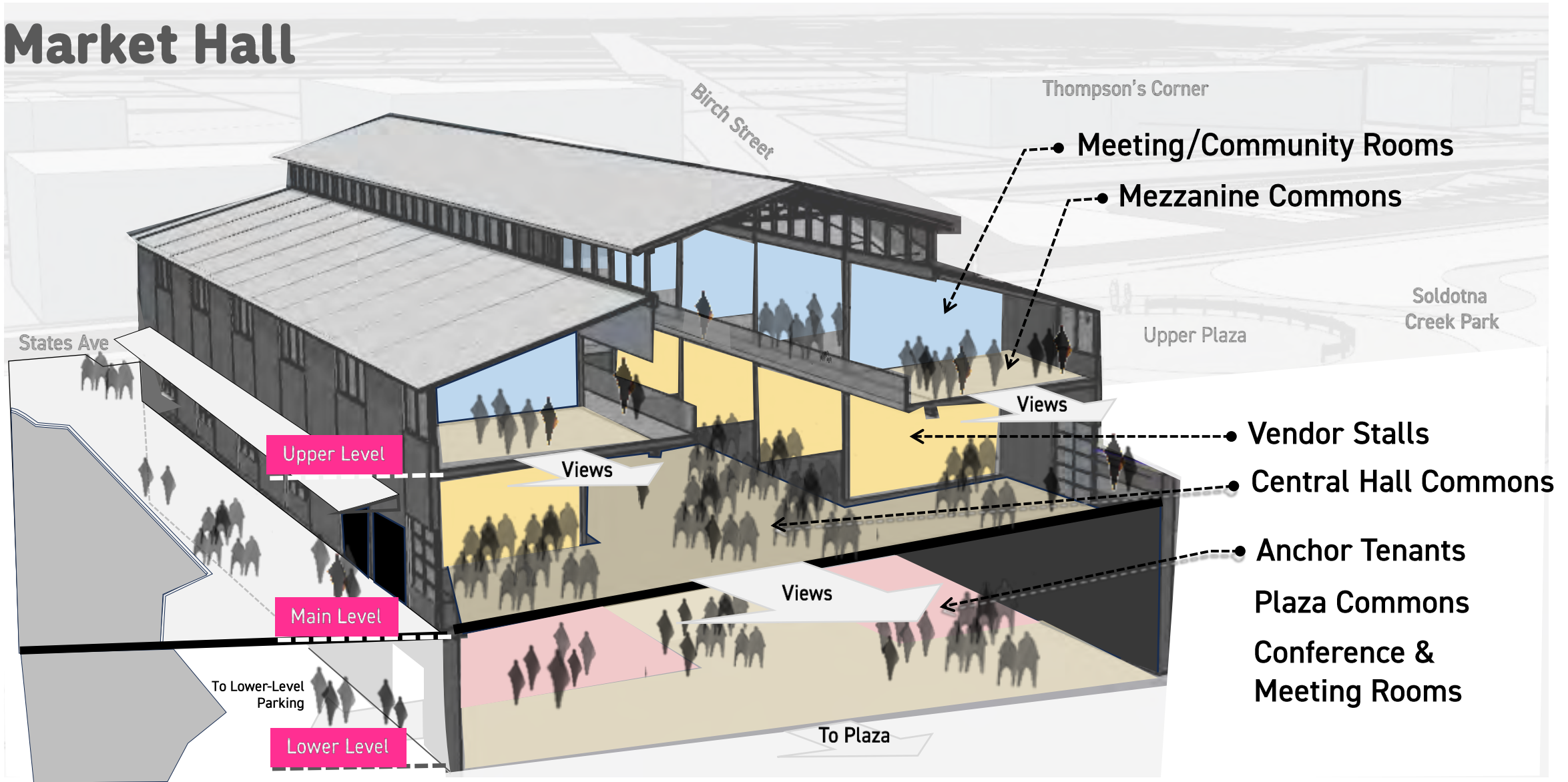
## Market Hall





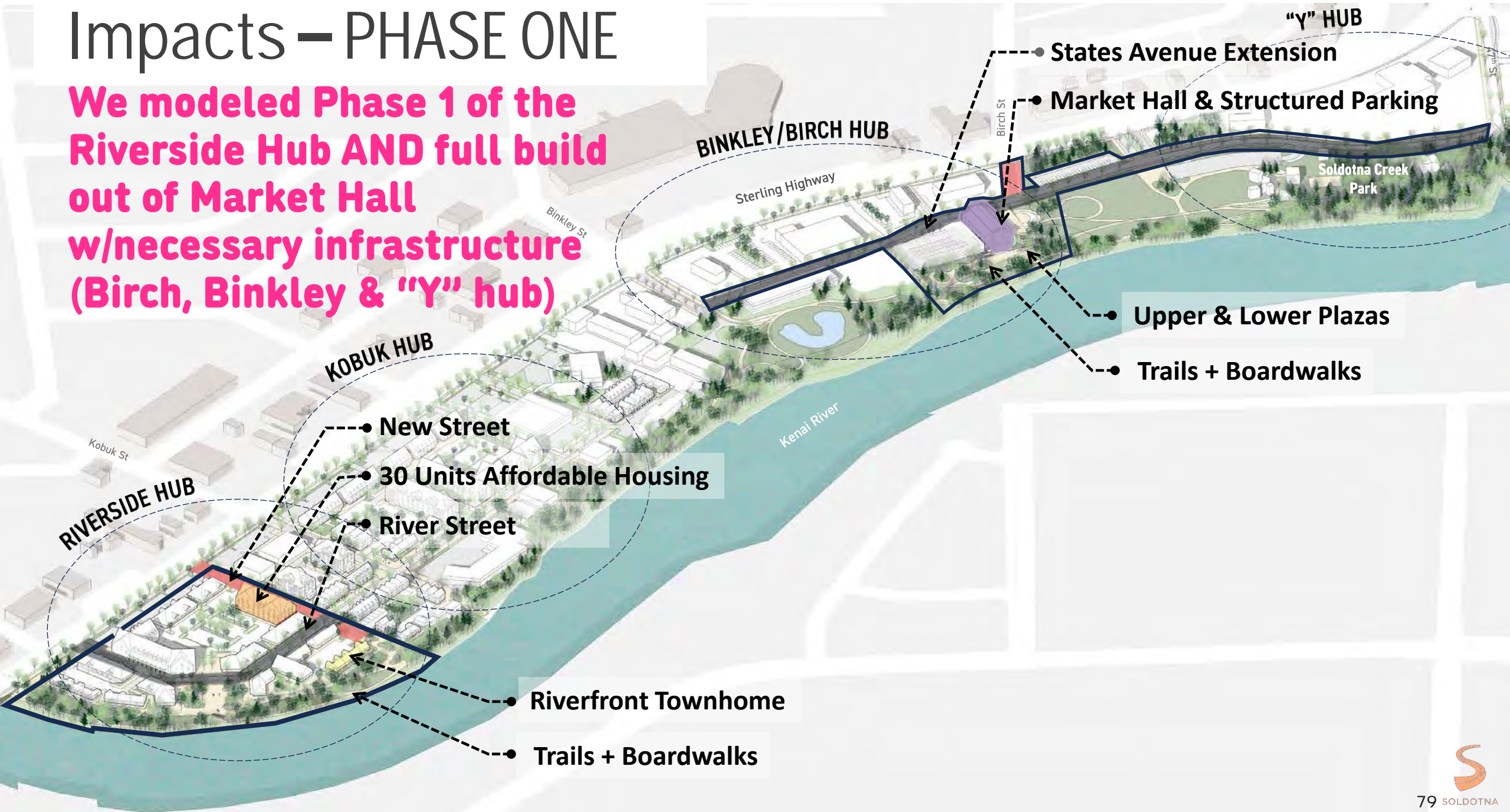
# Catalyst Sites + Phasing

## Market Hall



# Impacts – PHASE ONE

**We modeled Phase 1 of the Riverside Hub AND full build out of Market Hall w/necessary infrastructure (Birch, Binkley & "Y" hub)**



# Impacts – PHASE ONE

## **We modeled Phase 1 of the Riverside Hub AND full build out of Market Hall w/necessary infrastructure (Birch, Binkley & “Y” hub)**

- River Street and New Street
  - Improves safety, accessibility, multi-mobility
  - New opportunities for private development
- Trail and Boardwalk
  - Enhances access to the riverfront
- Affordable Housing: 30 Units
  - Affordable for those who work and live in Soldotna; additional customers
- Townhomes: 6 Units
  - Brings private investment to the area; additional customers
- Market Hall
  - 18-23 affordable retail stalls, supports the business development pipeline, community gathering space

# Impacts – PHASE ONE

Preliminary results

## We modeled Phase 1 of Catalyst Site 1 AND full build out of Market Hall w/necessary infrastructure

### Total Construction Impacts over 5-Year Buildout

- 572 total jobs
  - Direct: 430 jobs
  - Secondary: 142 jobs
- \$28.6 million in labor income
  - Direct: \$23 million
  - Secondary: \$5.6 million
- \$1.4 million in total taxes
  - Local & state
- Development to Infrastructure Ratio: 3.6
  - Every \$1.00 spent on infrastructure would support \$3.60 in development

\*The City may choose to financially support the market hall and/or affordable housing

\*Infrastructure is necessary to attract private development but does not guarantee development

# Implementation Steps – Phase One



# Implementation

## Funding Sources

### Local, Public Revenue Sources

- General Fund
- Establish new source
  - Transient Occupancy Taxes
  - Urban Renewal
  - Special Assessment District
  - Bonds
  - Development Driven Sources (SDC, CET)
  - User Fees

### Grants and Loans

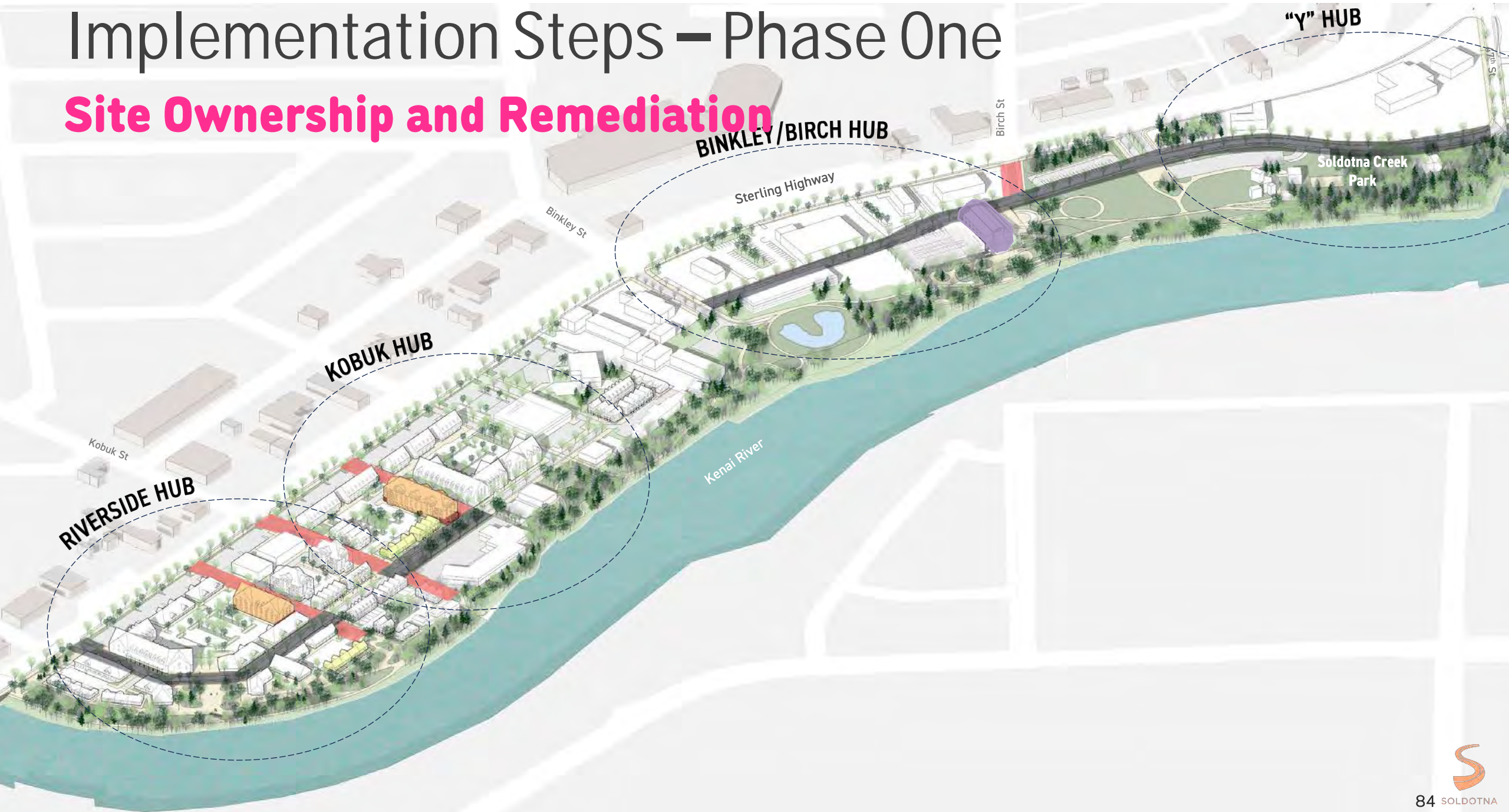
- State (Transportation, Natural Resources, Commerce, etc.)
- Federal (USDOT, EDA, EPA, USDA, HUD)
- Foundations (Rasmuson Foundation, Kenai Peninsula Foundation, AARP)

### Philanthropy

- Fundraising, sponsorship, naming rights

# Implementation Steps – Phase One

## Site Ownership and Remediation



# Implementation Steps – Phase One

## Site Ownership and Remediation

### Do First

#### ANSWER CRITICAL QUESTIONS

- Are you purchasing the land or partnering with the owner?
- Does the site require remediation?

#### IF THE SITE REQUIRES REMEDIATION

- Seek federal grant funding to support remediation (EDA, EPA)



# Implementation Steps – Phase One

## Infrastructure, Utilities, Trails

### Do First

- Identify and prioritize catalytic infrastructure projects
- Secure funding through grants or CIP for 30% construction of Phase 1 infrastructure, utilities, trails
- Complete 30% construction documentation for roadway, utilities, boardwalk, and trail design

### Do Second

- Obtain right of way
- Secure funding through grants or CIP for 100% construction
- Complete 100% construction documentation and prepare bid package
- Select contractor
- Complete permitting and construction

# Implementation Steps – Phase One

## Affordable Housing



Affordable Housing

# Implementation Steps – Phase One

## Affordable Housing

### Do First

#### ANSWER CRITICAL QUESTIONS

- Agree that affordable housing is a priority
- Consider the City's preferred role (initially and ongoing) as well as the City's stretch role
- Evaluate the City's capacity and interest (move forward or stop here)

#### IF THE CITY MOVES FORWARD

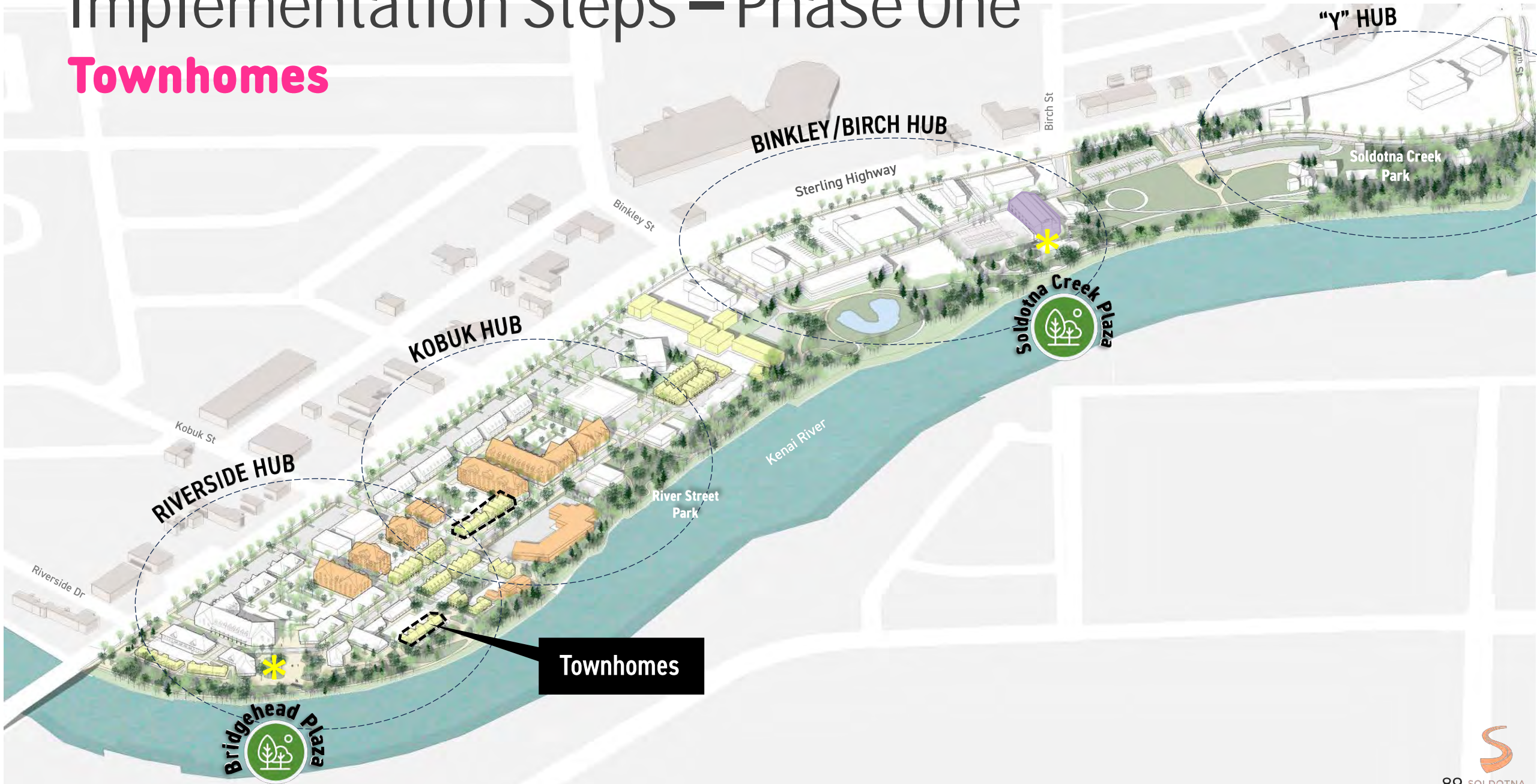
- Assign a City Project Manager
- Spread the word to potential partners and funders

### Do Second

- Conduct site analysis (including infrastructure needs)
- Assign site(s)
- Determine City funding capacity (and other federal and state sources the City can leverage)
- Conduct solicitation for affordable housing project (if on City-held site)
- Build needed infrastructure, if any (note: potential CDBG usage if Consolidated Plan allows for it and affordable housing is a designated use for the site)

# Implementation Steps – Phase One

## Townhomes



# Implementation Steps – Phase One

## Townhomes

### Do First

#### ANSWER CRITICAL QUESTIONS

- Agree that townhomes are a priority for phase 1
- Consider the City's preferred and stretch role
- Evaluate the City's capacity and interest

#### IF THE CITY MOVES FORWARD

- Assign a City Project Manager
- Continue conversations with property owners to understand needs and goals
- Evaluate site assemblage and/or redevelopment opportunities (inc. infrastructure needs, if any)

### Do Second

#### IF CITY PROPERTY:

- Conduct any site remediation needed
- Evaluate infrastructure needs, if any, and determine phasing
- Conduct developer solicitation

#### IF PRIVATE PROPERTY

- Evaluate infrastructure needs, if any
- Determine City role, if any, in matchmaking with developers, infrastructure investment, etc.

# Implementation Steps – Phase One

## Market Hall



# Implementation Steps – Phase One

## Market Hall

### Do First

#### ANSWER CRITICAL QUESTIONS

- Agree on purpose and objectives of market hall
- Consider the City's preferred role in development and ongoing operations
- Evaluate the City's capacity and interest

#### IF THE CITY MOVES FORWARD

- Assign a City Project Manager
- Conduct programming and location analysis
- Conduct a preliminary fundraising analysis
- Seek or provide next phase project funding
- Evaluate potential operator options

### Do Second

- Form stakeholder “Blue Ribbon” committee
- Determine preferred site
- Identify operator (organization or individual)
- Refine programming and conduct preliminary design
- Obtain cost estimate
- Develop fundraising plan

# Economic Impacts

## Full Buildout





# Economic Impacts

Preliminary results

## Full Buildout (inclusive of Phase 1)

### Total Construction Impacts over Full Buildout

- 2,070 total jobs
  - Direct: 1,550 jobs
  - Secondary: 520 jobs
- \$110 million in labor income
  - Direct: \$88 million
  - Secondary: \$22 million
- \$5.1 million in total taxes
  - Local & state
- Development to Infrastructure Ratio: 5.3
  - Every \$1.00 spent on infrastructure would support \$5.30 in development

\*The City may choose to financially support the market hall and/or affordable housing

\*Infrastructure is necessary to attract private development but does not guarantee development

# Soldotna Downtown Riverfront Redevelopment Plan Appendices

## **APPENDIX A: PROJECT INITIATION**

- A.1 Environmental Review
- A.2 Market Analysis
- A.3 Transportation Conditions Assessment
- A.4 Parks and Trails Considerations

## **APPENDIX B: BUILD THE VISION**

- B.1 Preliminary Development Concepts
- B.2 Utilities Impacts Analysis
- B.3 Traffic and Safety Impacts Analysis
- B.4 Market Hall Case Studies
- B.5 Market Hall Assessment
- B.6 Development Feasibility Analysis

## **APPENDIX C: MASTER PLAN**

- C.1 Development Summary
- C.2 Business Case- 20-Year Build-out
- C.3 Development Strategy
- C.4 Streets, Sterling Trail and Utilities Cost Estimate
- C.5 Plazas and Parks Cost Estimate

## **APPENDIX D: COMMUNITY ENGAGEMENT**

- D.1 Community Engagement Plan
- D.2 Project Advisory Committee Plan
- D.3 Engagement Milestone #1 Objectives and Vision
- D.4 Engagement Milestone #2 Preliminary Concepts
- D.5 City Council Work Sessions

## **▶ APPENDIX E: DRAFT MIXED USE ZONING**

- E.1 Draft Downtown Riverfront Mixed-Use District**

# APPENDIX E: DRAFT MIXED USE ZONING

## E.1 Downtown Riverfront Mixed Use District

**Document:** Downtown Riverfront Mixed Use District. FIRST FORTY FEET

**Description:** *This document includes a number of draft regulations and regulatory concepts that may be appropriate for Soldotna's redevelopment area. It incorporates ideas from many other municipalities and is not a finished product.*

# Downtown Riverfront Mixed Use District

## 17.10.XXX

### Purpose.

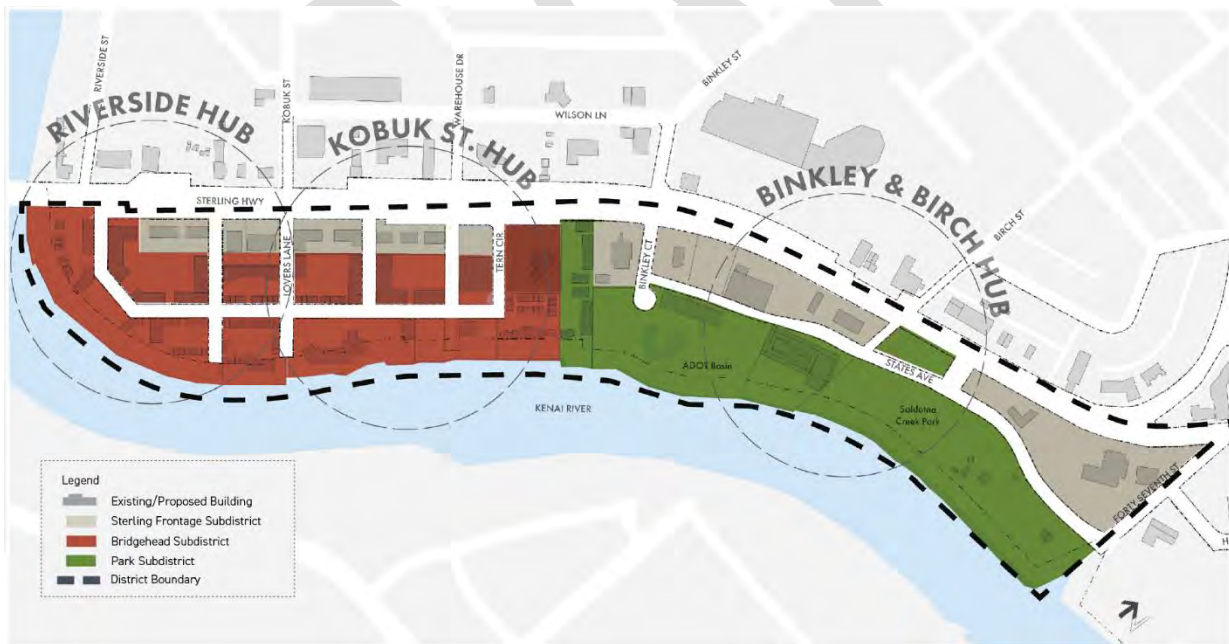
The Soldotna Downtown Riverfront Mixed Use District is envisioned as a one-of-a-kind riverfront experience that attracts locals and tourists with shopping, dining, & lodging in a walkable environment, highlights and incorporates the Kenai River with the Downtown, while increasing the inventory of developable commercial land to support local businesses, business expansion and attract new entrepreneurs to the community. The district is intended to support a sustainable, healthy, equitable, accessible and active environment, and includes a mix of complementary uses, engaging public gathering spaces, diverse housing options affordable to a wide range of community members and safe multimodal travel opportunities within the district and to adjacent commercial areas as well as to the Kenai Riverfront and nearby neighborhoods. The purpose of the Downtown Riverfront Mixed Use (DRMU) district is to implement the vision, goals, and policies of the Soldotna Downtown Riverfront Redevelopment Plan, and ensure future development is integrated, cohesive, context sensitive and contributes to the overall district vision. (Ord. No.)

## 17.10.XXX

### Applicability.

These standards apply to the properties within the subdistrict areas shown on Figure XX.XXX-1. These standards shall be in addition to other applicable standards of Soldotna Municipal Code or state law and shall supersede those standards where they conflict.

Figure XX.XXX-1. District and Sub-District Map (Ord. No.)



## 17.XXX.XXX

### Regulation of Uses.

A. Uses are allowed as specified in Table 17.XXX-X and as shown in Figure 17.XXX-X, subject to standards and guidelines for Downtown Riverfront District established in this chapter.

<b>Table 17.XXX-X Downtown Riverfront Mixed Use District Primary Uses</b>									
<b>Use Categories</b>	<b>Bridgehead Subdistrict</b>			<b>Park Subdistrict</b>			<b>Sterling Frontage Subdistrict</b>		
	<b>C-T1</b>	<b>C-T2</b>	<b>MRC</b>	<b>C-T1</b>	<b>C-T2</b>			<b>C-T2</b>	
<b>Residential Categories</b>									
Multifamily	Y	Y	Y	Y	Y			Y	
Townhome	N	N	Y	N	N			N	
Live/Work	N	Y	Y	Y	Y			Y	
<b>Commercial Categories</b>									
Retail Sales And Service	Y	Y	L	Y	Y			Y	
Office	L	Y	L	L	Y			Y	
Lodging	Y	Y	N	Y	Y			Y	
Quick Vehicle Servicing	N	L [X]	N	L [1]	Y			Y	
Guide services	N	Y	N	Y	Y			Y	
Vehicle Repair	N	N	Y	Y	Y				
Auto Related Sales, Services & Detailing	N	L(X)	N	N	L(X)			L(X)	
Drive-Thru	N	L(X)	N	N	L(X)			L(X)	
Commercial Parking	N	L(X)	N	L(8)	L(X)				
Self-Service Storage	N	N	N	N	N			N	
Commercial Outdoor Recreation	N	N	L(X)	N	L(X)			L(X)	
Commercial Indoor Recreation/Fitness	N	Y	N	N	Y			Y	
Major Event Entertainment	N	N	CU	CU	CU				
<b>Industrial Categories</b>									
Manufacturing and Production	N	L(X)	N	N	L(X)			L(X)	
Warehouse and Freight Movement	N	N	N	N	N			N	
Wholesale Sales	N	L(X)	N	N	L(X)			L(X)	
Industrial Service	N	L(X)	N	N	N			N	
Bulk Fossil Fuel Terminal	N	N	N	N	N			N	
Waste-Related	N	N	N	N	N			N	
<b>Institutional Categories</b>									
Basic Utilities	Y/CU [7]	Y/CU [7]	Y/CU [7]	Y/CU [7]	Y/CU [7]				
Community Service/Clubs/Centers	N	Y	N	L(X)	Y			Y	
Parks and Open Areas	Y	Y	Y	Y	Y			N	
Schools	Y	Y	N	Y	Y			Y	
Colleges	N	Y	N	Y	Y			Y	
Medical Centers/Clinics/Offices	N	Y	N	N	Y			Y	
Religious Institutions	N	Y	N	Y	Y				
Daycare	N	Y	L(X)	N	Y			Y	
Museums and art galleries	N	Y	N	L(X)	Y			Y	
<b>Other Categories</b>									

Y = Yes, Allowed

CU = Conditional Use Review Required

B. Ground Floor Use Regulation by Frontage Type. Ground floor uses shall be regulated by frontage type as shown in Figure 17.XXX-X.

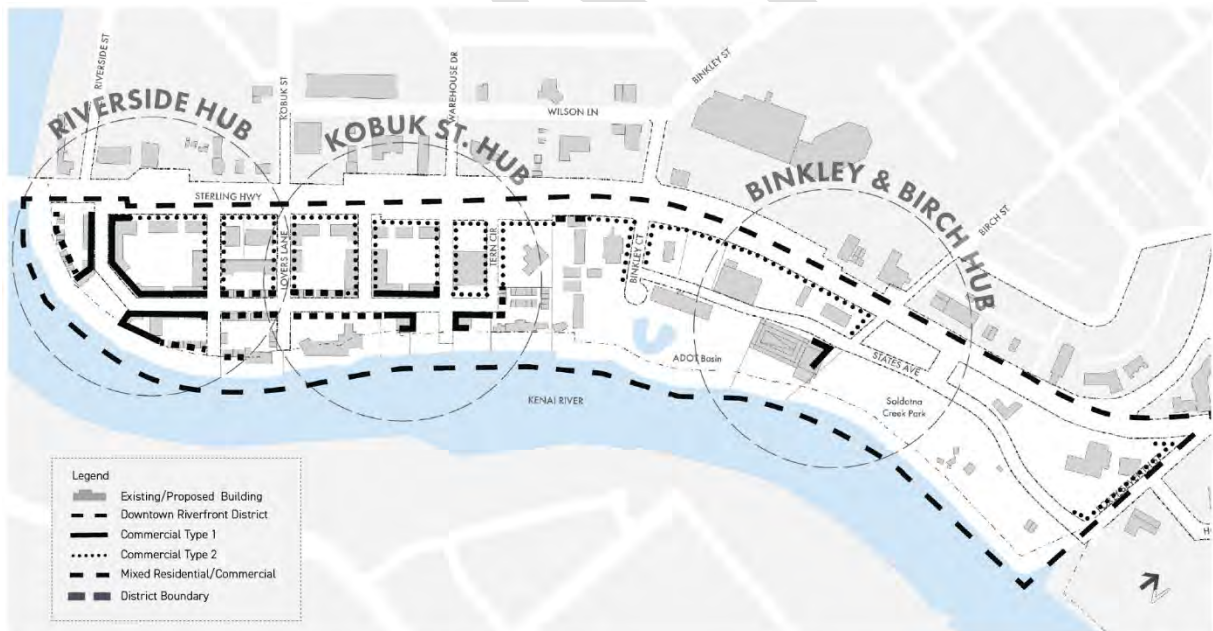
L = Allowed, But Special Limitations

N = No, Prohibited

1. Commercial-Type I frontage:

- a. The following commercial uses are allowed—sales-oriented retail; eating, drinking and entertainment establishments; fitness center and community center.
  - b. Residential and office uses prohibited except lobbies and entrances associated with upper story uses are allowed but limited to 25% of the total length of the street frontage.
  - c. Institutional and industrial uses prohibited.
  - d. Storage units and outdoor storage prohibited.**
- • 2. *Commercial-Type 2 frontage:*
    - a. All institutional and commercial uses, including office uses, allowed.
    - b. Residential uses are excluded other than residential lobbies and entrances associated with upper story residential uses are allowed but limited to 25% of the total length of the street frontage.
    - c. Industrial uses prohibited.
    - d. Storage units and outdoor storage prohibited.
- 3. *Mixed Residential/Commercial frontage:*
    - a. Residential and live/work uses allowed.
    - b. Commercial uses allowed but limited to no more than 25% of the total length of street frontage.
    - c. Industrial and institutional uses prohibited.
    - d. Storage units and outdoor storage prohibited

**Figure 17.XXX-X. Ground Floor Use Map (Ord. No.)**



C. Live/work uses and standards. “Live/work” means a commercial space where residential and commercial uses are combined and where the dwelling unit is the principal residence of the business operator/proprietor.

1. *Uses.*

- a. *Live/work uses are permitted where commercial uses are permitted in Bridgehead sub-district of the HX district.*
- b. *The following commercial uses are prohibited in live/work units:*

- i. Any use not permitted in the Downtown Riverfront Mixed Use (DRMU) district, as specified in Table 17.XXX-X;
  - ii. The retail sale of food and/or beverages with customers arriving on site. This does not include online (Internet) sales, mail order, or off-site catering preparation;
  - iii. Entertainment, drinking, and public eating establishments;
  - iv. Veterinary services, including grooming and boarding, and the breeding or care of animals for hire or for sale;
  - v. Businesses that involve the use of prescription drugs.
- c. *A live/work unit is allowed instead of, or in addition to, a home occupation.*
  - d. *The residential and the commercial space must be occupied by the same tenant, and no portion of the live/work unit may be rented or sold separately.*
2. *Standards.*
- a. *The commercial use may occupy a maximum of 50 percent of the unit floor area;*
  - b. *Residential uses are permitted above, to the side, or in back of the commercial use; provided, that there is internal access between the residential and commercial uses;*
  - c. *Signage intended to promote on-site commercial uses shall be restricted to two-square-foot signs permanently affixed to door or wall of the commercial use;*
  - d. *No more than one employee (excluding residents of the dwelling unit) shall work or report to work on the premises, and the employment of any persons who do not reside in the live/work unit shall comply with all applicable building code requirements;*
  - e. *Off-site impacts of the commercial use, such as noise, glare, and vibration, shall be subject to city performance standards; and*
  - f. *Explosive, toxic, combustible, or flammable materials in excess of what is allowed incidental to permitted residential uses shall not be stored or used on the premises. (Ord. No.)*

**17.XXX.XXX**

**Design and Development Standards.**

**A. MASSING AND SCALE.**

- 1. *Residential Density. The minimum residential densities in Table 17.XXX.XXX-X shall apply in the DRMU district.*

**Table 17.XXX.XXX-X. Minimum Residential Density**

<b>Sub-District</b>	<b>Minimum Density</b>
Bridgehead-River Street to Kenai River Riparian Setback	6 dwelling units/acre
Bridgehead	24 dwelling units/acre
Park	0 dwelling units/acre
Sterling Frontage	0 dwelling units/acre

2. *Building Heights.* The building height standards in Table 17.XXX.XXX-X shall apply in the DRMU district.

**Table 17.XXX.XXX-X. Maximum Building Heights**

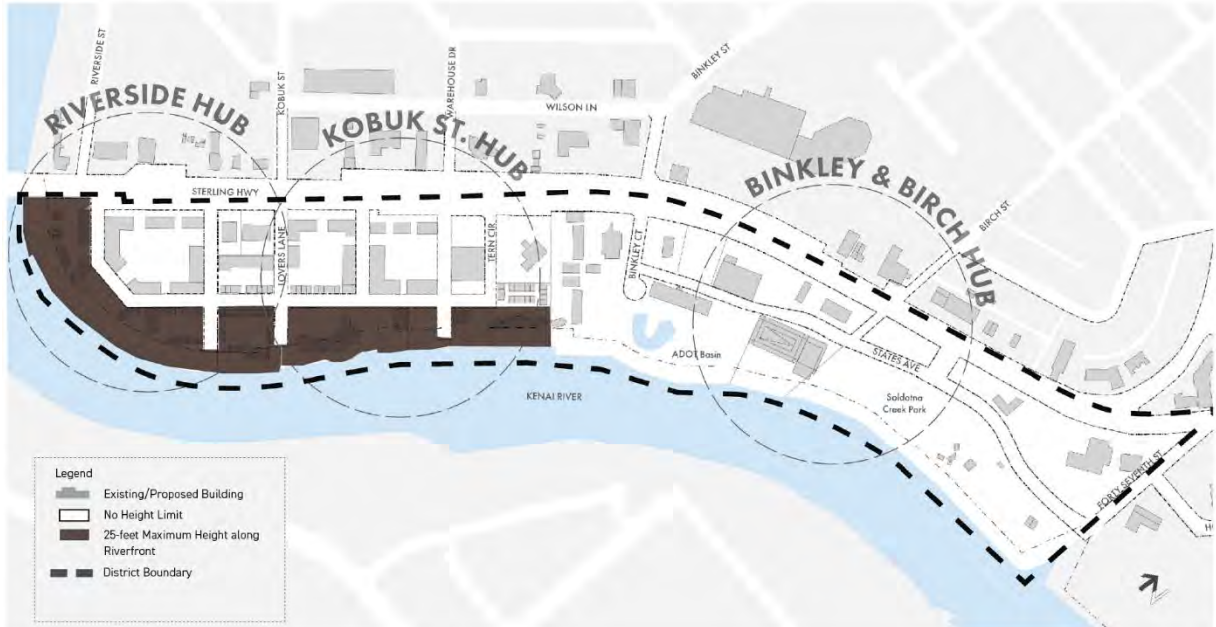
<b>Sub-District</b>	<b>Maximum Height</b>
Bridgehead-River Street to Kenai River Riparian Setback	25-feet Limit abutting Riparian Setback Zone
Bridgehead	No Height Limit
Park	No Height Limit
Sterling Frontage	No Height Limit

Note: For the Downtown Riverfront Mixed Use (DRMU) district, abutting is defined as a building adjacent to or fronting the 100' Riparian Setback Zone.

DRAFT



**Figure 17.XXX-X. Building Heights Map (Ord. No.)**



3. *Height exceptions. Height limitations set forth in this chapter and elsewhere in this title shall apply to the following in the DRMU district:*
  - a. *Parapets and railings. Parapets and rooftop railings may extend four feet above the maximum height limit;*
  - b. *Walls or fences located between individual rooftop decks may extend six feet above the maximum height limit if the wall or fence is set back at least four feet from the edges of the roof;*
  - c. *Rooftop mechanical equipment, any required screening for the mechanical equipment, and stairwell enclosures that provide rooftop access may extend above the maximum height limit as follows, with the requirement that the equipment and enclosures must be set back at least 15 feet from roof edges on river-facing façades:*
    - i. *Elevator mechanical equipment may extend up to 16 feet above the maximum height limit; and*
    - ii. *Other mechanical equipment, required screening, and stairwell enclosures may extend up to 10 feet above the maximum height limit.*
  - d. *Roof-mounted solar energy production equipment may extend up to three feet above the maximum height limit; and*
4. *Building façades. Building façades shall not exceed 165 feet in length without an intervening break.*
5. *Build to Line.*
  - a. *Building shall comply with the provisions of Soldotna Code(?) that describe building lines provisions for street frontages except no portion of the structure shall extend into the right-of-way except as specified in subsection (E)(2) of this section. Residential uses may include setbacks per subsection (C)(2) of this section.*

b. *Setbacks for Pedestrian Amenities.* Setbacks up to 10 feet for up to 50 percent of the building frontage are allowed if the setback is used for a walkway, plaza, courtyard, or other pedestrian-oriented amenity or public space.

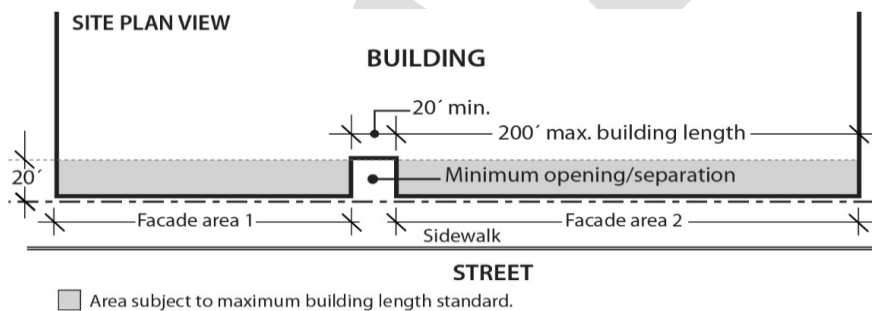
6. *Ground floor plane.* For buildings four stories and above, the maximum ground floor plate area shall not exceed 16,000 square feet. An option to this standard is to demonstrate significant massing breaks in the building façade to include recessed breaks and ground plane openings as pedestrian connections.

## B. BUILDING LENGTH, MODULATION AND FAÇADE ARTICULATION.

*Purpose.* These standards, along with the height and setback standards, limit the bulk of buildings close to the street. These standards help ensure that large buildings will be divided into smaller components that relate to the scale and patterns of Soldotna’s commercial/mixed-use areas and add visual interest and variety to the street environment.

1. *Maximum building length.* The maximum building length for the portion of a building located within 20 feet of a street lot line is 200 feet. The portions of buildings subject to this standard must be separated by a minimum of 20 feet when located on the same site. See Figure 17.XXX-X

**Figure 17.XXX-X Maximum Building Length**

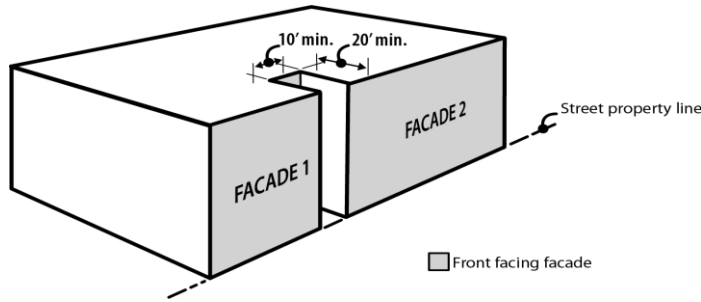


### 2. *Façade Articulation*

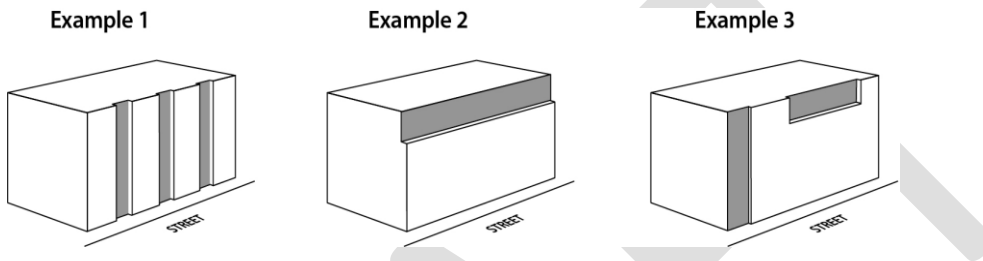
a. Portions of building facades that are vertically separated by a gap of at least 10 feet in width extending at least 20 feet in depth from the street property line are considered to be separate facade areas for the purposes of the facade area measurements. See Figure 17.XXX-X Façade Articulation-Division

b. The standard. At least 25 percent of the area of a street-facing facade within 20 feet of a street lot line must be divided into facade planes that are off-set by at least 2 feet in depth from the rest of the facade. Facade area used to meet the facade articulation standard may be recessed behind or project out from the primary facade plane, but projections into street right-of-way do not count toward meeting this standard. See Figure 17.XXX-X Façade Articulation-Recesses.

**Figure 17.XXX-X Façade Articulation- Division**



**Figure 17.XXX-X Facade Articulation- Recesses**



3. *Ground floor transparency.* Buildings with ground floor commercial and residential uses visible from the street or public areas such as parks shall have a minimum percentage of ground level façade transparency between two feet and eight feet above sidewalk grade as specified in Table 17.XXX-X *Ground-floor Transparency* requirements for frontage types indicated in Figure 17.XXX-X. *Ground Floor Use Map*

**Table 17.XXX-X. Ground-Floor Transparency**

<b>Frontage Type</b>	<b>Ground-floor Percent Transparency between 2 feet and eight feet above sidewalk grade</b>
<i>Commercial- Type 1</i>	75%
<i>Commercial- Type 2</i>	50%
<i>Mixed Residential/Commercial</i>	25% Residential; 50% Commercial and Live/Work

4. *Ground floor to floor height.* The ground floor of commercial buildings shall have a minimum of 16 feet building floor to floor height.
5. *Modulation.* A minimum building modulation along the façade shall be one foot in depth and the minimum width shall be five feet.
6. *Building entry.* Main entrances shall be easily identifiable through the use of building articulation and modulation. Avoid recessed doorways to provide high visibility from the public way.

**C. ENTRANCES.**

1. *Ground floor window and frontage standards for dwelling units.* The ground floor wall area of street-facing facades of dwelling units that are 20 feet or closer to a street lot line must meet at least one of the following standards:

*a. Flexible ground floor design.* The ground floor window standard of Subparagraph B.2.a(1) must be met, and the ground level of the building must be designed and constructed as follows:

- (1) The distance from the finished floor to the bottom of the ceiling structure above must be at least 12 feet. The bottom of the structure above includes supporting beams;
- (2) The area meeting this standard must be at least 25 feet deep, measured from the street-facing facade; and
- (3) Each unit must include a front entrance that is located at the level of the finished grade and can be accessed without steps.

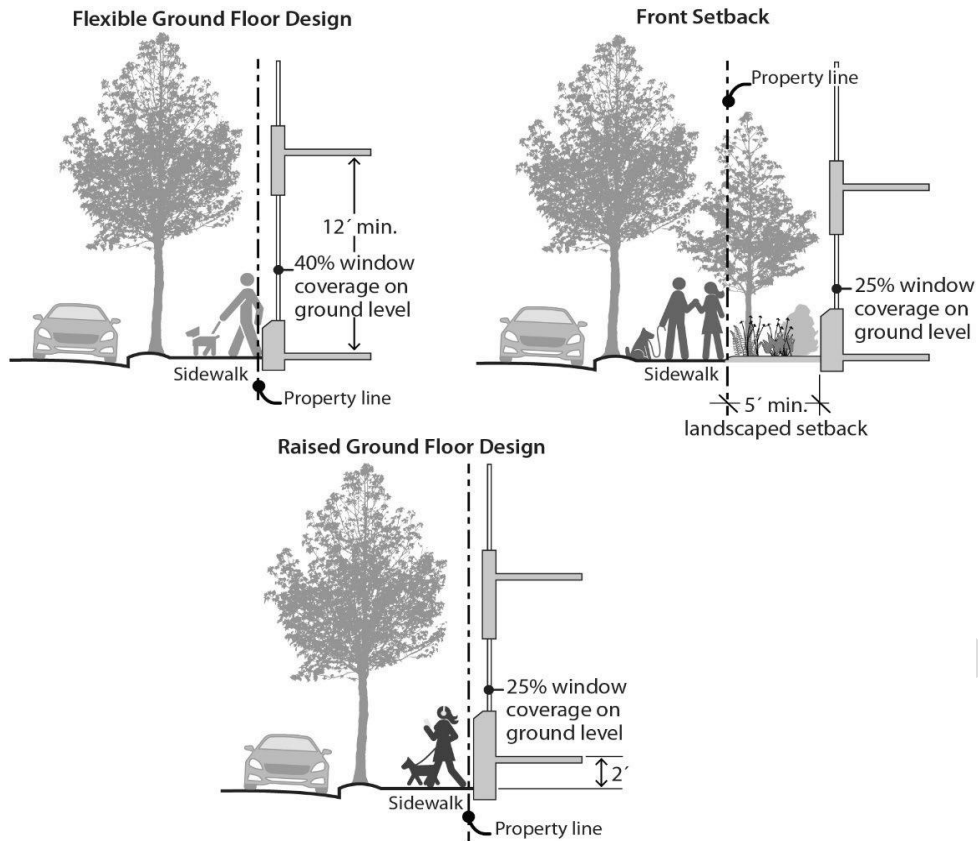
*b. Front setback.*

- (1) The portions of the building with residential dwelling units on the ground- floor must be set back at least 5 feet from the street lot line. The setback must be landscaped to at least the L1 level and/or hard-surfaced for use by pedestrians; and
- (2) Windows must cover at least 25 percent of the ground level wall area of the portion of the building with residential dwelling units on the ground-floor.

*c. Raised ground floor.*

- (1) The portion of the building with residential dwelling units on the ground- floor must have the finished floor of each residential unit at least 2 feet above the grade of the closest adjoining sidewalk.
- (2) Window must cover at least 25 percent of the ground level wall area of the portion of the building with residential dwelling units on the ground-floor.

**Figure 17.XXX-XX Ground Floor Window Options for Dwelling Units**



2. *Entryways.* Ground floor residential entrances shall be set back from the edge of sidewalk or property line a minimum of five feet and a maximum of ten feet to ensure privacy from the public realm. Porches, patios, private spaces allowed within the setback.
3. *Recessed ground floor level.* Recessed ground floors shall be restricted to one level height, except at main entrances.
4. *Vehicle entries.* For mixed use residential and commercial buildings requiring vehicular garage entrances, the garage opening shall be set back from the building frontage a minimum of six feet. Adhere to all required visual sight setbacks.
5. *Townhome Garage Parking.* A minimum of three-foot setback shall be applied for alleyway garage or tuck under parking.

**D. ROOF FORMS.**

1. *Roof lines.* The length of any continuous flat roofline shall not exceed more than 200 feet without modulation.
2. *Roof Materials.* Roof materials shall meet the minimum SRI (solar reflectance index) standards to reduce urban heat gain. Inappropriate materials such as wood shingles, cement tiles and plastic slate and shingles shall be discouraged.
3. *Rooftop Projections.* Elevator cores, stair projections, solar panels and mechanical equipment shall be incorporated into the architecture of the building with consistent building materials. See

subsection (A)(3) of this section for provisions regarding height, setbacks, and screening of rooftop features.

4. *Roof Decks.* Accessible roof decks shall provide safety setback standards from the roof edge and mechanical equipment as required.

#### E. SECONDARY ARCHITECTURAL FEATURES.

1. *Visual Interest.* Add visual depth to façades where appropriate by incorporating balconies, canopies, awnings, decks, or other secondary elements into the façade design.
2. *Encroachment.* A building's enclosed occupiable space shall not encroach into the right-of-way, with the exception of bay windows or balconies. Bay windows and balconies shall not extend more than four feet into the right-of-way and 30 percent of width of residential units or 50 percent of the width of hospitality units.
3. *Weather Protection.* Overhead weather protection shall be provided along all streets with a minimum clear height of 10 feet and maximum clear height of 15 feet.
4. *Pedestrian-oriented features.* The width of any new or reconstructed ground-level building wall facing a street shall be devoted to pedestrian-oriented features or material variation, pedestrian entrances and/or windows affording views into the building space with, at least 35 percent for residential uses, 50 percent for commercial and services oriented to Sterling Highway and 75 percent for commercial uses oriented to the River Street and new and enhanced streets between Sterling Highway and River Street.
5. *Blank walls.* Continuous blank walls shall not exceed 15 feet in length. Where blank walls are present, incorporate a range of design approaches such as green walls, façade articulation, art or other approved applications to create interest at the adjacent pedestrian area.

#### F. MATERIALS AND COLORS.

1. *Prohibited materials.* The following are prohibited exterior building materials: plastic laminate, glossy or large expanses of acrylic or plexiglass, pegboard, mirror, highly polished or plated metals (except as a trim), mirrored glass, fabric or paper wall coverings, plywood or particle board, sheet or modular vinyl, shingles, shakes and EIFS (Exterior Insulation Finishing Systems).
2. *Mechanical equipment.* Mechanical equipment and above grade utilities shall be located or screened with quality materials to minimize visual impact on the public right-of-way.

#### G. LANDSCAPE DESIGN.

1. *Adaptive Plant Types.* Use Native and Adaptive Plant Species as a primary resource for all at-grade planting areas both on site and within the public right-of-way. If the planning official approves, applicants must provide plant substitutions that meet the same characteristics of the preferred plants such as but not limited to size, shape, fall color, flower, genetic potential. The characteristics must come from objective sources, such as books, manuals, or green industry cut sheets.
2. *Landscape requirements.* All development will meet or exceed landscaping standards in SMC 17.XXX.XX for the DRMU zone.

3. *Landscaped Buffers, Planter Strips, and Vegetated Swales.* All landscape buffers, planter strips and vegetated swales approved as part of the development on site and/or within the public right-of-way shall be maintained. Plants shall be maintained in a vigorous and healthy condition, free from diseases, pests, and weeds. Competing vegetation shall be controlled to the extent necessary to allow establishment, survival, and growth of the plantings per the approved landscape plan. Plants which become diseased, severely damaged, or which die, shall be removed and replaced by the owner as soon as possible but no later than 60 days if notified by the city. All plants removed shall be replaced with a healthy plant of the same size and species as required by the approved landscape plan for the property.

H. STORMWATER. In addition to the standards of **for Soldotna considertaion** the following standards apply in the DRMU dostrict:

1. *Integrated Stormwater Management Systems.* The district shall incorporate stormwater management systems as a principle design element in order to manage and direct stormwater runoff while creating an opportunity to integrate public space amenities as part of the sustainable site management approach.

2. *System Design.* Stormwater infrastructure shall be designed as a complete system connecting buildings, sites, parcels and blocks as an interconnected system. Curb extensions within new and enhanced streets is a key stormwater management infrastructure of the public right-of-ways. New and enhanced streets will serve as a passive public space and amenity while integrating functional roadway and stormwater features of the street rights-of-way.

3. *Sustainable Plant Materials.* Select plant materials conducive to periods of high-water levels, as well as prolonged periods of drought shall be utilized to mitigate varying seasonal conditions.

4. *Stormwater Management Infrastructure.* Stormwater infrastructure located in the public right-of-way shall be provided consistent with the city of Soldotna Standard Details.

I. SIGNAGE.

1. *All signage shall comply with the provisions of Chapter 17.XXX SMC for number, location and size restrictions unless as modified herein.*

2. *Sign Location.* Building signage shall be located no higher than the first floor of the building.

3. *Monument Signage.* Standalone monument signage is permitted if located on private property and shall not impede right-of-way vision triangles. Monument signs shall be no taller than eight and one-half feet above grade, no wider than four feet and be constructed of materials contained on the exterior of adjacent buildings.

4. *Electronic Message Center signage.* Electronic message center signage shall not be permitted.

5. *Master Sign Program – Individual Buildings.* Individual buildings that accommodate multiple businesses and require signage for each business shall produce a master signage program that defines the size, number, and locations of signs. The design of signs shall be reviewed and approved by the city as a part of the building design review process to ensure the signage is integrated into the architecture and overall development.

6. *Materials.* Signage shall be constructed of high quality, durable materials.

7. *Illumination.* Direct illumination such as goose neck, exterior illumination as well as halo style lettering or back lit lettering are the preferred method of signage illumination. Channel letter signage

is allowed as an option only if exterior lighting applications are demonstrated to not be possible based on constraints for the mounting location, ambient light levels or to eliminate the use of a backer board.

8. *Prohibited signage.* In addition to prohibited signage contained in SMC 17.XXX.XXX, the following signage or signage materials are prohibited:

a. *Cabinet signage/box signage/can signage.*

b. *No exposed raceways.*

9. *Application.* Signage shall be appropriate for its intended use such as residential, office, and retail.

10. *Public Realm Signage.* Kiosk, wayfinding and interpretive signage intended to promote a comprehensive district placemaking strategy shall be allowed upon review from the city.

**J. PARKING.**

1. *Parking Strategy.* Provide a dispersed, shared parking strategy through a combination of surface lots, on-street, off-street podium and above-grade parking structures that meet the demand of residents, visitors, and employees.

2. *Parking Ratios.* Parking will be provided to meet the acceptable city of Soldotna standards for the DRMU zone as listed in Table 17.XXX.XXX-X and 17.XXX.XXX-X below.

**Table 17.XXX.XXX-X. Parking Minimums for Residential Uses**

<b>Sub-district</b>	<b>Required off-street parking</b>
Bridgehead-River Street to Kenai River Riparian Setback	1 space per dwelling unit
Bridgehead	1 space per dwelling unit
Park	1 space per dwelling unit
Sterling Frontage	1 space per dwelling unit

**Table 17.XXX.XXX-X. Parking Minimums for Nonresidential Uses**

<b>Nonresidential Uses</b>	
<b>Uses</b>	<b>Required off-street parking</b>
Office	1 space per 400 square feet
Hotel	0.5 spaces per lodging unit
Senior Living	1 space per living unit



Commercial/All Other Uses	No minimum requirement for ground floor uses
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*a. The minimum number of parking spaces required for residential uses may be reduced per Table 20.670.040-3 below, if the city approves a transportation demand management (TDM) plan for the proposed development.*

*b. The TDM plan described in subsection (J)(2)(a) of this section shall include the following elements:*

- i. Narrative describing the characteristics of the proposed development and how it is served by the larger transportation system, including roads, transit facilities and services, and other multimodal transportation facilities.*
- ii. Specific TDM measures to be employed to reduce transportation via single-occupancy vehicles and resulting on-site parking needs. Eligible TDM measures are listed in subsection (J)(2)(c) of this section.*
- iii. A description of how TDM measures will be communicated to users of the development.*
- iv. A description of how users will be required or encouraged to use TDM measures.*
- v. A proposed process for monitoring individual and overall use of TDM measures and reporting their use to the city on an annual basis.*

*c. TDM plans must include specific provisions to be eligible for residential parking reductions. TDM plans must include either measure from subsection (J)(2)(c)(i) or (ii) of this section, and at least three other measures selected from subsection (J)(2)(c)(iii), (iv), (v), (vi) or (vii) of this section, for a total of at least four measures:*

- i. Provision of annual transit pass or equivalent for residents at no charge or a rate reduced by 75 percent or more.*
- ii. Pricing for parking spaces that is charged separately from residential units.*
- iii. Designation of at least five percent of available parking spaces for high occupancy vehicle use.*
- iv. On-site presence of car-share vehicles and parking spaces (which account for at least five percent of the total number of parking spaces).*
- v. Use of a guaranteed ride home program or an agreement to pay into and utilize the city of Vancouver's existing guaranteed ride home program.*
- vi. On-site presence of shared cargo bikes available to all residential tenants.*
- vii. On-site provision of repair facilities and/or services for bicycles and other nonvehicular mobility devices available for all residential tenants.*

*d. Operators of an approved TDM program shall submit a report summarizing operation, and results of the program on an annual basis beginning one year after occupancy of the building. The report shall describe the following:*

- i. Specific TDM measures used.*

ii. Certification that all TDM measures selected for the TDM program are operating as described in the TDM plan.

iii. Documented participation of program users, including average number and frequency of use of measures and services.

e. Additional information about TDM program requirements shall be provided to participants by city staff.

3. *Parking Standards.* All parking shall meet the requirements contained in **Chapter 17.XXX SMC** as applicable unless as contained herein.

4. *Parking Structures.*

a. All structured parking shall be accessory to and integrated into a block and building envelope and will support multiple permitted uses in the district. Standalone parking structures are not permitted.

b. Any above grade structured parking shall be screened from public view by integrating into the overall building design, and/or through a combination of screen walls and landscape buffer areas. Screening provides an opportunity to enhance building design through the use of art, green walls, and innovative materials.

c. Semi subterranean parking shall be screened along all sides with the exception of entrances and exits. Separate openings for ventilation shall be screened with evergreen landscape planting and/or metal mesh screens.

5. *Surface Parking.* New surface parking lots shall be located behind buildings and screened from the public right-of-way. In the event screening by the building is not feasible, staff may consider surface parking lots located along the right-of-way with required screening.

6. *Parking Lot Screening.* A wall, fence, or evergreen planting is required between an off-street parking area and a street frontage in the DRMU district.

a. This screening is required for new construction or paving or repaving of a parking area over 1,000 square feet.

b. The wall or planting shall be a minimum height of two and one-half feet and a maximum height of three feet.

c. A fence shall be a maximum height of five feet. The total height of a combined wall and fence structure also shall be a maximum of five feet.

d. A pedestrian access (break in the screening) is required a minimum of every 150 feet or a minimum of one per street frontage.

e. Fencing shall be wrought iron.

f. A wall shall be a solid, decorative concrete, or masonry wall.

g. If a solid, plain wall, the wall must incorporate one of the following design features:

i. Decorative panels;

ii. Integrated planting (systems);

iii. Public art; or

iv. Other features as approved by the planning official.

7. *Existing Parking.* Existing surface parking lots will be allowed to be maintained until replaced by development of the parcels.

8. *Parking Access.*

Limits and prohibitions for vehicular access to parking and loading areas are intended to promote safe and comfortable pedestrian access along River Street and new and enhanced streets that serve the Downtown Riverfront Mixed-Use District.

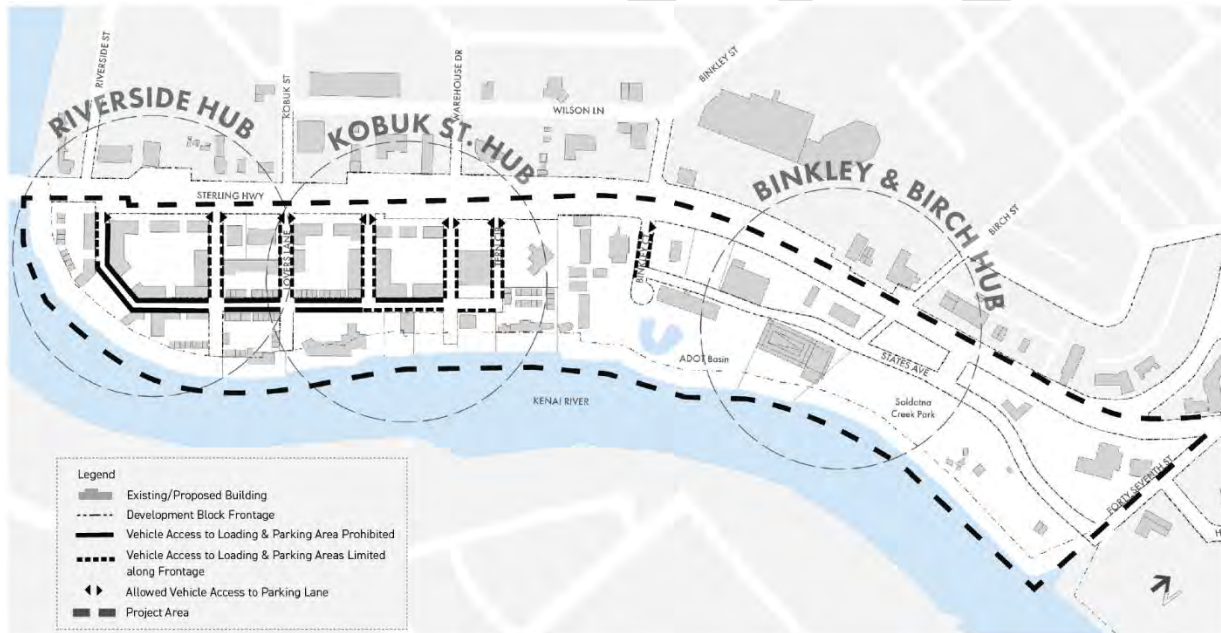
1. *Limited Access Frontages.*

The following standard limits or prohibits vehicular access to off-street parking and loading areas to promote safe and comfortable pedestrian access within the Downtown Riverfront District and to publicly accessible trails and public gathering areas along the Kenai Riverfront.

2. *Prohibited Access Frontages.*

Vehicular access to development sites is prohibited along key frontages, where indicated, to reduce conflicts between automobiles and pedestrians and promote a safe and pleasant experience for walking. Vehicular access is restricted to one-curb-cut per block frontage where indicated.

**Figure XX.XXX-X. Parking Access (Ord. No.)**



9. *Parking Lot Lighting.* Parking lots shall be well lit to provide visibility at night.

10. *Garage Openings.* Garage openings visible from public streets shall include decorative screening to soften the appearance of the garage façade.

11. *Parking Setbacks.* Parking garage entrances and exits shall be set back six feet from the building façade.

12. *Parking Signage.* All parking shall have clear signage and entrances/exits lighted.

13. *Bicycle parking.* Bicycle parking shall be provided to meet acceptable city of Vancouver standards for the HX zone as listed below in Table 20.670.040-5, and shall be consistent with the standards of VMC 20.945.050 and the city of Vancouver Bicycle Parking Guidelines.

*a. Up to 50 percent of long-term bicycle parking spaces may be provided in individual residential dwelling units, if they meet the following criteria:*

- i. The bicycle parking is located within 15 feet of the entrance to the dwelling unit.
- ii. The bicycle parking is located in a closet or alcove of the dwelling unit that includes a rack.
- iii. For buildings with no elevators that utilize the in-unit long-term bicycle parking provisions, in-unit long-term bicycle parking spaces may only be located in ground floor units.

**Table 20.670.040-5. Bicycle Parking Minimums**

*b. Additional Development Standards. The following standards apply to sites where more than 20 long-term bicycle parking spaces are required and provided in one or more shared bicycle parking facilities outside of individual dwelling units:*

- i. Minimum Number of Horizontal Bicycle Parking Spaces. At least 20 percent of spaces must be in a horizontal rack, or on the lower level of a stacked bicycle parking rack.
- ii. Parking for Larger Bicycle Spaces. At least five percent of spaces must accommodate a larger bicycle space for cargo bikes, placed in a horizontal rack. These spaces must be a minimum of three feet (36 inches) in width, 10 feet (120 inches) long with three feet and four inches (40 inches) of height clearance.
- iii. Electrical Outlet Requirement. At least 20 percent of spaces must have electrical sockets within four feet of the spaces. Each electrical socket must be accessible to horizontal bicycle parking spaces.

**K. UTILITIES AND SCREENING.**

**1. Utility and Solid Waste Locations.** Utilities shall be located away from primary streets and pedestrian sidewalks and located on alleys or from secondary streets wherever possible.

**2. Below Grade Utilities.** Utilities shall be located below grade in vaults or inside buildings where possible. Solid waste containers and disposal areas shall be located inside buildings. If not possible, screening shall be provided per Chapter 20.970 VMC.

**3. Venting System Locations.** Venting of air exhaust and mechanical building systems shall be away from primary streets and main pedestrian areas and shall be architecturally incorporated into buildings.

**4. Wall-Mounted Utilities.** Utilities mounted on building walls shall not intrude on the public right-of-way space adjacent to a pedestrian path of travel, shall be set back, or have a landscape zone for a buffer.

**5. Mechanical Vents.** Mechanical vents required on building exteriors shall be located eight feet above grade or between grade and 18 inches and shall be integrated into the façade design to minimize visual impacts. (Ord. M-4402 § 3(Q), 2023; Ord. M-4341 § 3 (Exh. A), 2021)

**20.670.050**

### **Design Standards Modification.**

**Modifications to design standards listed above and The Heights Urban Design Guidelines, with the exception of height and parking, may be processed as part of the request for site plan approval if the applicant can demonstrate compliance with the following approval criteria:**

- A. The modification(s) is warranted given site conditions and/or characteristics of the design; and**
- B. The proposed change meets the intent of the development standards and The Heights Subarea Plan and is consistent with the Design Guidelines; and**
- C. The proposed change will not result in a substantial impact to transportation, water, sewer, or stormwater management systems; and**
- D. The proposed change is consistent with Vancouver Municipal Code and Vancouver Comprehensive Plan. (Ord. M-4341 § 3 (Exh. A), 2021)**

**20.670.060**

### **Approval Process.**

**This section was recently amended by Ordinance M-4402, codified in May 2023.**

- A. New developments and modifications to existing permitted development shall comply with the approval process outlined in Chapter 20.270 VMC, Site Plan Review, and VMC 20.790.530, Planned Action Review.**
- B. New development and modifications to existing permitted development shall also comply with design review approval criteria for the HX district established in subsection D of this section unless exempted. The following activities shall be administratively exempt from design review:**
  - 1. Exterior work not visible from the public way or public areas such as parks and other publicly accessible spaces;**
  - 2. Placement of permanent signs, unless (a) inconsistent with adopted design guidelines, such as pole signs; or (b) potentially inconsistent with nearby uses;**
  - 3. Public art; and**
  - 4. Other minor construction such as replacement of doors, windows, awnings, etc., determined by the planning official to be exempt.**
- C. Site plan approval criteria. The site plan shall be approved, approved with conditions or denied upon finding that:**
  - 1. The proposed development implements The Heights District Plan and the requirements of this chapter;**
  - 2. The proposed development is consistent with The Heights District Plan vision, goals, and policies, as applicable;**
  - 3. The development is consistent with The Heights District Urban Design Guidelines or proposed standards that will achieve at least equal quality site development;**

**4. All new development is consistent with the conceptual street and open space layout as illustrated in The Heights District Subarea Plan and Urban Design Guidelines.**

**D. Design review approval criteria. The planning official shall base all reviews of the design of any proposed construction, remodeling or development according to the following criteria:**

- 1. The requirements, guidelines, and applicable provisions of this title that are applicable to the zoning district where the property is located and including all additional zoning regulations which may apply to the use or to its area by provision for overlay district, or made applicable by any conditional use or variance approval;**
- 2. The Heights Urban Design Guidelines kept on file and available for public inspection at the community development department;**
- 3. The relationship found to exist between existing structures and open space, and between existing structures and other structures in the vicinity, and the expected effect of the proposed construction upon such relationships;**
- 4. The impact of the proposed construction on adjacent uses, including impact of new or revised parking and pedestrian uses;**
- 5. The protection of neighboring uses from identifiable adverse effects of the design of the proposed construction; and**
- 6. The proposed development is consistent with The Heights District Plan vision, goals, and policies, as applicable. (Ord. M-4402 § 3(R), 2023; Ord. M-4341 § 3 (Exh. A), 2021)**