CITY OF KETCHUM | ADMINISTRATION

Jade Riley | City Administrator
direct: 208.727.5084 | front desk: 208.726.3841
jriley@ketchumidaho.org

P.O. Box 2315, 191 5th Street West, Ketchum, ID 83340
ketchumidaho.org

MEMORANDUM

TO: URA Chair and Commissioners

FROM: Jade Riley

DATE: August 18, 2023

SUBJECT: KURA funding partnership requests

The city respectfully requests the KURA Board of Commissioners consider financially partnering with the city on the following projects:

1. **Highway 75 Power Undergrounding**
   The city has been coordinating with the Idaho Transportation Department over the last several years regarding the concept design for roadway and pedestrian improvements from Elkhorn to River Street. The new roadway will create sidewalks on both sides of Highway 75 from Serenade to River Street with accompanying dedicated bike lanes.

   Currently, there are aerial powerlines from Gem Street south to the Big Wood River bridge. Undergrounding the powerlines from the area where the new sidewalk will be placed (Gem Street to Serenade) is desired which is estimated at $486,314. In addition, undergrounding the lines from Serenade to the trees before Weyyakin Drive to provide an improved visual entrance into Ketchum (estimated costs $413,686).

   The city is proposing a cost share agreement of 50/50 with the URA. The URA portion would be applied to actual costs incurred only for the portion of Gem to Serenade, as it is contained within the KURA district boundary. Idaho Power would like to enter into a reimbursement agreement with the city that would require a $200,000 payment by October 31, 2023, and $800,000 by the same date of 2024.

2. **Town Square/Visitor's Center Master Plan**
   Town Square was commissioned in 2011 and has enjoyed positive and significant use from the community. Several components are at the end of their useful life (water

fountain, fireplaces, etc.). Several aspects could also be adjusted to improve functionality and user experience.

The Visitor's Center building lease with Starbucks expires in approximately three years. The lease revenues do not currently cover all operational costs associated with the building. There are also several deferred long-term maintenance items (new roof, logs are pulling away, and upgrade of ADA restrooms).

Staff is recommending the master planning effort as an avenue to engage the public to better understand the current level of satisfaction with both Town Square and the Visitor's Center building to inform both future public investments as well as direction regarding the solicitation of a new lease.

A competitive request for proposals was solicited from qualified firms to lead the master planning effort. GGLO from Boise was selected based on similar work completed not only in Idaho but the northwest as well. Staff has proposed a three phased effort with significant public engagement and joint meetings with the City Council and URA during each phase.

The city is requesting a funding request from KURA of splitting the planning/design costs 50/50 which are estimated to not exceed $112,500. It is important to note these are only estimates for total costs and depend on direction given in Phase One. Specifically, if the City Council and Commission prefer a smaller future scope of improvements, Phases Two and Phase Three design costs would reflect that scaled back direction.

3. **Main Street Rehabilitation Project**

The city retained HDR engineering to complete an improvement analysis for Main Street (Highway 75) related to both traffic operations as well as pedestrian facilities. The Council approved the final report (attached) on 12/5/22. As outlined in the report, the city's goal was to improve vehicular flow in a safe manner while improving pedestrian elements such as sidewalk bulb-outs and widening.

The Idaho Department of Transportation currently has the rebuild of Main Street scheduled in 2026. The project would be occurring during same time as the Highway 75 improvements (Elkhorn to River Street). The current roadway is well beyond its useful life with significant ruts and potholing.

The City requested the project be advanced to address both the unsafe current condition as well as avoid the conflict with the south of town project. ITD felt more comfortable with the City serving as the project manager to meet the desired schedule. The City Council has approved a MOU with ITD which outlines roles/responsibilities as well as financial reimbursement for the roadway elements in the project.

The City respectfully requests KURA consider financial participation related to the pedestrian improvements. The City has adequate funds for initial concept design and would return in October/November to the KURA Board with a specific financial request based on different pedestrian investment options.

Attachments:

1. GGLO Design Services Proposal
2. Overview of Main Street Project presentation
3. Final Main Street Alternatives Analysis Report (2022)

Attachment 1

CITY OF KETCHUM

TOWN SQUARE MASTER PLAN

Proposal for Design Services

May 5, 2023

GGLO

SEATTLE | LOS ANGELES | BOISE

GGLO

Table of Contents

May 5, 2023

City of Ketchum
Aly Swindley
191 5th Street W
Ketchum, ID 83340

Dear Aly and Members of the Selection Committee,

At GGLO, we see each project as an opportunity to transform an environment in ways that enhance beauty and support the well-being of people and planet. Our craft relies on a foundation of discovery and rigor to incorporate artistic expression, sustainability, and social equity into elegant built solutions. We believe design and community are inextricably linked; that thoughtful design and planning improves lives, sparks opportunities, fosters new connections, and nurtures belonging. GGLO has explored this unique relationship in partnership with public agencies, cities, non-profit organizations, their residents, and neighborhood stakeholders. The resulting master plans have become important frameworks, and ultimately resulted in cherished places that transformed their respective communities. We are excited about the opportunity to team with the City of Ketchum to do the same for the Town Square.

The end user is always our focus. Whether designing parks and streets, redeveloping whole neighborhoods, or bringing sustainable design to the forefront of our client's projects, we want to help you refresh the current Town Square Master Plan while analyzing current existing conditions and planning for the future. By developing a robust assessment of existing facilities, expanding programming, and designing with a balance of durability, maintenance and placemaking, Town Square will be a destination enjoyed by the community in perpetuity.

Our work is rooted in a deep commitment to community, and has been recognized as such regionally and nationally for award-winning design and best practices. The team members we are partnering with have a wealth of project applicable experience ranging from building assessment and cost estimating to water feature design, branding/wayfinding and systems engineering.

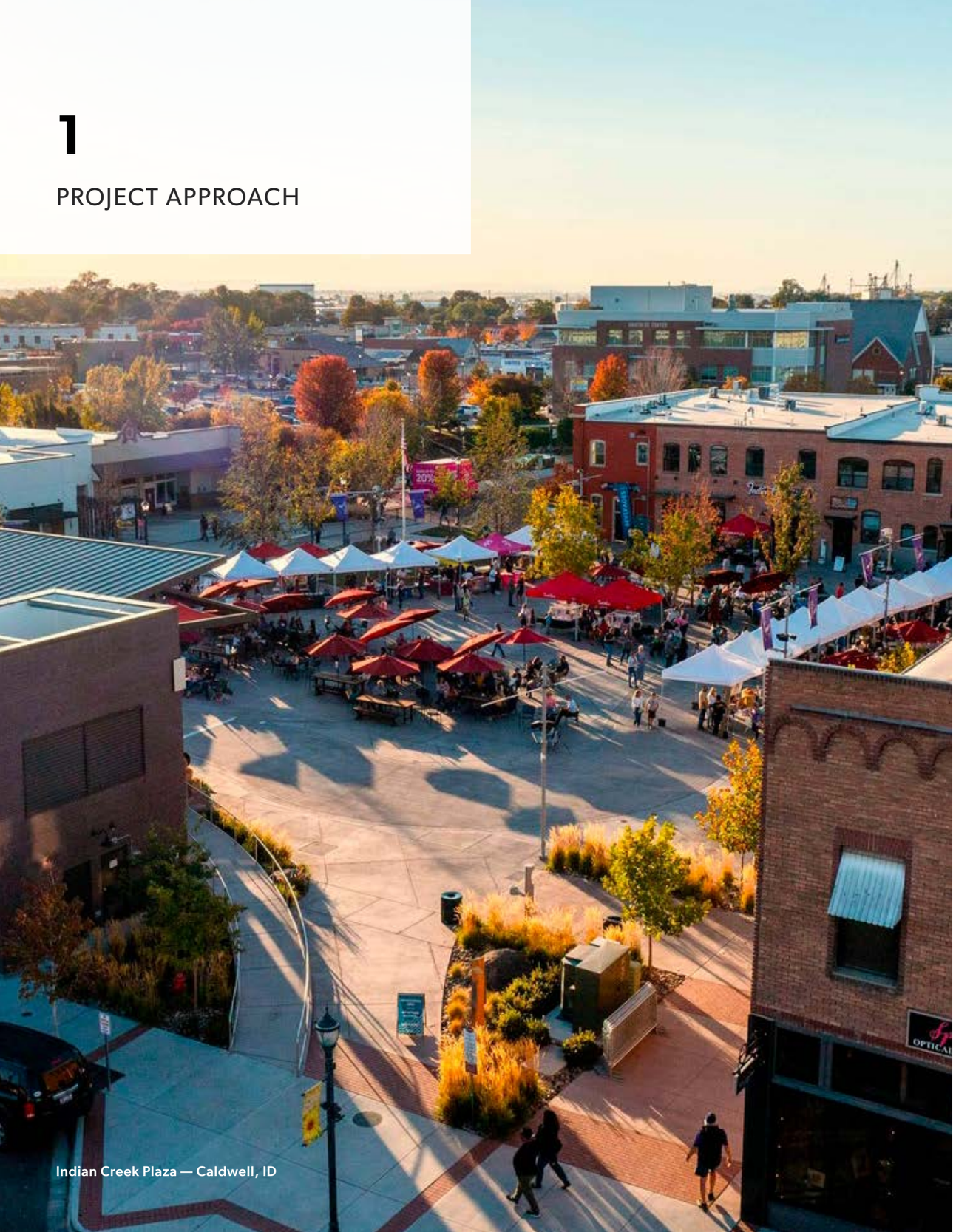
Our team is committed to actively listen, engage, facilitate, and shape a vision for the future of Town Square. The following pages provide detail about our team, our work, and approach. We look forward to and hope to have the opportunity to engage and collaborate with you in this process, and ultimately through the journey of the project.

Sincerely,

Mark Sindell, ASLA, LEED Legacy
Principal-In-Charge
206.902.5672 | msindell@gglo.com

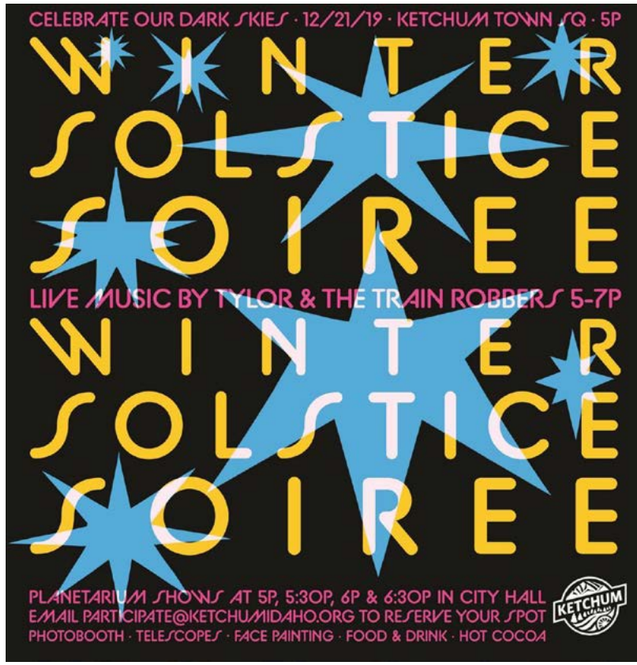
1

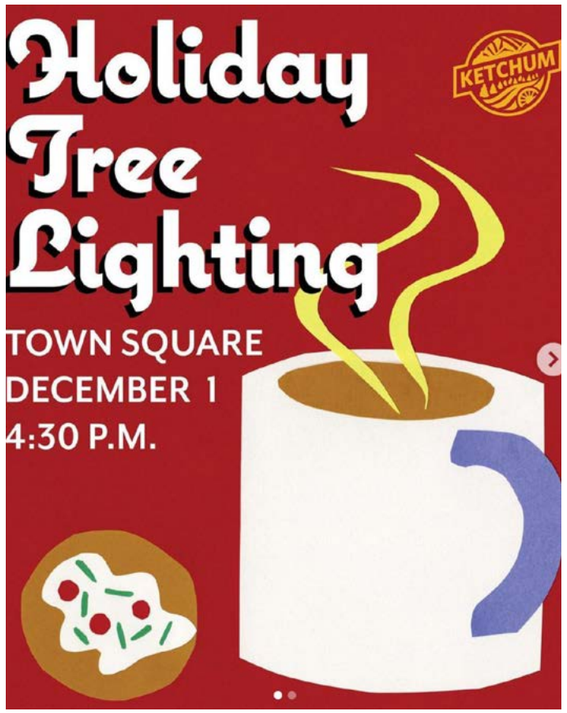
PROJECT APPROACH



Indian Creek Plaza — Caldwell, ID

Town Square is already established as an event venue and heart of Downtown, but in need of upgrades and integration to its surrounds. With thoughtful design, accessibility, systems and finish upgrades to both the Visitor Center and the Square, we can build for its future as a comprehensive, cohesive, and sustainable destination representative of Ketchum's culture, identity, and values for decades to come.





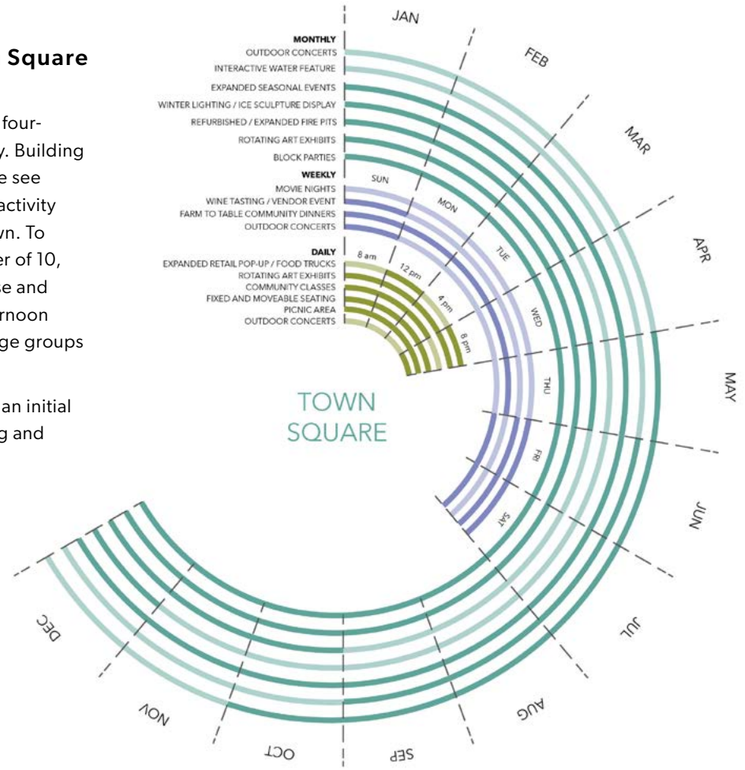
Project Approach

Town Square has quickly become the ‘living room’ of Downtown. It is primed to take the next step as a signature destination for community events, representative of Ketchum’s unique culture and dramatic four-season environment. Following is our approach to the work, including initial opportunities and a proposed timeline.

A Vision to Evolve Ketchum Town Square to Meet its Full Potential

Town Square is at the cusp of becoming a true four-season destination and heart of the community. Building on the strong foundation already in motion, we see opportunities to round out programming and activity for even more vibrancy in an 18-hour Downtown. To that end, we leverage the concept of the Power of 10, studying programming for all seasons, daily use and specifically times of day—morning coffee, afternoon markets, evening events for both small and large groups of people enjoying downtown.

The programming summary on the right offers an initial take on expansion, we look forward to creating and refining this together with you:



Building on programming, creation of a true community space involves material choices and form making that bring forward the history, culture and environment or identity of Downtown Ketchum in transformation ways. We will aim to not only evolve the vibrancy of Town Square, but to solidly anchor it as a true reflection of the Ketchum community. Locals, tourists, and downtown businesses are drawn to spaces developed with intent, so we will start with the question ‘What is the identity of Downtown Ketchum’ in order to influence design beyond the basics of programming and maintenance. In the end, Town Square should feel like a seamless extension and punctuation point of the 4th Street Heritage Corridor, fully integrated with adjacent shops, restaurants and civic uses.

Project Approach

Deliver Long Term Value with a Focus on Resiliency, Quality, and Low Maintenance

With continued success, Town Square and the Visitor Center Building will get heavy use over the next decade. Our assessment of the City-owned building will not only analyze the existing conditions of the building and its systems, but will take into consideration it's functional relationship to the adjacent urban plaza as well as in the broader community context of downtown Ketchum. The technical components determined to require improvements or replacement will be considered for opportunities to increase sustainability of those systems as well as reduce long term maintenance and operating costs. The existing functions of the visitor center building will be reviewed for potential improvements in program opportunities with strengthened public use and engagement, flexibility, security, accessibility, and improved wayfinding and flow. The iconic building with its striking exterior forms a unique part of Ketchum's urban fabric which we will analyze through these lenses for opportunities to transform and enhance its function throughout the seasons to make it feel even more connected to the Town Square plaza and integral to the community.

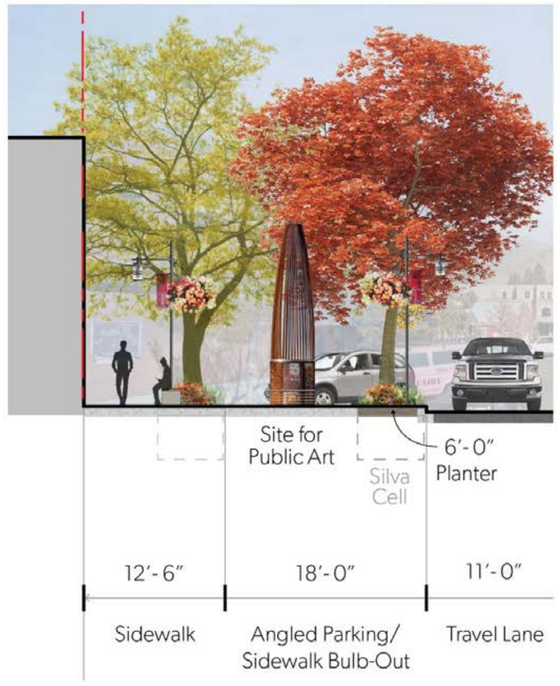
We will leverage our experience with commercial and civic fire pits, water features, and public use buildings, high-use urban event plazas to develop strategies and priorities moving forward. Opportunities include green building strategies for the building and site, indoor-outdoor connections through materials, overhangs and operable walls, and an overall climate positive strategy for the building, site and adjacent streets. Infrastructure and access for event support and waste management will be carefully assessed with recommendations for improvements.

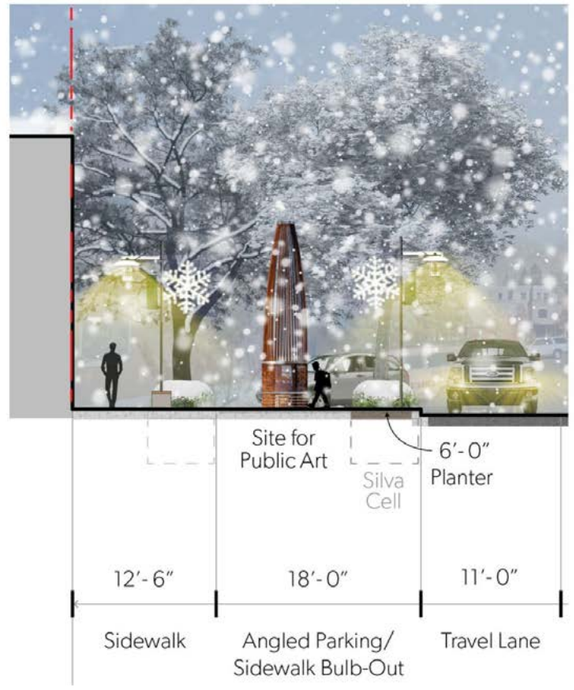
Working with you, and using case studies of our prior town square projects including Indian Creek Plaza, Burien Town Square, Boise City Hall Plaza, and Cherie Buckner-Webb Park, we will develop an implementation strategy that considers programming, maintenance, operations, estimated costs, and phased implementation.

Create a Cohesive, Four-Season Indoor-Outdoor Venue

Through the process, our Team will collaborate with you in developing a cohesive plan for bringing the Visitor Center building, Town Square plaza, and adjacent streetscapes together as one multi-seasonal, multi-functional system with a range of use and revenue generating options for the Visitor Center building.

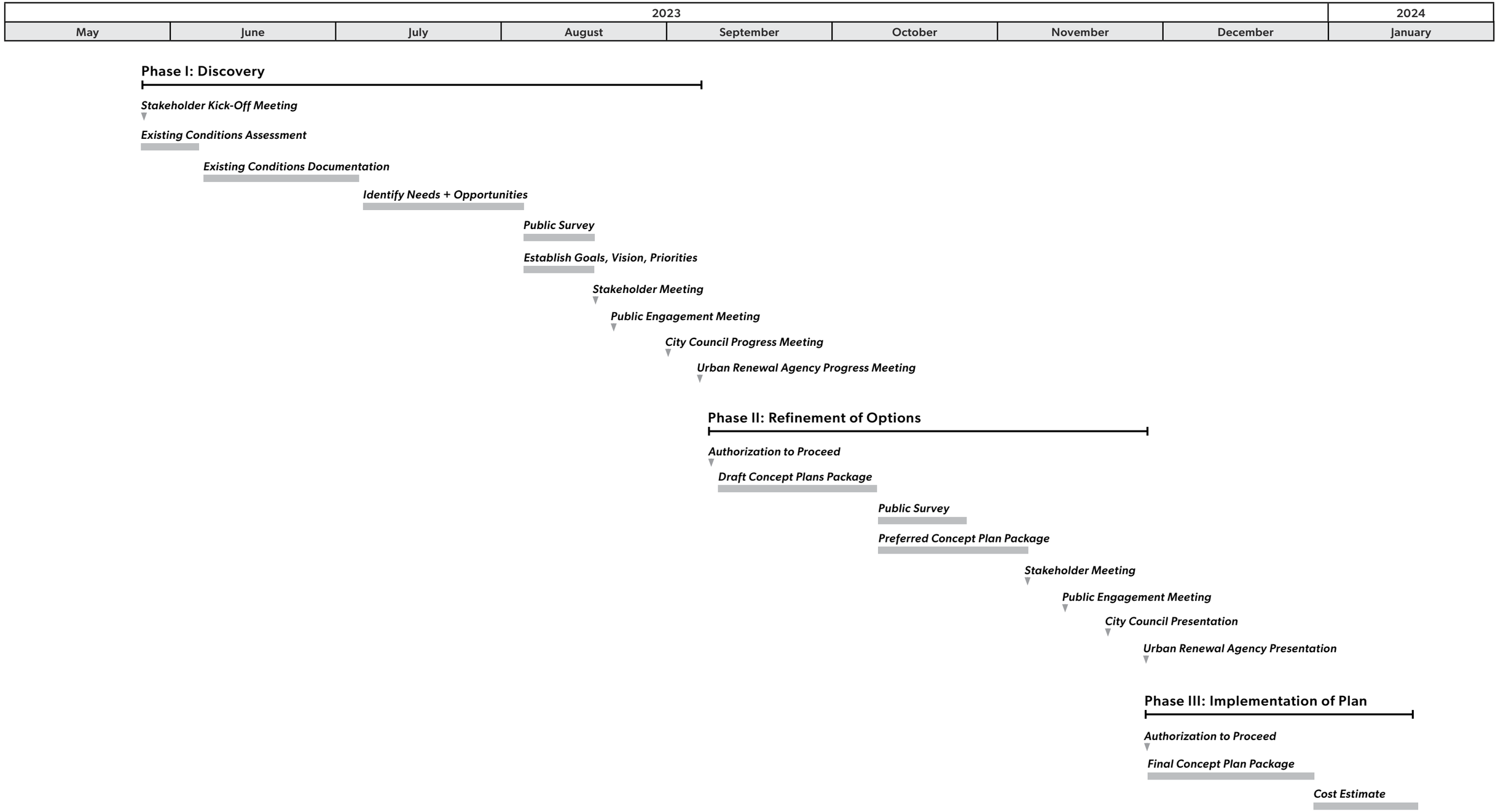
Wayfinding and branding strategies, along with public art will be studies as a means to unify and emphasize the experience of Town Square, and linkages from Main Street via the 4th Street Heritage Corridor for pedestrians, cyclists, bus riders, and visitors by car.





1 – PROJECT APPROACH

Proposed Timeline



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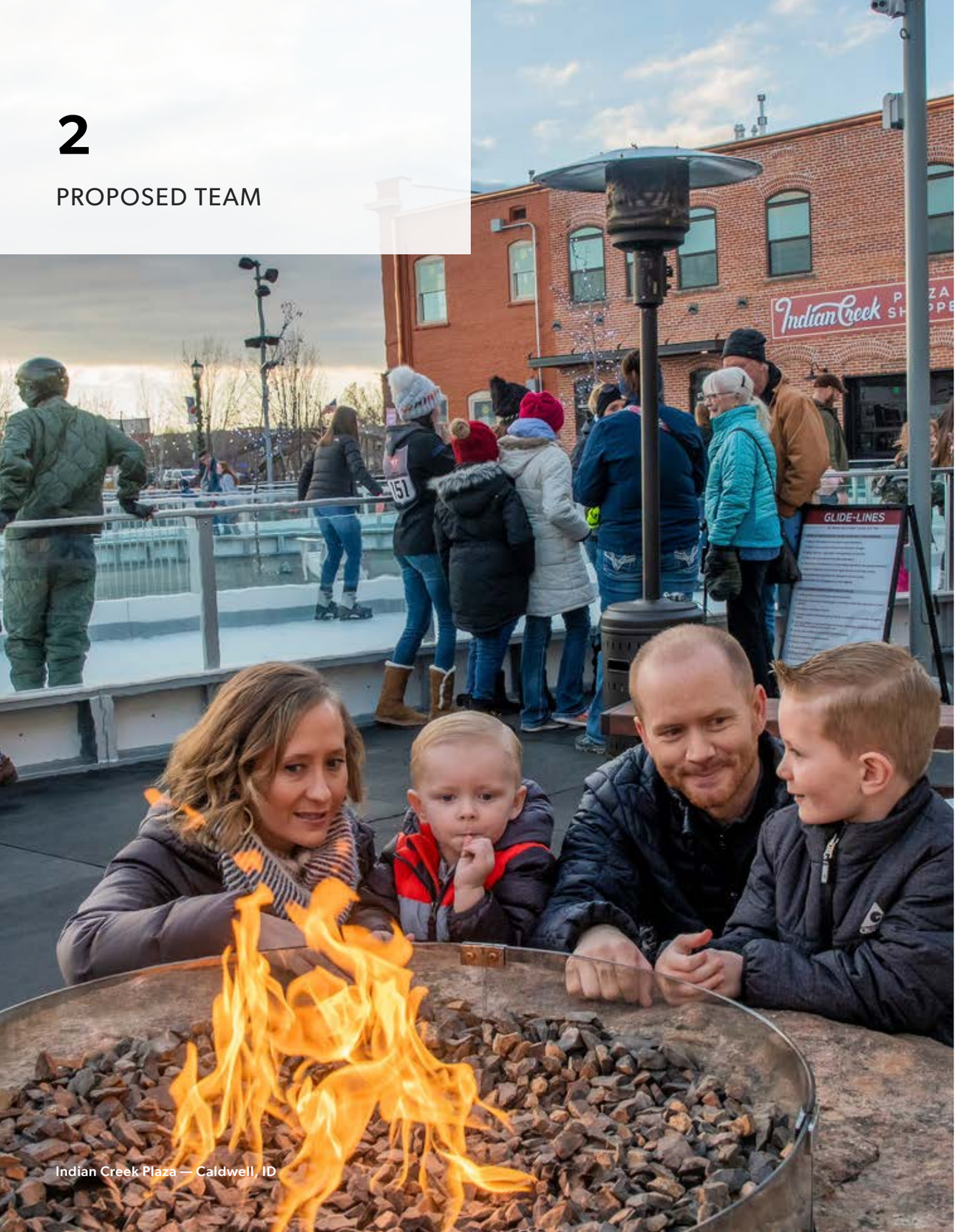
PROPOSED TEAM



Indian Creek Plaza — Caldwell, ID

Our Team

Our collective experience and planning portfolio represents our direct knowledge and passion for urban design, placemaking, and sustainable design. Our team has experience with public, private sectors and public partnerships. Collectively, we are fully capable of addressing technical design and implementation of active urban plazas, civic/commercial buildings and streetscapes.

We are committed to comprehensive and inclusive design—blending technical expertise with communications and outreach.

We bring a deep understanding of public spaces, community design, sustainability, and how cultural influences help create meaningful places.

Our team is committed to the adoption and implementation of this Master Plan. We bring a wide range of experienced perspective, creative talent, and an approach designed around the determinants of success for your vision.

CITY OF KETCHUM

GGLO
ARCHITECT + LANDSCAPE ARCHITECT

Mark Sindell	**Ben White**	**Connie St. George**	**Philip Decker**	**James Greene**
Principal-in-Charge	Project Manager	Project Architect	Landscape Architect	Technical Lead

CONSULTANTS

DC ENGINEERING **MEP Engineer**	GALENA-BENCHMARK ENGINEERING **Civil Engineer**	KPFF **Structural Engineer**
Ryan Ewing Electrical Engineer	**David Patrie** Civil Engineer	**Ashley Thompson** Structural Engineer
Mick Grefenson Mechanical Engineer		

CMS COLLABORATIVE **Water Features**	TRADEMARK **Branding + Wayfinding**	DCW **Cost Estimating**
Patrick Horn Water Features Consultant	**John Yarnell** Design Lead	**Trish Drew** Cost Estimator

2 – PROPOSED TEAM

Firm Profiles

GGLO

ARCHITECT + LANDSCAPE ARCHITECT

Founded in 1986, GGLO designs distinct places where communities thrive. We are a 100+ person firm all from various practice backgrounds working together to provide research, urban design, architecture, landscape architecture, and interior design with an established reputation throughout the West.

GGLO has been working in the Sun, Wood River, Magic, and Treasure Valleys of Idaho on projects ranging from downtown master plans, streetscapes and parks to urban infill and mixed-use housing of various income levels and densities. We focus on principles of smart growth and perpetuating culture, identity and environment through responsible city building.

Specializing in understanding of the contextual fabric of our clients' proposals, we orchestrate the planning, design and delivery expertise across multiple services—assuring projects are thoughtful in design, details, documentation and construction.

DC Engineering

MEP ENGINEER

Founded in 1998 on the idea that clear understanding of projects in context of client's goals and surrounding business dynamics leads to better engineering. With this foundational approach and a strong technical background of its founding members, the company quickly gained a client base, and began attracting talented, like-minded individuals.

Today DC Engineering is a mid-sized firm with skill sets across many engineering disciplines, serving many clients in many market sectors. In addition to providing mechanical, electrical, and structural engineering, the company also provides controls, refrigeration, energy services, Applied IT, and commissioning services. The corporate office is located in Meridian, Idaho, with offices and remote employees across the country.

DC has provided engineering services for many projects in the Wood River Valley over the years. Recently, they have worked with the City of Ketchum on Water and Wastewater Treatment Plant projects, providing various engineering services for WRF Aeration Blowers, Standby Power, Headworks, and other capacity expansions.

Galena-Benchmark Engineering

CIVIL ENGINEER

Galena-Benchmark Engineering is a full-service multi-discipline firm providing professional services in civil engineering, land planning, surveying, and land information systems. Their office is located in Ketchum, Idaho. Galena-Benchmark Engineering has extensive experience in civil engineering design, surveying, mapping, site planning and permitting for municipal and private projects. This includes the design and surveying for land development, roadways, pedestrian and bike paths, utilities, parking lots and storm water improvements as well as cost estimating, contract and bid document preparation and coordination.

Civil engineering services include site development work from subdivision infrastructure design to commercial buildings to multifamily and individual residential homes. Benchmark partners with their clients to develop water and sewer designs; on-site septic system design; grading and drainage solutions; roadway, driveway, and parking lot designs; and coordination with power, communication, and gas utilities. Benchmark provides floodplain compliance services including floodplain analysis for bridge and culvert designs and site development. They are proficient in stream restoration, comprehensive stormwater solutions, low impact development and SWPPP compliance.

DCW

COST ESTIMATOR

DCW Cost Management is an independent cost consultancy and a certified Women's Business Enterprise (WBE). They have a proven track record of providing accurate cost planning and cost control services. Typically, their cost estimates fall within 5% of the low bid amounts on projects and often within 3% of the bid. Their experience in the construction market allows them to approach any project with confidence. They track technology and sustainability advances from a cost perspective. They work to offer the team early cost advice for informed decision making and continue through design development to provide an accurate, holistic perspective on cost.

KPFF

STRUCTURAL ENGINEER

KPFF Consulting Engineers is one of the most established structural and civil engineering firms on the West Coast. Their Boise office, with multiple completed projects in the City of Ketchum, has local knowledge of Ketchum's building codes and mountain town life. With professional licenses in all 50 states and nearly 1,300 staff nationwide, they have the resources available to meet schedules and keep your projects moving while maintaining a local presence.

KPFF offers the right combination of knowledge, experience, resources, and agility to support you on this project. They are proud of their ability to work collaboratively with their clients to accomplish projects and have the staffing capability to rapidly respond with the expertise that is needed for any task. KPFF successfully leverages these resources while maintaining personal client contact and true principal involvement through all phases of the work.

KPFF's experience with architecturally led projects for developers means they understand that selecting the right structural system requires looking at all aspects of the structural system's interaction with the project. This means understanding how the structural system can positively influence the project schedule and how the schedule interacts with project financing. KPFF's delivery of structural engineering services is collaborative. They approach projects with an open mind and listen to the design team before applying their knowledge and experience to arrive at the most appropriate structural solution for each project.

Trademark

BRANDING/WAYFINDING CONSULTANT

Trademark is an artist-lead, design and build studio that specializes in placemaking, public art, and design for the built environment. They conceptualize, design, engineer, build, manage, and install their projects, staying hands-on throughout the entire process. They are passionate about storytelling, material exploration, and creating environments that inspire, cultivate connection and instill a sense of wonder and curiosity.

Studio expertise includes, creative consultation, brand strategy + theme development, site planning, storytelling + placemaking, environmental graphic design, artistic signage + wayfinding, donor recognition, public art + sculpture, painted + dimensional murals, and specialty fabrication.

CMS

WATER FEATURES CONSULTANT

CMS acts exclusively as a water feature consultant and like most landscape architecture and architectural firms is structured for consultation, design, document production and construction administration. As such, they are dedicated advocates for landscape architects, architects, and their clients. Their design process is a collaborative effort, enabling CMS to execute a scope of work that is harmonious with client needs while addressing important environmental, architectural, technical, and budgetary concerns.

They produce discrete sets of biddable fountain mechanical and electrical drawings. Their documentation has been a trademark since 1970 — always noteworthy for its unique style and comprehensiveness. Repeat clientele provide more than 80% of their work — clients who recognize the difference that truly complete construction documents can make, by easing communication among team members and reducing mistakes and costs in the field. As industry standards evolve, design requirements place more importance on environmental protection. Using innovative technology, CMS continues to develop creative solutions that help raise the standard for green aspects of water feature design.

Mark Sindell PLA, ASLA, LEED AP Legacy

PRINCIPAL-IN-CHARGE

Mark's empathy for nature and past studies in Europe inspire his passion for landscape architecture as well as his focus on sustainable design. The village greens, town squares, and community gardens he and his Landscape Architecture team design contribute to walkable, sustainable, mixed-use neighborhoods that spark connection and express beauty. A landscape architect with his hands in a variety of project types, Mark splits time between GGLO's Boise and Seattle offices.

Firm
GGLO

Education
Washington State University
Bachelor of Landscape Architecture

University of Macerata, Macerata, Italy
Study Abroad Program, Landscape Architecture

Registration
Registered Landscape Architect in Idaho; Washington; Oregon; Montana; Colorado

LEED AP Legacy

Professional Affiliations
American Society of Landscape Architects, ASLA

Council of Landscape Architectural Reregistration Boards, CLARB

Cascadia Green Building Council

Awards

INDIAN CREEK PLAZA – CALDWELL, ID
- ENR, Mountain States Best Projects, Award of Merit for Landscape/ Urban Development
- Urban Development 2019 Idaho Top Projects Finalist

CHERIE BUCKNER-WEBB PARK – BOISE, ID
- ASLA ID/MT Chapter, Professional Honor Award, 2022
- Idaho Business Review, Idaho's Top Projects, 2022

BURIEN TOWN SQUARE – BURIEN, WA
- Puget Sound Regional Council, Vision 2040 Award
- American Planning Association—WA, Implementation Award

WSU ELSON S. FLOYD CULTURAL CENTER – PULLMAN, WA
- DBIA Best in Design, Architecture Special Recognition, 2018
- DBIA National Award – Merit Award Educational Facilities, 2018
- AGC of Washington's Construction Excellence Award, 2018

Relevant Experience

Indian Creek Plaza
Caldwell, ID

Boise City Hall Plaza
Boise, ID

Cherie Buckner-Webb Park
Boise, ID

CCDC Linen Blocks on Grove Street
Boise, ID

Old Boise Master Plan
Boise, ID

River Lane Apartments
Hailey, ID

Downtown Hailey Master Plan
Hailey, ID

Atlas Mill Development Master Plan
Coeur d'Alene, ID

Creekside Mixed-Use Redevelopment
Caldwell, ID

WSU Elson S. Floyd Cultural Center
Pullman, WA

Burien Town Square
Burien, WA

Timber Yards Master Plan
Bend, OR

Rhodes Park
Boise, ID

Ann Morrison Park Master Plan
Boise, ID

The Heights District Master Plan
Vancouver, WA

The Gardens District
Woodinville, WA

Ben White AIA, NCARB

PROJECT MANGER

Ben employs extensive experience from a wide range of projects, a passion for design, familiarity with standard practices, and honed technical skills to his work. He brings enthusiasm, creativity, efficiency, and a strong work ethic. Ben's projects benefit from his strong leadership skills and his attention to detail while being mindful of budgetary and schedule constraints. He is highly motivated and self-directed—well-experienced in managing multiple projects while guiding and mentoring project team members. He is an excellent communicator experienced in interpreting and implementing client visions. He establishes and champions the design throughout all phases of a project. He is skilled at shepherding projects through land use review and permitting processes in a variety of jurisdictions, and is well versed in working with community groups and neighborhood organizations. In addition to coordinating the work of project teams through the documentation phase, he works closely with contractors and owners to ensure design intent and technical standards are upheld through construction.

Firm
GGLO

Education
University of Idaho
Master of Architecture
Bachelor of Architecture

Registration
Registered Architect in Idaho and California

Professional Affiliations
American Institute of Architects, AIA

National Council of Architectural Registration Boards, NCARB

Relevant Experience

The Perry
Ketchum, ID

16th and State Apartments
Boise, ID

State and Arthur Apartments
Boise, ID

San Diego Waterfront Park*
San Diego, CA

Wassmuth Education Center*
Boise, ID

Ablerta 13*
Portland, OR

The Beatrice Morrow*
Portland, OR

LaScala*
Beaverton, OR

The Magnolia*
Portland, OR

Village Quarter*
McMinnville, OR

Evergreen Aviation Space Museum*
McMinnville, OR

**Project completed prior to joining GGLO*

Connie St. George AIA, LEED AP Legacy

PROJECT ARCHITECT

A senior architect with 22 years of experience, Connie's strength lies in finding ways to simply communicate complex ideas while working with clients to realize their goals. Connie is passionate about the importance of creating spaces that transform the experience of the user and providing a special place for life to unfold. Her experience includes a diverse portfolio of projects including multi-family and senior housing, mixed-use, retail, medical, commercial, educational, and restaurant experience.

Firm
GGLO

Education
University of Idaho
Bachelor of Architecture

Registration
Registered Architect in Idaho; Washington

LEED AP Legacy

Professional Affiliations
American Institute of Architects, AIA

Relevant Experience

Oxbow
Bozeman, MT

27th and Fairview
Boise, ID

The Perry
Ketchum, ID

5th and Grove – Office Building
Boise, ID

State and Arthur
Boise, ID

River Lane Apartments
Hailey, ID

Idaho Youth Ranch Master Plan*
Caldwell, ID

Riverside Hotel Master Planning*
Boise, ID

Longmont Condominiums*
Boise, ID

Trappers Island*
Boise, ID

Battery Street Mixed-use Development*
Boise, ID

Eagle Springs Lofts*
Eagle, ID

10th and Main Renovation*
Boise, ID

**Project completed prior to joining GGLO*

Phillip Decker PLA, ASLA

LANDSCAPE ARCHITECT

Phillip finds solace in many of the PNW's more varied activities, from back country skiing, hiking, mountain biking, fly fishing or his favorite golf course. His love for all things outdoors has fostered a deep appreciation for integrated, site-specific design that is both ecologically responsible and authentic to each and every site. When designing, Phillip studies and expresses the inherent character of a neighborhood, geographic region, and the site's history. This approach helps tell the story of the community and site through overall site layout, down to the intrinsic details.

Phillip's extensive experience has spanned a diverse set of private, public, and institutional projects throughout the northwest, northeast, and Asia. He has a broad experience in project types that include residential, master planning communities, public plazas, stream restoration, retail lifestyle center and public and private schools.

Firm
GGLO

Education
Washington State University
Bachelor of Landscape Architecture

Interdisciplinary Design Institute

Registration
Professional Landscape Architect in Washington

Professional Affiliations
American Society of Landscape Architects, ASLA

Relevant Experience

The Perry
Ketchum, ID

Fox Run
Ketchum, ID

104 Channel Lane
Ketchum, ID

Greenhorn Gulch Master Plan
Ketchum, ID

Lion's Park
Ketchum, ID

Hailey Downtown Parks Master Plan
Hailey, ID

Oxbow
Bozeman, MT

Northgate Mall Redevelopment
Seattle, WA

Woodin Creek Village
Woodinville, WA

Village at Totem Lake
Kirkland, WA

The Hixon at Westside Yard
Bend, OR

WSU Chinook Student Center
Pullman, WA

WSU Gateway
Pullman, WA

James Greene PLA, ASLA, LEED AP Legacy

TECHNICAL LEAD

Even though he is a native of Michigan, James has embraced the active Pacific Northwest lifestyle. You will often find him outdoors on warm summer days; taking in a round of golf, hiking the back country or out on the water. It is his love for the outdoors that has fostered his drive to design unique and memorable outdoor settings.

James has participated in many multi-disciplinary projects across the US and Asia. His diverse set of skills, experience and desire to create extraordinary spaces has made him a perfect addition to the GGLO team.

Firm
GGLO

Education
Michigan State University
Bachelor of Landscape Architecture

Registration
Professional Landscape Architect in Washington; Michigan

LEED AP Legacy

Professional Affiliations
American Society of Landscape Architects, ASLA

Relevant Experience

Indian Creek Plaza
Caldwell, ID

Boise City Hall Plaza
Boise, ID

CCDC Linen Blocks on Grove Street
Boise, ID

Harbor Steps Plaza
Seattle, WA

Northgate Mall Redevelopment
Seattle, WA

The Gardens District
Woodinville, WA

Woodin Creek Village
Woodinville, WA

ASA Flats & Lofts
Portland, OR

624 Yale
Seattle, WA

57 Ballard
Seattle, WA

Saratoga Ballard
Seattle, WA

WesternCedar
Seattle, WA

The Lucy Apartments
Boise, ID

Thomas Logan Apartments
Boise, ID

Ryan Ewing

ELECTRICAL ENGINEER

Ryan Ewing is an electrical engineering design lead and project manager with experience in retail, commercial, government, multi-use, assisted living, hospitality, and many other project types. He specializes in the management of fast paced, complex design projects with special attention to project schedules, production staff, quality assurance, and a high level of attention to client desires. Electrical design expertise includes building electrical service, lighting, power, telephone/ data raceway systems, energy compliance, and photovoltaic systems.

He is a highly effective electrical design leader with project experience in traditional design-bid-build and design-build deliver for projects including, commercial, government, multi-use, assisted living, hospitality, overhead distribution, and more. Ryan is experienced in management of fast paced, complex design projects with special attention to project schedules, production staff, quality assurance, and high level of attention to client desires. He also specializes in design of building electrical service, lighting, power, telephone/data raceway systems, energy compliance, and photovoltaic systems.

Firm
DC Engineering

Education
University of Virginia
Master of Architecture

Vassar College
Bachelor of Arts in History

Registration
Registered Architect in Washington

AIA

NCARB

Civic Involvement
The Washington Alpine Club, Volunteer Instructor 2008 – 2010

AWB Seattle, Board Member, Secretary 2006 – 2008

AWB Seattle, Board Member, Treasurer 2005 – 2006

Seattle Architecture Foundation, Volunteer

Seattle Central Library, Volunteer

Relevant Experience

Blaine Manor Family & Senior Community
Hailey, ID

Hailey Advocates Safe Housing
Hailey, ID

Tesoro Viejo Welcome Center
Madera, CA

Nampa City Hall Remodels I & II
Nampa, ID

Blue Cross of Idaho Campus Remodels, Buildings 1 - 4
Meridian, ID

Norco Headquarters Facility
Meridian, ID

Fairfield Inn & Suites
Hailey, ID

Mick Grefenson PE

MECHANICAL ENGINEER

Michael "Mick" Grefenson is a senior project engineer and project manager with over 30 years of experience mechanical engineering and design. Since graduating from USMMA, he has worked on a variety of projects in the Commercial, Governmental, Healthcare, Industrial, Semiconductor and Naval Shipboard industries. Mick applies the fundamental engineering concepts and operational attributes of system design to create successful, efficient and maintainable buildings and campus-wide mechanical systems.

Mick's responsibilities as a lead project engineer and team lead on projects included taking projects from inception to commissioning including: project team selection and manpower requirements, mechanical, hydronic and plumbing systems conceptual development and implementation, engineering team oversight and mentoring, project specification development as well as project construction administration duties and site visits

Extensive experience including commissioning related to equipment functional performance testing, operation of chilled water, condenser water, steam, heating hot water, and plumbing systems. In-depth understanding of critical room HVAC systems requiring de-humidification/humidification and air change rates to meet specific indoor air temperature and quality requirements.

Firm
DC Engineering

Education
United States Merchant Marine Academy
Bachelors of Mechanical Engineering

Registration
Professional Engineer in Idaho; California; Colorado; Nevada; Oregon; Washington

Relevant Experience

Lewis & Clark Activity Center
Lewiston, ID

St. Luke's Nampa Hospital Campus
Nampa, ID

Cactus Pete's Resort & Casino
Jackpot, NV

Boise State University, Civil Engineering Building
Boise, ID

Nampa Recreational Center
Nampa, ID

Traveler's Oasis
Eden, ID

David Patrie

CIVIL ENGINEER

David has a 15+ year history with surveying, engineering and land use practice in the Wood River Valley. Since moving from another mountain town in Colorado in 1998 David has been engaged in maintaining and developing the mountain town culture in the Wood River Valley. He has been an advocate and practitioner for a wide range of issues from workforce housing to town vitality to livability and vibrance.

David began working in the engineering and land-use fields with Benchmark Associates in the booming mid-2000's. The Great Recession forced a temporary move away from the Wood River Valley from 2009–2011. During that time he worked for a civil engineering firm constructing public infrastructure improvements in London, England in advance of the 2012 Summer Olympics.

David returned to Ketchum in 2011 to head the Blaine County Housing Authority (BCHA). In his time at BCHA, In 2016, David founded Sawtooth Strategies to provide land-use planning and housing strategy services in Blaine County. He also worked with Sun Valley Economic Development to leverage the synergies between workforce housing and economic development.

David purchased Benchmark Associates with a partner in 2021. In 2023, Benchmark Associates acquired Galena Engineering and now Galena-Benchmark Engineering. Galena-Benchmark is multi-disciplinary firm that provides Civil Engineering, Surveying, Mapping and Land-use Planning services.

Firm
Benchmark Associates

Education
Clarkson University
Bachelors of Interdisciplinary Engineering & Management

Registration
Idaho Engineering + Survey Licence #C-4413

Civic Involvement
Ketchum / Sun Valley Rotary Club, Board of Directors

Mountain Rides Transportation Authority, Board Chair

Ketchum Development Community Development Corporation – Workforce Housing Committee

US Bank – Board of Advisory Directors of the Wood River Valley

Blaine County Economic Summit, Panelist

Idaho Economic Development Association, Panel Moderator

Subject matter expert and/or steering committee member for the City of Ketchum, City of Sun Valley and Blaine County Comprehensive Plans

Relevant Experience

Sweetwater
Hailey, Idaho

1st and 4th Mixed-Use
Ketchum, ID

Elkhorn Springs Mixed-Use
Sun Valley, ID

Quigley Farm
Hailey, ID

The Fields
Ketchum, ID

SWC Condos (Scott Building)
Ketchum, ID

Ashley Thompson PE, SE

STRUCTURAL ENGINEER

Ashley is an Associate with KPFF and a mixed-use, housing, and multi-purpose project specialist. With a Master's degree in structural engineering and human-centered design, Ashley is passionate about creating spaces for communities to engage and families and friends to unite, making lasting memories. She works closely with the design team throughout design and construction to achieve performance criteria while meeting aesthetic and budget targets. With a broad range of project experience, she can support the City of Ketchum's project needs while proactively solving issues in advance.

Firm
KPFF

Education
University of Washington
MS, Structural Engineering
MS, Human-Centered Design and Engineering

University of Georgia
BS, Engineering

Registration
Structural Engineer in Idaho #17214; Washington; California

Professional Engineer in Idaho #17214; Washington; California

Professional Affiliations
Idaho Women in Architecture, Engineering, and Construction, Founder

Urban Land Institute Idaho, Member

Leadership Boise Alumni, Member

Relevant Experience

Indian Creek Plaza
Caldwell, ID

Idaho Botanical Gardens
Boise, ID

CCDC Linen Blocks on Grove Street
Boise ID

The Perry Mixed-Use
Ketchum, ID

River Lane Workforce Housing
Hailey, ID

Ketchum Bluebird Affordable Housing
Ketchum, ID

200 N Main Street Mixed-Use
Ketchum, ID

Ketchum Mixed-Use on Main
Ketchum, ID

State and Arthur Affordable Housing
Boise, ID

Salt Box Development
Boise, ID

Heath Property
Boise, ID

Riverside Mixed-Use
Spokane, WA*

The Lucy Mixed-Use
Boise, ID

Thomas Logan Mixed-Use
Boise, ID*

160 Main Mixed Use
Twin Falls, ID*

** Project completed prior to joining KPFF*

Patrick Horn

WATER FEATURES CONSULTANT

Patrick's artistic and meticulous nature serve him well as CMS' Senior Designer. Taking a lead role in technical design, his responsibilities include front-end design, coordination, mechanical design, and concept designs and renderings. He also directs the coordination of CMS' mechanical construction documents. Over the past 15 years with CMS, Patrick has been involved with over 100 public and private water feature projects.

Firm
CMS Collaborative

Education
San Francisco State University
Bachelors in Industrial Design

Relevant Experience

525 Market Street
San Francisco, CA

The Bill and Melinda Gates Foundation
Seattle, WA

Children's Hospital of Philadelphia
Philadelphia, PA

Guthrie Green
Tulsa, OK`

Highline Park
New York, NY

Tanner Springs Park
Portland, OR

Harbor Steps Plaza
Seattle, WA

Firm
Trademark

Education
Modesto Junior College
Bachelors of Fine/Studio Arts

John Yarnell

BRANDING/WAYFINDING DESIGN LEAD

John Yarnell is the founder and principal partner of Trademark Design and Fabrication, a creative studio specializing in design for the built environment. With over 24 years of experience in branding, public art, wayfinding, environmental graphic design, and artistic signage , John has a proven track record of success in leading multifaceted projects with budgets in excess of 1.5 million dollars. He is passionate about collaborating with stakeholders to create work that serves the greater good of the community.

John's experience in concept design, development, fabrication, and complex installations is matched by his exceptional ability to communicate and collaborate with clients and stakeholders.

As a practicing artist, John has a keen eye for aesthetics and an innate ability to create captivating visual experiences. Recently, he completed a large-scale public art piece in Downtown Boise, Idaho, which showcases his ability to integrate art and design into the built environment seamlessly.

With his extensive experience and collaborative approach, John is dedicated to bringing his expertise and creativity to every project he undertakes, with a focus on delivering designs that serve the greater good of the community.

Relevant Experience

Pale Blue Dot – Exterior Sculpture
Boise, ID

Interactive Play Sculpture – BUGS Garden
Boise, ID

Hatch Building Mural
Garden City, ID

Interpretive Sign Program – Birds of Prey
Boise, ID

Champion's Flame – Exterior Kinetic Sculpture – Champion's Park
Boise, ID

Sculptural Bike Rack System + Artistic Signage – Discovery Park
Meridian, ID

**Exterior/Interior Sculpture + Placemaking Program –
The Elks Children's Pavilion at St. Luke's Regional Medical Center**
Boise, ID

**Interpretive Sign Program and Sculptural Park Elements –
MK Nature Center**
Boise, ID

Scuptural Bollards – Interpretive Sign Program – Julia Davis Park
Boise, ID

Foothills Mural – Exterior Metal Mural – 5th and Broad
Boise, ID

Landmark Letters – Exterior Sculpture – Rhodes Park
Boise, ID

Education
University of Washington,
Bachelor of Marketing & International Business Studies

Certifications
Certified Professional Estimator, CPE

Leadership in Energy and Environmental Design Accredited Professional, LEED AP

Women Business Enterprise Washington, WBE

Women Business Enterprise Oregon, WBE

King County Small Contractors & Suppliers, SCS

Women Owned Small Business, WOSB

Professional Affiliations
American Association of Cost Engineering, AACE

American Society of Professional Estimators, ASPE

American Institute of Architects, AIA

Trish Drew CPE, LEED AP

DCW, COST ESTIMATOR

Trish Drew, CPE, LEED AP brings 30+ years of construction industry experience to our team, with over 20 years in construction management. She has been an active member of the design team achieving maximum design to budget results. Beginning at the programmatic level, Trish works with the team to provide "live" budgetary feedback on design concepts, thus significantly reducing redesign. She has a thorough working knowledge of labor efficiencies, market fluctuations, project budgeting, competitive estimating, and contract negotiation.

Relevant Experience

CCDC Linen Blocks on Grove Street
Boise, ID

General Services Administration, James McClure Federal Building PDS
Boise, ID

Schweitzer Mountain Resort, Humbird Resort Expansion & Renovation
Sandpoint, ID

Molbak's Home + Garden, Town Center Redevelopment
Woodinville, WA

City of Renton, Pavilion Redevelopment
Renton, WA

Oxford Development Company, Hazelwood Green Plaza
Pittsburgh, PA

Hemisfair Civic Park
San Antonio, TX

City of Sherwood Oregon, Sherwood Festival Plaza
Sherwood, OR

Downtown Yakima Civic Park and Urban Plaza
Yakima, WA

Discovery West Plaza
Bend, OR

1 & 2 Union Square Park Plaza
Seattle, WA

City of Tualatin, Veterans Plaza
Tualatin, OR

City of Des Moines, Marina Steps
Des Moines, WA

Portland Parks & Recreation, Gateway Park and Urban Plaza
Portland, OR

**Portland General Electric, World Trade Center Plazas
Security Enhancements**
Portland, OR

3

SIMILAR PROJECTS

Indian Creek Plaza — Caldwell, ID

Project Experience Summary

Project	Master Plan for Cohesive + Low Stress Facility	Integration with Adjacent Land-Uses	Community Space	Civic Building Integration	Incorporation of Streetscapes	Wayfinding / Branding Strategies	Multi-modal	Sustainability	Accessibility + Inclusion	Implementation + Maintenance Strategy
Indian Creek Plaza CALDWELL, ID	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Burien Town Square BURIEN, WA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cherie Buckner-Webb Park BOISE, ID	✓	✓	✓		✓	✓	✓	✓	✓	✓
Boise City Hall Plaza BOISE, ID	✓	✓	✓	✓	✓		✓	✓	✓	✓
Northgate Mall Redevelopment SEATTLE, WA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
WSU Elson S. Floyd Cultural Center PULLMAN, WA	✓		✓	✓	✓	✓	✓	✓	✓	✓
Pale Blue Dot BOISE, ID		✓	✓			✓		✓		✓
Idaho Elk Children's Pavilion BOISE, ID	✓	✓	✓			✓		✓		✓
Julius Kleiner Memorial Park MERIDIAN, ID	✓		✓		✓	✓	✓	✓	✓	✓

Indian Creek Plaza | CALDWELL, ID

Firm: GGLO

Client: City of Caldwell

Statistics:
1 acre

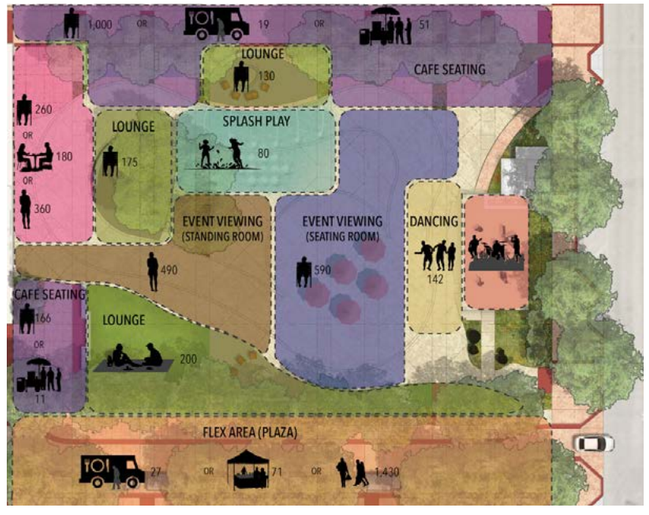
Services:
Master Planning
Public Engagement
Urban Design
Landscape Architecture

Awards:
- ENR, Mountain States Best Projects, Award of Merit
- Urban Development, Idaho Top Projects Finalist, 2019

Caldwell, Idaho was once a town people drove through on the way to wine country. In 2013, city planners set out to create a downtown that is full of life and activity. During a comprehensive process interviewing residents on ways to improve the city, one key theme arose—to transform downtown and create a destination. The resulting Indian Creek Plaza does just this, creating a "living room" where residents and visitors alike feel welcome to gather, relax, and play.

The Plaza is organized around the guiding theme of Palimpsest, layering the past with the future. The site is carefully designed to honor the rich history of downtown Caldwell, showcasing the architectural and agricultural significance of the area. Design of the Plaza provides space for year-round activities that draw visitors including concerts and farmers market in warmer months and an ice-skating ribbon surrounded by fire pits and seating in the winter.

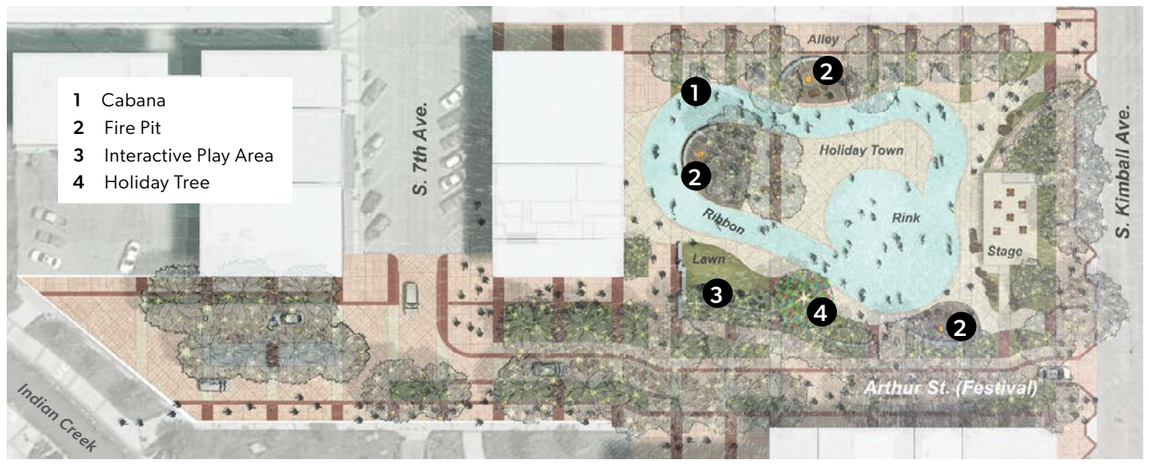
Indian Creek Plaza has served as a strong catalyst for revitalization of the Downtown region, directly inspiring the creation of new businesses and establishing a destination at the heart of Caldwell. Expectations for the number of visitors and the business it would bring to the community have been consistently surpassed, such that Indian Creek Plaza is now considered a rousing success and a popular family destination.

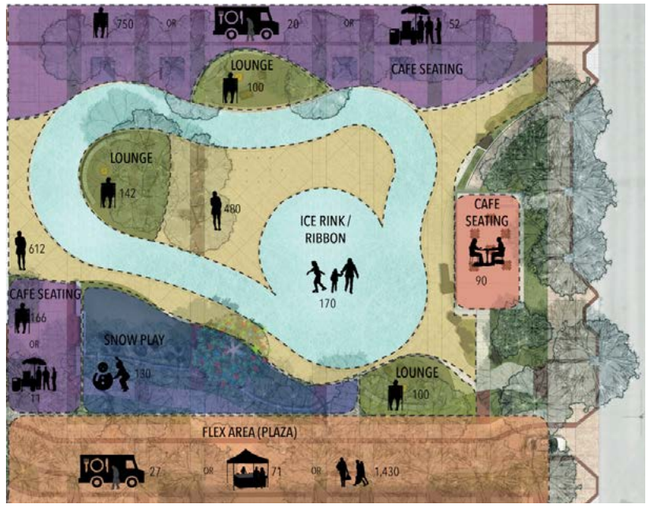


SUMMER - EVENT UTILIZATION

- (1) PERSON SITTING: 5 SF
- (1) PERSON STANDING: 5 SF
- (2) PERSON CAFE SEATING: 10 SF
- (1) PERSON PLAYING: 20 SF
- (1) VENDING CART: 10 SF
- (1) PERSON DANCING: 7 SF
- (1) MARKET STALL: 100 SF
- (1) PERSON SHOPPING: 7 SF
- (1) FOOD TRUCK: 260 SF

MAX CAPACITY: APPROX 4,500
(MIXED SITTING/STANDING)





WINTER - EVENT UTILIZATION

- (1) PERSON SITTING: 7 SF
- (1) PERSON STANDING: 5 SF
- (2) PERSON CAFE SEATING: 10 SF
- (1) PERSON PLAYING: 20 SF
- (1) VENDING CART: 10 SF
- (1) PERSON ICE SKATING: 40 SF
- (1) MARKET STALL: 100 SF
- (1) PERSON SHOPPING: 7 SF
- (1) FOOD TRUCK: 260 SF

MAX CAPACITY: APPROX 4,250
(MIXED SITTING/STANDING)

Burien Town Square | BURIEN, WA

Firm: GGLO

Client: City of Burien

Statistics:
1.5 acres
240,569 sf

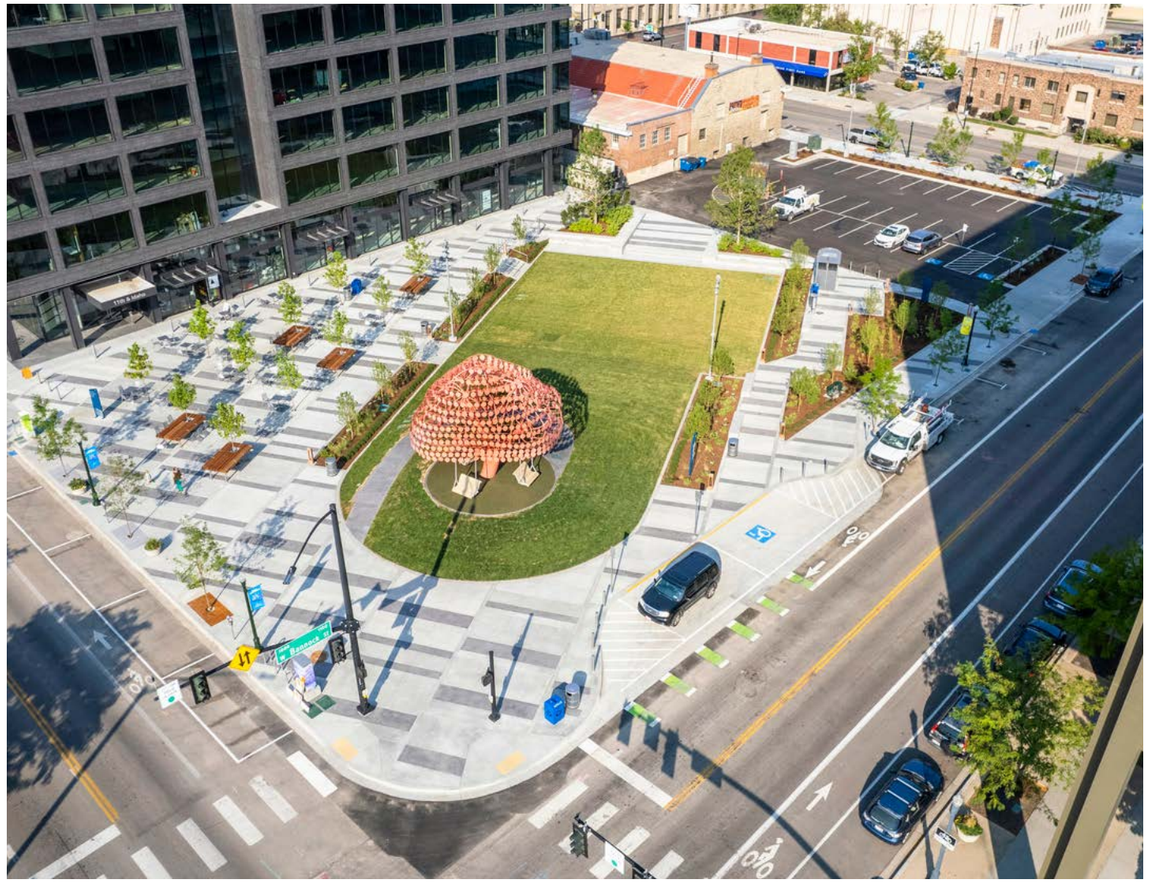
Services:
Master Planning
Public Engagement
Urban Design
Landscape Architecture
Architecture

Awards:
- Puget Sound Regional Council, Vision 2040 Award
- American Planning Association–WA, Implementation Award

With more than four years of planning, community involvement, and visioning, Burien Town Square transformed downtown Burien into a vibrant urban space. In pursuit of that goal, a previous Downtown Plan identified three key elements: a revitalized main street, a new transit center, and a new Town Square.

This downtown redevelopment project created a vibrant mix of uses around a large, central open space. A civic complex, combining a new City Hall with a new County Library, facing residential mixed-use buildings across a plaza with an interactive water feature, a performance lawn and stage, and sustainable demonstration gardens. Ground level retail uses and residential live work units engage the sidewalk and encourage pedestrians to stroll.


WHAT IS A RAIN GARDEN?



Cherie Buckner-Webb Park | BOISE, ID

Firm:
GGLO

Client:
Capitol City Development Corporation

Statistics:
.5 acres

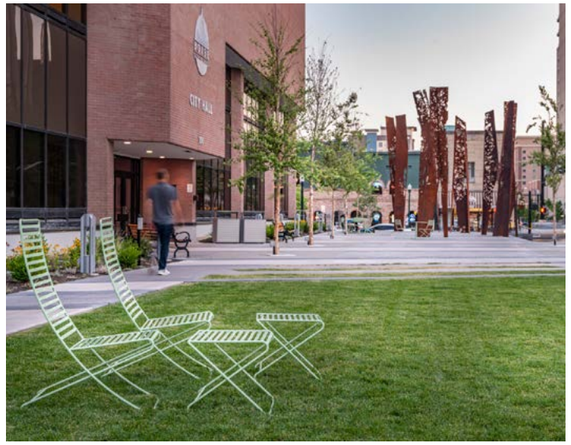
Services:
Landscape Architecture
Urban Design

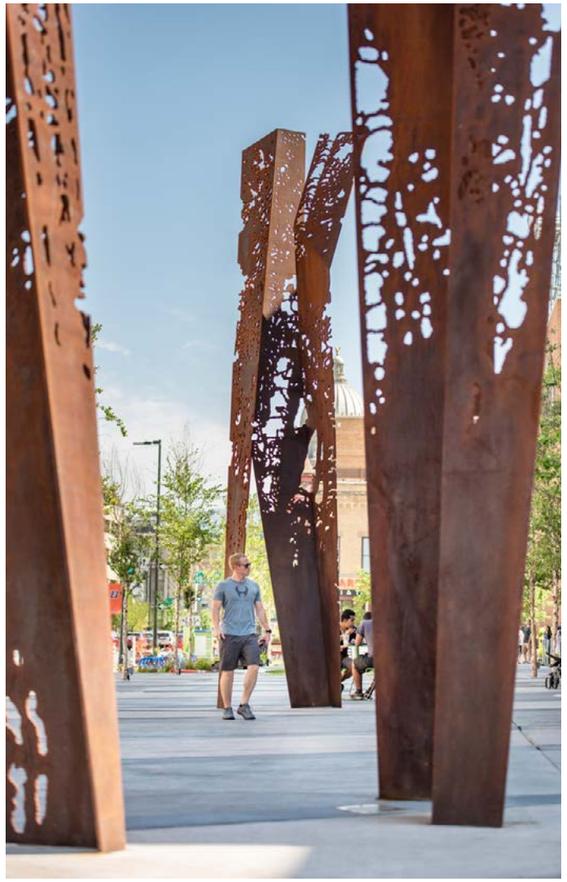
Awards:
- ASLA ID/MT Chapter, Professional Honor Award, 2022
- Idaho Business Review, Idaho's Top Projects, 2022

Westside Downtown Boise is an evolving neighborhood that lacks adequate public space amenities for the growing population of residents and businesses. The Cherie Buckner-Webb Park provides a place for people to connect with the outdoors on a daily basis, serve as a hub for community events, and enhance the urban lifestyle of downtown employees, residents, shoppers and visitors.

The park site is surrounded by surface parking lots that detract from downtown's vibrancy, walkability and economic vitality. Making this public investment will catalyze private investment in housing, dining, office, and neighborhood services next to and near the public park.

Situated along a bicycle corridor to and from downtown, the park will provide amenities that enhance the downtown pedestrian and cycling experience with streetscape improvements and key features including: a large, tree-lined green space, public art, shaded seating, new streetscapes along all three street frontages, pedestrian alley with limited auto access, public restrooms, and places to store bikes.





Boise City Hall Plaza | BOISE, ID

Firm:
GGLO

Client:
City of Boise

Statistics:
1 acre

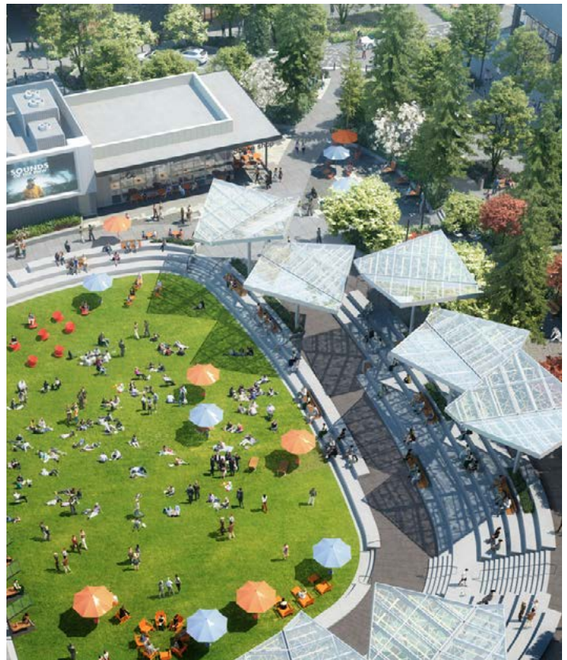
Services:
Landscape Architecture
Urban Design

The city of Boise has undergone rapid transformation over the past several years through an ambitious initiative to become the "most livable city in the country." When it became clear that the existing city hall and plaza did not align with the overall goals for the city's development, the city partnered with GGLO to design a solution that signals a vibrant, livable future for Boise.

The design team combined the feedback about hopes for the vision of the new Civic Square with their own expertise and created a concept plan for a communal space that demonstrates a commitment to sustainability and promotes healthy living through active design.

An elevated event plaza, broad sitting steps, and an artfully designed civic lawn promote community gathering and daily use. An interactive water feature, integrated lighting, and natural landscaping create a welcoming and beautiful space that encourages use and supports physical distancing when needed. A series of metal sculptures cast shadows on the surroundings that resemble sunlight dancing through the filter of tree leaves.

The new Civic Square welcomes visitors into Boise City Hall and provides an artful and accessible space that supports both transit and gathering.



Northgate Mall Redevelopment | SEATTLE, WA

Firm:
GGLO

Client:
Simon Property Group;
Seattle Kraken

Statistics:
41 acres
940 units
330 keys
404,000 sf retail
995,000 sf office
120,000 sf fitness center
172,000 sf Seattle Kraken NHL Ice Centre

Services:
Architecture
Landscape Architecture
Urban Design

Northgate Mall is being reimagined as a vibrant, bustling urban mixed-use environment with retail, office, hotel, residential, and recreational uses.

At the center of this redevelopment is a network of new streets and pedestrian corridors that create pathways connecting various residential, retail, and office properties. A significant new central park space provides maximum flexibility, from passive recreation to energetic performances. The elevation change in the park creates opportunities for amphitheater seating, with the lower area and lawn at the same level as the Kraken Community Iceplex, and the upper area connected to the 3rd Avenue Pedestrian Promenade. The celebration forest illuminates the park with holiday spirit during the winter months, while the spray feature cools visitors throughout the summer. A future retail pavilion will house restrooms and a large overhead screen. Outdoor living rooms are lushly planted, incorporated play/games, seating, and outdoor amenities.

The edges and interaction between the park and its surrounding active retail and restaurant uses, along with the Seattle Kraken's NHL practice facility, will maximize vitality, vibrancy, and a sense of belonging.

WSU Elson S. Floyd Cultural Center | PULLMAN, WA

Client:
Washington State University

Statistics:
14,694 sf
LEED Gold

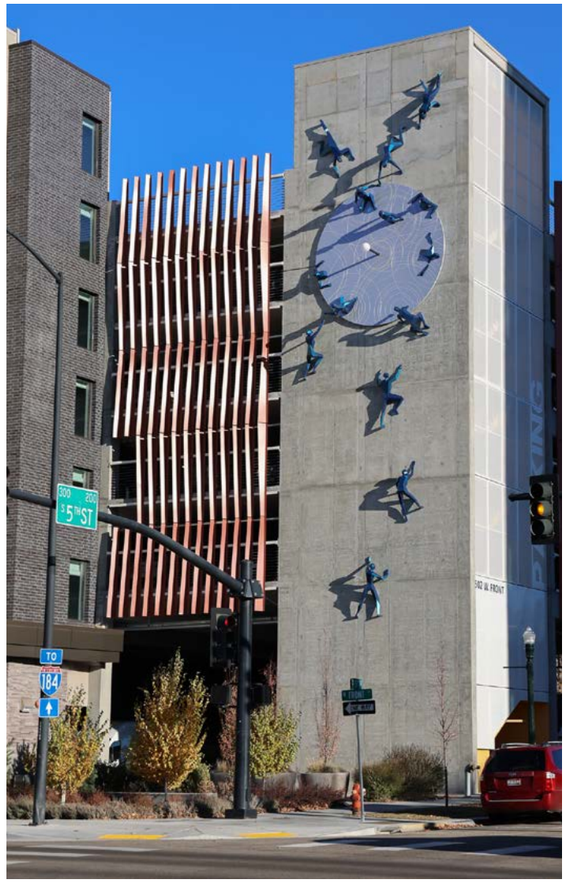
Services:
Architecture
Interior Design
Landscape Architecture

Awards:
- DBIA Best in Design, Architecture Special Recognition, 2018
- DBIA National Award – Merit Award Educational Facilities, 2018
- AGC of Washington's Construction Excellence Award, 2018

Students in culturally-diverse universities have long advocated for spaces that reflect their communities and their cultures. Set at the main entrance to the WSU campus, the Elson S. Floyd Cultural Center's design is expressed through a primal building form that references and flows across the surrounding Palouse landscape—erasing the line that distinguishes the built form and its context. Seamless indoor-outdoor celebration spaces, joined by symbolically patterned paving and transparent operable walls, are enveloped by a singular, iconic, and sheltering roof.

The primary gathering space or "living room" is the centerpiece of the project, designed and programmed for cultural celebrations hosted by the University and surrounding communities. Reflecting the university's land grant mission and embracing traditionally underserved cultures of Washington, four knowledge rooms, which are oriented to campus and open to each other, provide educational forums for deep exploration of the individuality and interconnectedness of Asian, Native American, Latinx, and African cultures.

By creating a space specifically for engaging with diverse populations, WSU has a dedicated resource that aims to develop cross-cultural understanding across the entire university community.



Pale Blue Dot | BOISE, ID

Client:
City of Boise,
Capital City Development Corporation

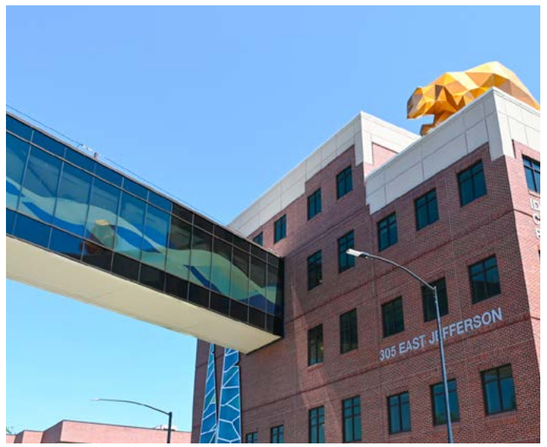
Services:
Public Art

Pale Blue Dot explores an idealistic world in which humanity comes together and agrees to set aside personal differences to share Earth's precious resources. A world where we forget our imagined self-importance and instead, remember our brevity of human life. A world that invites every human being who ever was, from the bookends of humanity and everyone in between, to preserve and enjoy the resources needed by all.

Drawing from the metaphor of a universal watering hole, the elemental gathering point for life immemorial, the one place where an instinctive truce is drawn in the name of the greater good and survival. Each figure inches closer to the watering hole, drawn by the shared human need for connection and safety.

The title references the famous photo taken of Earth by Voyager 1 in 1990 as it left our solar system and the romantic and somber reflections that followed from the photograph's significance. 'Look again at that dot. That's here. That's home. That's us. On it everyone you love, everyone you know, everyone you ever heard of, every human being who ever was, lived out their lives.'— Carl Sagan, Pale Blue Dot, 1994

Pale Blue Dot is a reminder of our shared responsibility to deal more kindly with one another and to preserve and cherish the pale blue dot, the only home we've ever known."



Idaho Elks Children's Pavilion | BOISE, ID

Client:
St. Luke's Regional Medical Center

Services:
Wayfinding + Signage Program
Environmental Graphic Design
Donor Recognition Systems
Custom Play Structures
Interactive Displays
Interior + Exterior Sculpture Program

Idaho Elks Children's Pavilion is a state-of-the-art children's medical facility located in downtown Boise, Idaho. The pavilion features five unique floors, complete with their own tailored theme. Each floor was designed to promote wellness in patients, visitors, and staff-members alike.

From larger-than-life sculptures and interactive play structures, to integrated wall-graphics and wayfinding elements, each floor comes alive with imagery found in Idaho's great outdoors.

Julius Kleiner Memorial Park | MERIDIAN, ID

Client:
City of Meridian

Services:
Logo Identity Development
Sculptural Wayfinding Program
Entryway Sign
Interpretive Signage
Informational Kiosk
Custom Benches

Julius Kleiner Memorial Park is an expansive open space nestled amongst the bustling veins of the city of Meridian, Idaho and is composed of four major sections. Finding inspiration in Idaho's ever changing seasons, we developed an identity, site plan, and overarching theme for the park to ensure a cohesive visual language for the signage and wayfinding plan. An extensive wayfinding system of monolithic signs, whose overall shape is representative of native tree leaves. The colorful backers indicate which quadrant of the park visitors are in, utilizing the unique color of that section of the park.

Whether you're nestled by the fall maple or bundled up under the winter pine, each powder-coated steel sculpture reflects a certain time of year while serving as a navigational guide throughout the park.As if alive, the sculptural statues change depending on the time of day, with the light casting different patterns on the ground as it filters through each cutout. The emblem of Julius Kleiner Memorial Park is prevalent throughout the park on custom exterior elements such as benches, interpretive signage with stanchions, and kiosks.

4

FEES

Indian Creek Plaza — Caldwell, ID

Initial Budget Estimate

Phase	Terms	Estimated Cost
Phase 1 — Discovery	**Hourly Estimate**	**$32,500**
GGLO		$25,000
Galena-Benchmark Engineering		$2,000
KPFF		$2,000
DC Engineering		$1,500
CMS Collaborative		$1,000
Trademark		$1,000
DCW		—
Phase 2 — Refinement of Options	**Hourly Estimate**	**$48,000**
GGLO		$35,000
Galena-Benchmark Engineering		$3,000
KPFF		$3,000
DC Engineering		$3,000
CMS Collaborative		$2,000
Trademark		$2,000
DCW		—
Phase 3 — Implementation of Plan	**Hourly Estimate**	**$32,000**
GGLO		$20,000
Galena-Benchmark Engineering		$2,000
KPFF		$2,000
DC Engineering		$2,000
CMS Collaborative		$2,000
Trademark		$2,000
DCW		$2,000
Project Total		**$112,500**

Hourly Rates

GGLO – Architect + Landscape Architect	
Principal	$265 – $350
Architect	$175 – $240
Architectural Designer	$140 – $155
Landscape Architect	$165 – $230
Landscape Designer	$140 – $155
Intern	$120

DC Engineers – MEP	
Principal Engineer, PE	$165 – $250
Professional Engineer, PE	$140 – $210
Engineer	$110 – $140
Project Manager	$125 – $175
Programmer/System Integrator	$110 – $210
Commissioning Agent	$115 – $165
Designer	$90 – $140
Modeling	$90 – $125
Drafting	$80 – $100
Intern	$55
Admin	$60 – $90

Galena-Benchmark Engineering – Civil Engineer	
Principal	$145
Licensed Professional (PE, PLS, AICP)	$130 – $160
Project Manager (EIT, LSIT)	$110 – $130
Drafter / Field Technician	$70 – $100
Admin / Production Support	$60 – $80
GPS + TCA Instrument	$60

CMS – Water Feature Consultant	
President	$190
Principal	$175
Senior Designer	$125
Designer	$95
Drafter	$70

KPFF – Structural Engineer	
Principal-In-Charge	$195
Associate	$175
Sr. Project Manager – Project Manager	$155 – $140
Project Engineer – Design Engineer	$130 – $110
BIM Coordinator – BIM Modeler	$100 – $80
Admin	$70

Trademark – Branding + Wayfinding	
Project Management + Consultation	$120
Design	$130
Design Engineering	$150
Fabrication	$110
Installation	$110

DCW – Cost Estimating	
Managing Director	$180
Senior Project Leader	$170
Cost Estimator	$160
Admin	$105

5

REFERENCES

Boise City Hall Plaza — Boise, ID

References

City of Boise

DOUG HOLLOWAY
Parks & Recreation Director

208.608.7600
dholloway@cityofboise.org

Capitol City Development Corporation

JOHN BRUNELLE
Executive Director

208.384.4264
jbrunelle@ccdcboise.com

City of Hailey

BRIAN YEAGER
Public Works Director

208.788.9830 x2
brian.yeager@haileycityhall.com

City of Hailey / HURA

LISA HOROWITZ
City Administrator

208.727.7097
lisa.horowitz@haileycityhall.org

City of Caldwell

BRENT ORTON
Public Works Director

208.455.4734
borton@cityofcaldwell.org

GGLO

BOISE
113 S Fifth Street, Suite 200
Boise, ID 83702

208.953.7227

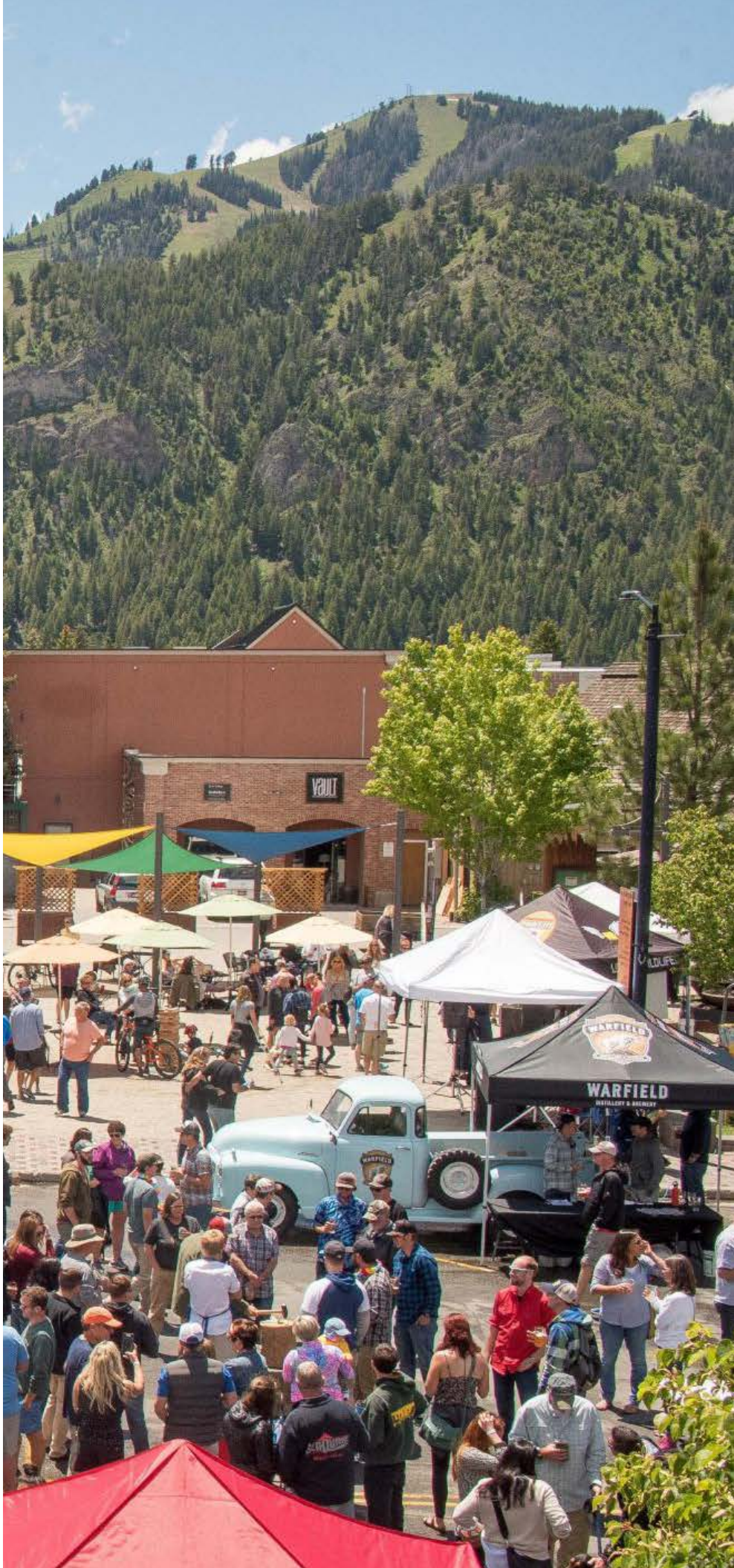
SEATTLE
1301 Fifth Avenue, Suite 2200
Seattle, WA 98101

206.467.5828

LOS ANGELES
4553 Glencoe Avenue, Suite 390
Marina Del Rey, CA 90292

310.751.6688

gglo.com



Attachment 2

Main Street Rehabilitation

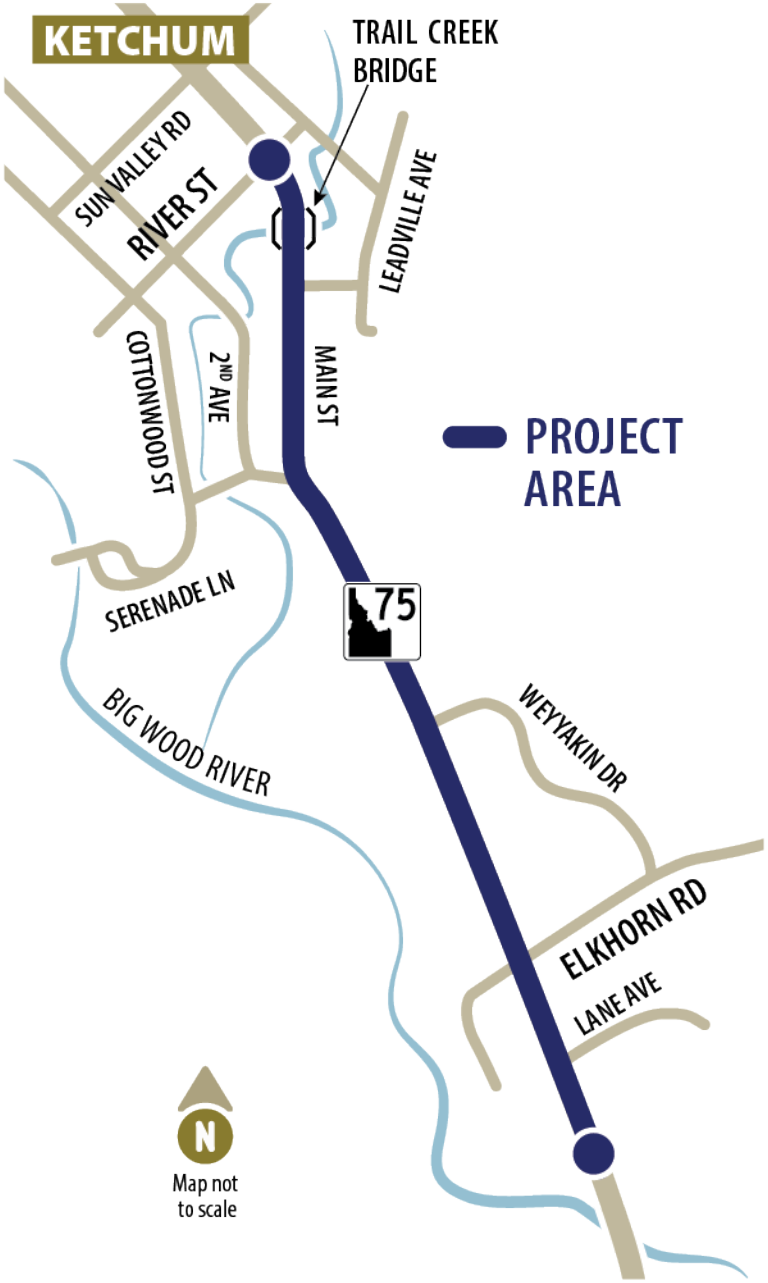
Main Street Rehabilitation

Agenda

- Recap of south of town project (Elkhorn to River)
- Main Street Alternatives Analysis 2022
- Public outreach review
- Funding Request

Main Street Rehabilitation

Elkhorn to River Street – ITD project



Main Street Rehabilitation

Elkhorn to River Street

- General project timing| Utilities – 2024; Construction – 2025 & 2026

- Trail Creek Bridge Construction periods:
    - East side: Presidents Weekend to Memorial Day – 2025
    - West side: Presidents Weekend to Memorial Day – 2026
    - One-way traffic flow during construction
        - Northbound stays on HWY 75
        - Southbound turns at 1st/2nd/Serenade

Existing Conditions – 2022 Main Street Analysis

ITD had project scheduled for 2026.

Deficiencies:

- Operations
  - Inefficient traffic flow
  - Long queue lengths at Sun Valley Road intersection
  - “Don’t take a left in Ketchum”
- Pedestrian Space
  - Cramped in some places
  - ADA challenges

Goals:

- Improve vehicle progression along the corridor
- Reduce travel times
- Improve pedestrian space where possible (sidewalk reconstruction)
- Ensure ADA compliance
- Invest in a roadway configuration that will operate well in future years

Main Street Rehabilitation

Options Already Considered

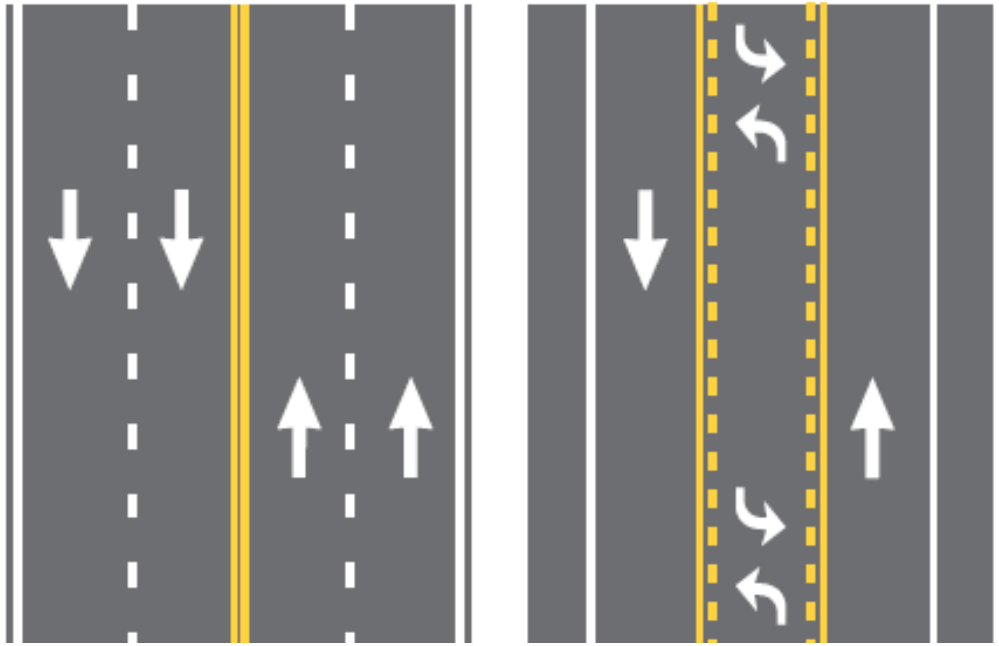
- Lane configuration options
    - Significantly expand sidewalks to adjacent businesses

- Sun Valley Road intersection
    - Allow am/pm peak traffic to flow more consistently
    - Equal pedestrian space on all four corners
    - Address ADA through raised intersection

- Pedestrian improvements
    - Bulbouts at 1st & 5th (similar to 4th) – 2nd & River, too?
    - Reduced lane width from 12’ to 11’ (adds 2.5’ on each side)

Main Street Rehabilitation

Lane Reconfiguration



Benefits:

- Remove split phasing
- Shorter pedestrian crossings
- Much wider pedestrian and sidewalk areas could be built

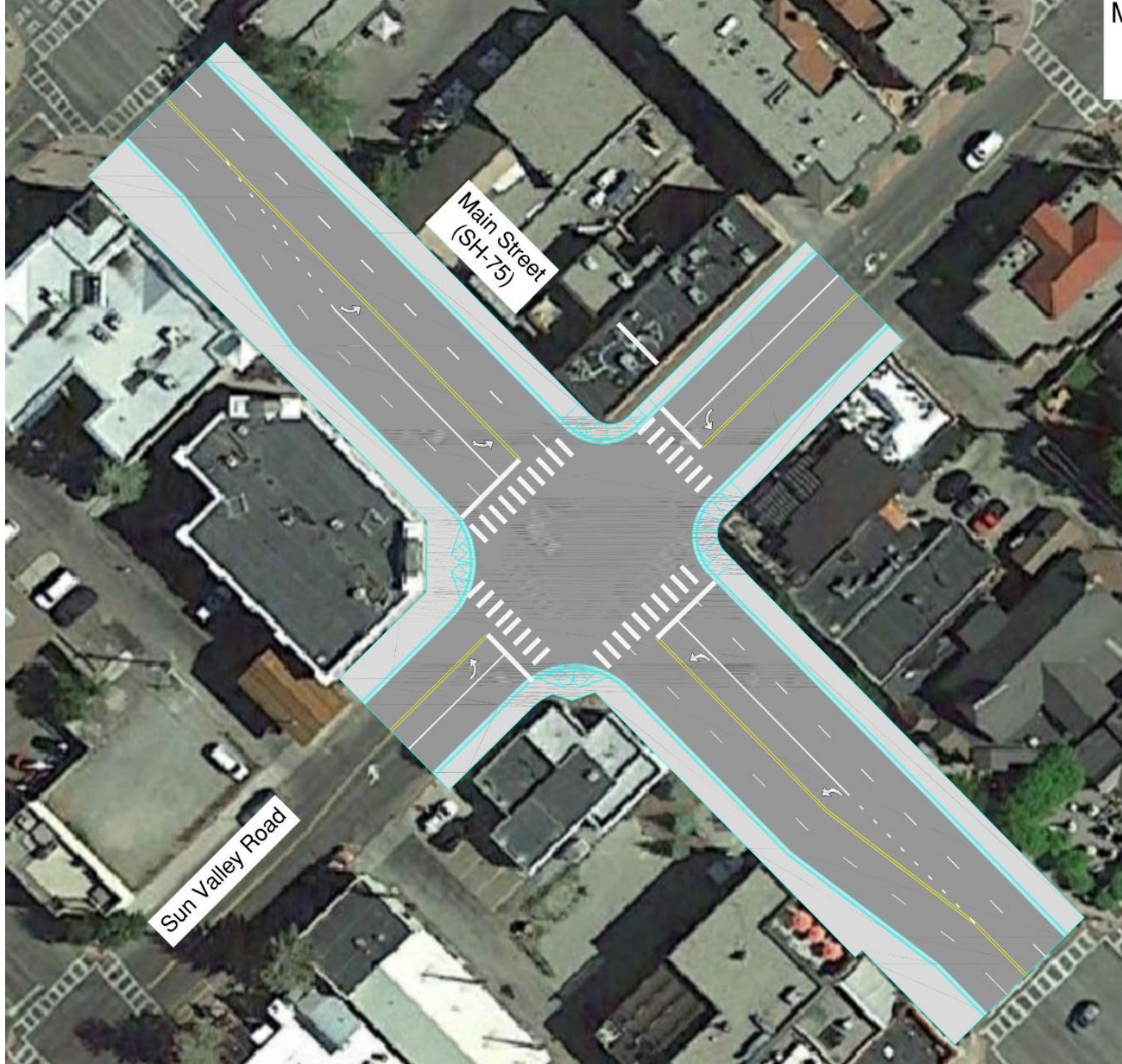
Drawbacks:

- Congestion on Main Street would increase
- Cannot serve all traffic in the peak period
- Waiting vehicles could extend 3 blocks or more on Main Street and 2 blocks or more on cross streets

Main Street Rehabilitation

Sun Valley Road Intersection / Left Turn Lanes

- Improves traffic flow now and in the future
- With right pedestrian treatments, there are still opportunities to improve pedestrian space.
  - Balance sidewalks on each side
  - 11’ lanes, 9.5’ wide sidewalks
- Remove parking
- Evening rush hour
  - 2.71 minutes
  - In 2042 - 5.1 minutes
  - Improved intersection - reduces 2042 from 5.1 to 2.1 minutes



Main Street Rehabilitation

Raised Intersection

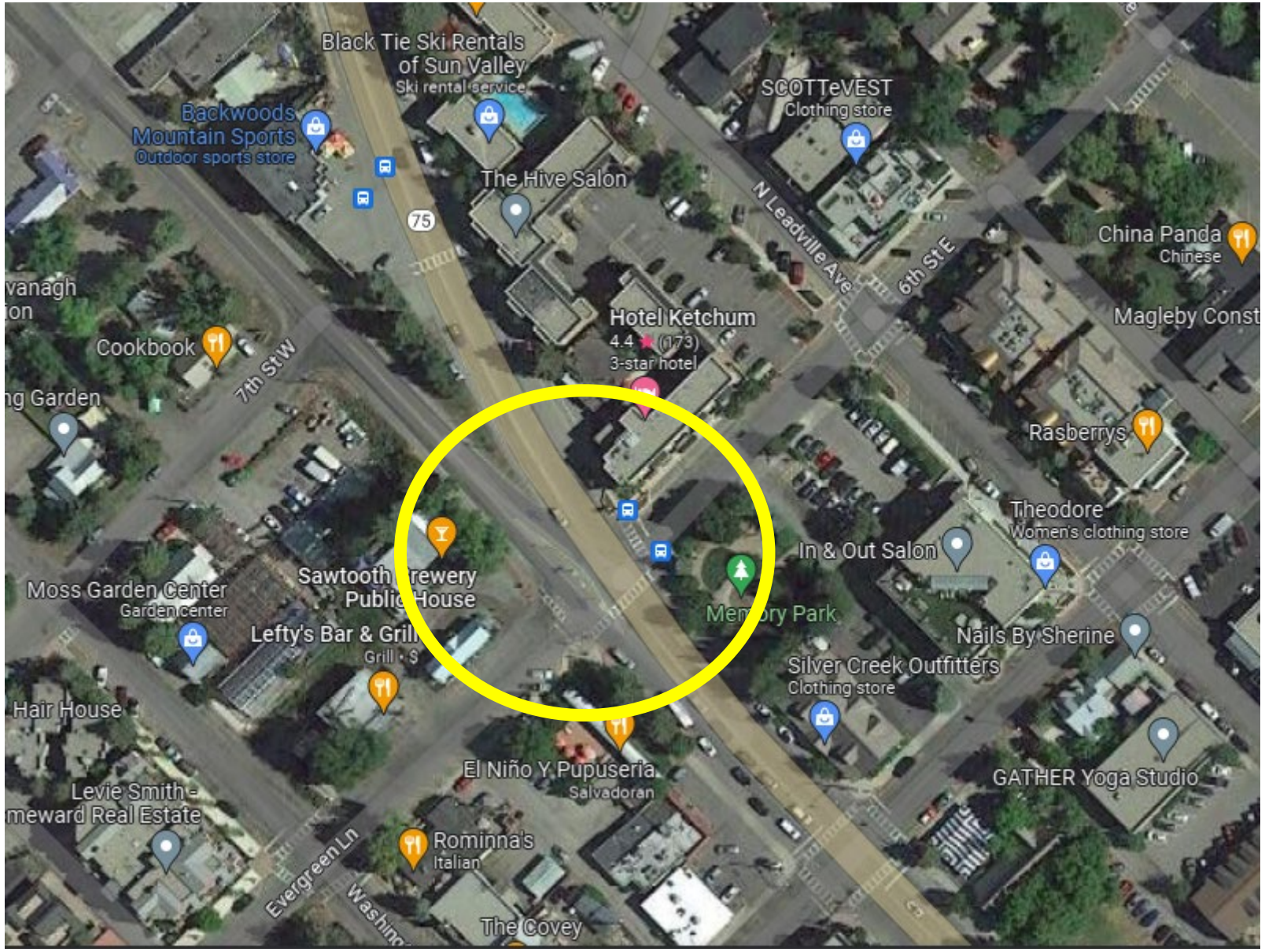
Main Street Rehabilitation

Bulbouts

Install additional bulbouts:

- Existing: 4th and Main
- Proposed:
  - 1st and Main
  - 5th and Main
  - River and Main (?)
  - 2nd and Main (?)

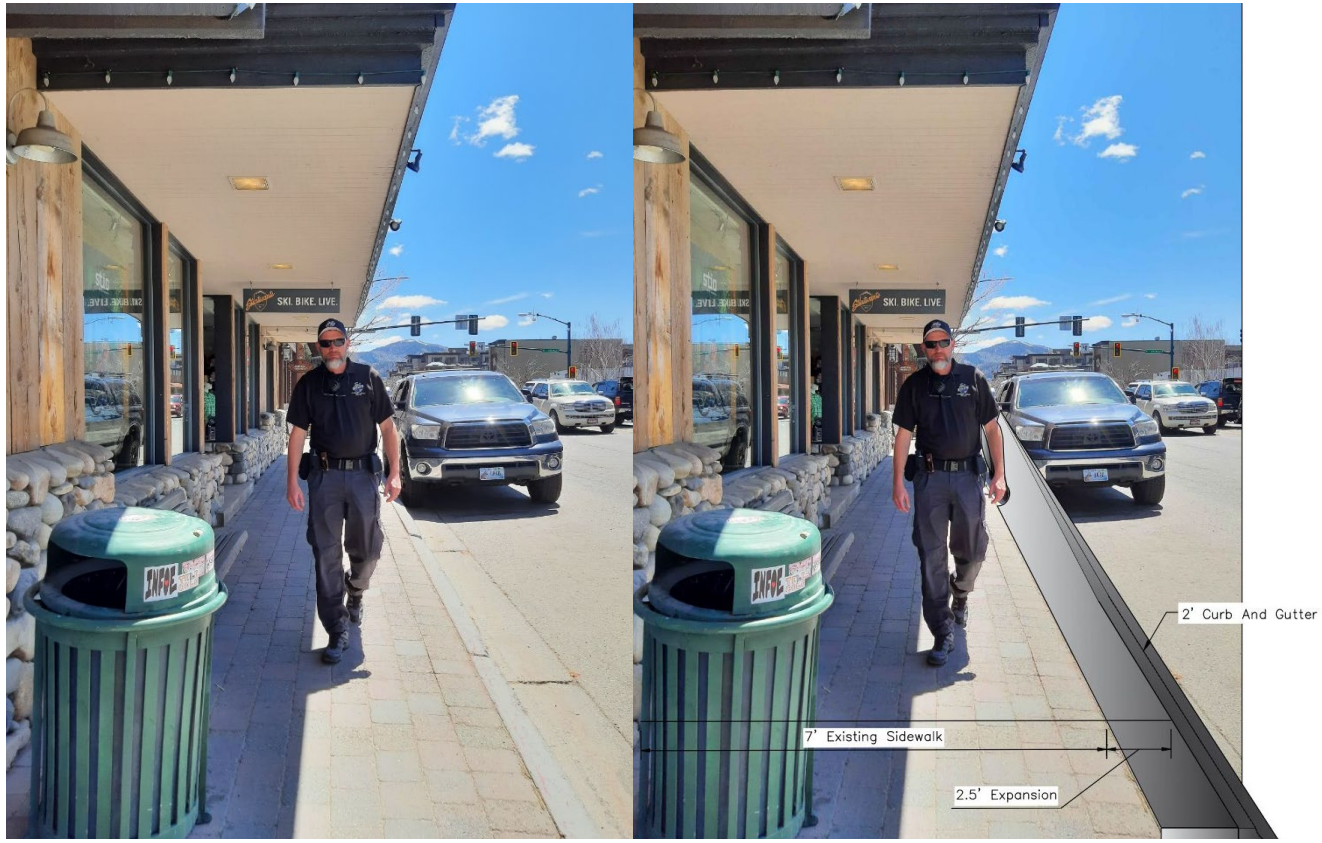
Main Street Rehabilitation | **Warm Springs Intersection**



Main Street Rehabilitation

Wider Sidewalks

Narrow travel lanes from 12' to 11' to give extra space to pedestrians.



Public Outreach

- 2022
    - October 4 (3 Open Houses)
    - October – online survey, 151 respondents

- 2023
    - June 14 & 15
    - Overwhelming support for City to assume project manager role
    - Support for 2024 execution
    - Acknowledgement of need of multi-block closures
    - Concern regarding loss of parking spaces

Attachment 3

Main Street Alternatives Analysis Report

City of Ketchum

Ketchum, Idaho

December 5, 2022

Executive Summary

The City of Ketchum, Idaho (City) *Master Transportation Plan* (2020)[1] identified the opportunity to reduce the number of vehicle travel lanes on Main Street (State Highway 75 [SH-75]) from four lanes to three lanes, with a travel lane in each direction and a center median lane that can provide dedicated left-turn pockets. This configuration has the potential to reduce pedestrian vehicle conflicts and expand the sidewalks. As noted in the *Master Transportation Plan,* some potential drawbacks to the lane reconfiguration could include reduced roadway capacity for general vehicular traffic, emergency vehicles, mail trucks, and transit vehicles. These vehicles may be delayed with increased traffic volumes in the single through lane, left-turn lanes may be hard to access during high demand periods, and it may create some issues with snow removal.

The goals of this project are to improve vehicle progression on the corridor without shifting traffic to local streets, improve pedestrian and bike facilities and crossings, and enhance the streetscape and pedestrian realm. The purpose of this report is to document the alternatives analysis and the decision-making process that led to a recommended alternative.

Existing Conditions

The Main Street corridor is within the Downtown Core neighborhood and the Community Core – specifically Retail Core – Districts within the Ketchum zoning map. These designations match the land uses on the ground, which is evident by a thriving main street corridor. The City's *2014 Comprehensive Plan*[2] identifies potential gateways to the City located at River Street and 6th Street along Main Street.

Of the six blocks that make up the Main Street corridor, some blocks are more successful at providing a public realm that supports the walkable, vibrant downtown feel associated with Ketchum than others. For instance, the blocks along Main Street from 4th to 6th Streets have a strong public realm supporting pedestrians with amenities such as identity and wayfinding signage, landscaping, larger sidewalks, benches, and bike racks. However, moving north or south, the amenities along the blocks oscillate between having a less comfortable and safe public realm and providing certain desirable elements.

The project team analyzed crashes between 2016 and 2020 to assess the safety of the corridor. There were 25 crashes at intersections on Main Street. The most frequent crash type was rear end (13 crashes), and the most frequent contributing circumstance was following too close (8 crashes). Most of the crashes were property damage only (PDO) (15 crashes), with two suspected serious injury (A Injury) crashes, four minor injury (B Injury), and four possible injury (C injury) crashes.

During the 5-year study period, there were 18 non-intersection related crashes on Main Street. The most frequent crash type was rear end (9 crashes), and the most frequent contributing circumstance was following too close (4 crashes). Most of the crashes were PDO (11 crashes),

[1] City of Ketchum, Master Transportation Plan. March 15, 2021.
[2] City of Ketchum. 2014 Comprehensive Plan. February 18, 2014. Available online: https://www.ketchumidaho.org/planning-building/page/comprehensive-plan

with two suspected serious injury (A Injury) crashes, and five possible injury crashes (C Crashes).

Corridor intersection traffic operations are operating at a level of service (LOS) D or better in both the AM and PM peak hours. During the summer peak travel periods, some intersections experience longer delays; however, the LOS remains above LOS D for all intersections. The following are existing inefficiencies identified on the corridor:

- Movements experience long queue lengths that may back up several blocks.
- The Sun Valley Road intersection is currently split phased on the north-south (Main Street) movements, meaning the movements occur separately from each other and are not timed concurrently. This impedes two-way progression on the corridor and increases the cycle length at the intersection, which in turn, increases delays.
- The pedestrian scramble at Sun Valley Road increases the signal cycle length. At the pedestrian clearance, time is calculated using the diagonal distance across the intersection instead of the shorter distance on the legs of the intersection.
- The signals on the corridor are not interconnected, which does not allow for implementing a coordinated signal timing plan. This limits vehicle progression through the corridor as green bands are unlikely to line up.
- The southbound travel lanes must merge from two lanes to one lane between River Street and 1st Street. Drivers were observed getting into the continuous left lane before 1st Street to avoid having to perform the merge maneuver before River Street. This creates an underutilization of lanes at the 1st Street intersection, degrading operations and capacity at the intersection.
- The "split" of Main Street at the 6th Street intersection causes some confusion due to the lack of proper pavement markings and way finding signage in advance of the intersection.

Initial Future Conditions Analysis

HDR calculated a 1.44 percent historical growth rate to represent traffic volume growth based on historical data from Idaho Transportation Department's (ITD) Automated Traffic Recorders (ATRs) on SH-75. The project team selected 2042 as the design year for the purposes of this analysis and LOS D was set for the target LOS threshold based on ITD's requirements in their *Roadway Design Manual*[3]. HDR initially analyzed the following four scenarios.

[3] Idaho Transportation Department. Roadway Design Manual. August 2013. Available online: https://apps.itd.idaho.gov/apps/manuals/roadwaydesign/files/Roadwaydesignprintable.pdf

No.	Volumes Used	Scenario	Main Street Cross Section	Signal Operations	Peak Hour Factor
1	2042 Average	No-Build	Two lanes in each direction, no dedicated turn lanes at intersections	Existing signal timing parameters	0.92
2	2042 Summer				
3	2042 Average	Build	One lane in each direction, dedicated left-turn lane at each intersection on Main Street	100 second cycle length, flashing yellow arrows (FYA) for left turns	
4	2042 Summer				

In the No-Build scenarios 1 and 2, the corridor is expected to operate poorly as queue lengths at Sun Valley Road begin to approach 600 feet. Northbound traffic at Sun Valley Road is expected to exceed capacity and experience delays.

At first glance, reducing the number of lanes from four to three and adding flashing yellow arrows (FYAs) for left turns, analyzed in scenarios 3 and 4, appears to improve the LOS along the corridor. For example, the Sun Valley Road/Main Street intersection operations improve from a LOS F in the PM peak hour to LOS C with these improvements. However, the estimated queue lengths at the intersections can exceed 1,000 feet in some cases with the reconfigured cross section. These excessive queues are significantly longer than those estimated under the No-Build scenarios and would back up from one signal through the upstream signalized intersections, causing significant congestion and potential gridlock.

Side street queue lengths also increase from the No-build to the Build scenarios under average conditions and get even worse under summer conditions. Short city block lengths, on-street parking, and a single lane in each direction limit the amount of storage available on the side streets. Overall, these results indicate that there is significant operational improvement by removing the split phasing at Sun Valley Road and installing left-turn lanes with FYAs. The closely spaced intersections prevent the large volume of traffic from being stored, ultimately creating congestion.

The project team then analyzed three additional scenarios using 2042 summer volumes.

- Scenario 5: Add left-turn lanes on Main Street at Sun valley Road, removing split phasing and pedestrian scramble.
- Scenario 6: Prohibit left-turn movements from Main Street, except at Sun Valley Road, where left-turn lanes are added.
- Scenario 7: Install a five-lane section along Main Street with left-turn lanes at each intersection.

When compared to the No-Build or three-lane scenarios, scenarios 5, 6, and 7 decrease congestion on the corridor and reduce travel times. Each alternative provides better LOS, less congestion/gridlock, and better progression and travel time for vehicles and pedestrians. The

shorter cycle lengths with these scenarios would shorten the wait times for pedestrians at intersections. Scenario 7 achieves vehicle progression goals; however, it's adverse impacts include removing parking along the corridor and limiting opportunities to install curb extensions on Main Street to shorten the pedestrian crossings.

Initial Recommendations and Limitations of the Analysis

HDR presented the findings of the deterministic analysis to the City Council on April 11, 2022. HDR recommended against pursuing the three-lane section due to the significant impacts to motorized vehicle flow and travel time. Congestion on Main Street could cause traffic to use adjacent streets to get through town, increasing volumes, congestion, and conflicts on local streets. Instead, HDR recommended the City pursue adding left-turn lanes at the Sun Valley Road Intersection (Scenario 5).

The City Council asked for a visual representation of the corridor operations to understand the potential impacts of the different lane reconfiguration scenarios. HDR explained the limitations of the macroscopic methodologies and recommended a microsimulation analysis to improve the confidence of the analysis and provide videos of the operations.

Interim Improvements

At the City's request, HDR and the project team implemented short-term solutions to enhance the corridor operations in the interim period.

- The project team coordinated with ITD to interconnect the signals in order to implement a coordinated signal timing plan.
- The City and ITD agreed to remove the pedestrian scramble.
- HDR developed signal timing plans for the AM and PM peak hours to reduce the number of stops and increase progression during the peak hours. Additionally, HDR recalculated the pedestrian clearance intervals to increase pedestrian safety.
- ITD is currently designing a project south of Ketchum that is scheduled to be built before improvements on Main Street and would provide an opportunity to revise the location of the merge taper between 1st Street and River Street to be south of River Street.

Microsimulation Analysis

Based on the City Council feedback, the project team developed specific alternatives to analyze with Vissim software:

- Existing conditions
- Alternative 1: No-Build
- Alternative 2: Adding left-turn lanes at Sun Valley Road
- Alternative 3: Three-lane section

Comparing the Alternatives

Alternative 3 provides many benefits to the pedestrian and public realms, but at a significant cost to traffic flow. This alternative would increase vehicle congestion and would not serve all traffic during the peak periods. This level of congestion could push traffic onto neighboring streets, increasing conflicts and negating large safety benefits from the potential lane reconfiguration. This alternative also would not meet ITD's LOS D threshold for state highways.

Although the three-lane section could decrease the number of lanes pedestrians need to cross the roadway, vehicle congestion would be likely to reduce gaps pedestrians have to cross at unsignalized intersections. Side streets would be expected to see large increases in vehicle queue lengths as vehicles are unable to enter the Main Street due to a lack of gaps.

Alternative 2, which removes parking for two blocks to add turn lanes at the Sun Valley Road intersection, would serve all estimated traffic during the design year. Estimated travel times for future vehicles would be similar to existing conditions. By removing the split phasing, the bottle neck at Sun Valley Road would be removed and all other intersections on the corridor could increase operational efficiency for both pedestrians and vehicles. The safety benefits of Alternative 2 may not be as great as for Alternative 3; however, the remaining intersections could still see improvements to the pedestrian and public realms with bulb-outs and wider sidewalks.

Recommendation and Costs

Alternative 2 is recommended over the Alternative 3 (three-lane configuration). Alternative 2 best serves vehicular traffic and improves traffic operations, it meets ITD's LOS D threshold, and provides excess capacity. Excess capacity allows some contingency for performance i.e., suggesting that if Ketchum sees a greater increase in vehicle traffic than estimated, this alternative would best be able to handle that increase. Although the opportunity to widen the pedestrian space is not as great as with Alternative 3, there would still be opportunities to enhance the public realm, improve the placemaking feel of Ketchum's Main Street, and further enhance the corridor's safety performance. Final conceptual exhibits are presented in **Appendix F**.

The project team developed an opinion of probable cost based upon the conceptual exhibits. The costs assume complete sidewalk replacement, signal upgrades, tree cells, ADA ramp improvements and bulb-outs. Alternative 2 probable costs are summarized in the table below. ITD has programed a project to resurface Main Street in the near future and the costs assume that ITD will pay for the resurfacing, including base material. The budget for their work is $7,322,000, according to ITD's STIP. Those costs include new pavement, aggregate, ADA ramp improvements and signal upgrades from River Street to Club House Drive. There will be some overlap in the costs assumed for this project, so cost sharing with ITD to the financial impact to the City and costs should be negotiated.

Cost	Amount
Engineering Fee:	$353,000
Construction Costs:	$3,880,000
Right-of-way Costs:	$10,000
Total Project Costs:	$4,243,000

Next Steps

The City should coordinate with ITD to get approval for the recommended Alternative 2. Additionally, the City should coordinate the improvement designs to align with an upcoming ITD maintenance project on SH-75. Coordination will decrease the amount of mobilization required to improve the roadway and reduce the impacts to the public. The curb extensions and a raised intersection will need to be evaluated in coordination with ITD during design to evaluate truck turning movements and stormwater needs in detail.

The City should also pursue grant opportunities to fund the improvements. Outreach for stakeholder participation in the grant pursuits should occur, including with Mountain Rides, Blaine County School District, and the Ketchum Urban Renewal Agency.

Contents

Figures

Tables

Appendicies

Acronyms/Abbreviations

Acronyms and abbreviations used more than once in the report text.

AADT	annual average daily traffic
ADA	Americans with Disabilities Act
ATR	automated traffic recorders
City	City of Ketchum
CMF	crash modification factor
EPDO	equivalent property damage only
FYA	flashing yellow arrow
HCM	Highway Capacity Manual
ITD	Idaho Transportation Department
LHTAC	Local Highway Technical Assistance Council
LOS	level of service
LPI	leading pedestrian interval
MP	mile post
mph	miles per hour
NACTO	National Association of City Transportation Officials
PDO	property damage only
PHB	pedestrian hybrid beacon
PROWAG	Public Rights-of-Way Accessibility Guidelines
RRFB	rectangular rapid flashing beacon
SH-75	State Highway 75
v/c	volume to capacity ratio
vpd	vehicles per day

1 Introduction

1.1 Background and Purpose

The City of Ketchum, Idaho (City) *Master Transportation Plan* (2020)[4] identified the opportunity to reconfigure Main Street (State Highway 75 [SH-75]) to reduce the number of vehicle travel lanes from the existing four lanes to three, with a travel lane in each direction and a center median lane that can provide dedicated left-turn pockets. This configuration has the potential to reduce pedestrian/vehicle conflicts and expand the sidewalks. As noted in the *Master Transportation Plan,* some potential drawbacks to the lane reconfiguration could include reduced roadway capacity for vehicular traffic; mail trucks and transit vehicles may stop traffic in the single through lane; left-turn lanes may be hard to access during high demand periods; and it may create some issues with snow removal.

The goals of this project are to improve vehicle progression on the corridor without shifting traffic to local streets, improve pedestrian and bike facilities and crossings, and enhance the streetscape and pedestrian realm. The purpose of this report is to document the alternatives analysis and the decision-making process that led to a recommended alternative that balances the need for improved public environment with the future traffic volume demand on Main Street.

1.2 Study Area

The study area (shown in Figure 1) begins at the intersection of Main Street and River Street and continues six blocks north to the 6th Street intersection where Main Street splits into Warm Springs Road to the northwest and Main Street to the northeast. Main Street runs through the core of Downtown Ketchum. The adjacent land use is zoned as Retail Core, featuring several small businesses, restaurants, and hotels. Main Street is also known as SH-75 and is owned by the Idaho Transportation Department (ITD). The highway connects southern Idaho to the Sawtooth Valley in central Idaho and serves as a commuter route for individuals working in Ketchum or Sun Valley communities. Ketchum is a

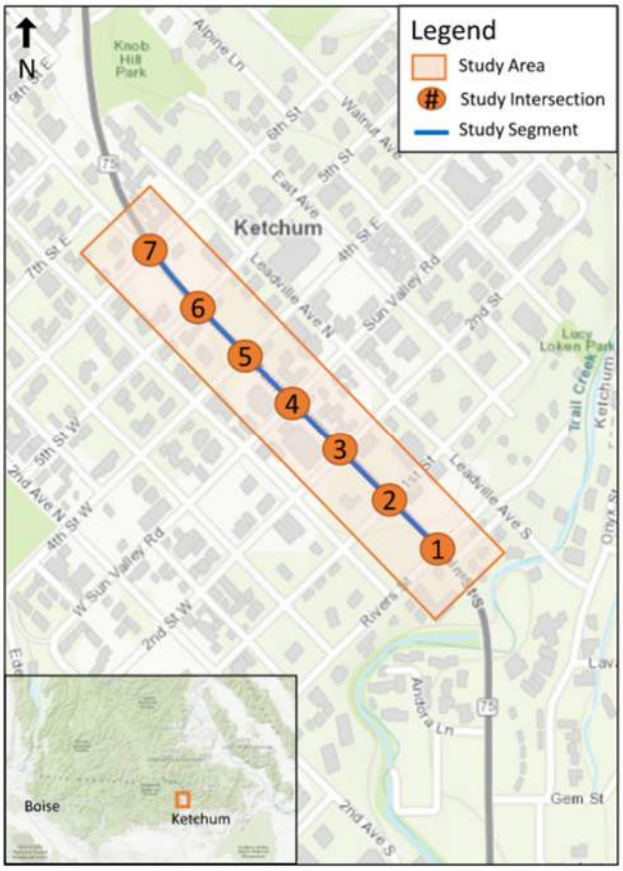


Figure 1. Study Area

[4] City of Ketchum, Master Transportation Plan. March 15, 2021.

resort, destination city with regional traffic generators, including two ski hills and outdoor recreational locations to the north and south.

1.3 Study Process

The study process followed the general procedure outlined in Figure 2. The project team performed an initial evaluation of existing conditions in the study area that considered existing traffic operations using deterministic methodologies, determined safety issues and needs, and examined the public realm needs. In coordination with ITD, the project team identified short-term improvements that could be implemented during the study to improve operations until a larger project could be completed. Signal timing improvements were analyzed and implemented in coordination with ITD under a separate project for the City.

Next, the project team analyzed different scenarios using a deterministic methodology to identify potential alternatives along the corridor. After consulting with the City Council, the team advanced three alternatives to a microsimulation analysis and presented the results of the microsimulation and additional safety opportunities at a public meeting where residents could evaluate the alternatives, ask questions, and provide feedback. An online survey accompanied the public meeting for those unable to attend the in-person meeting. Finally, the project team revised the alternatives, as necessary, prepared a final report, and presented it to the City Council for adoption.

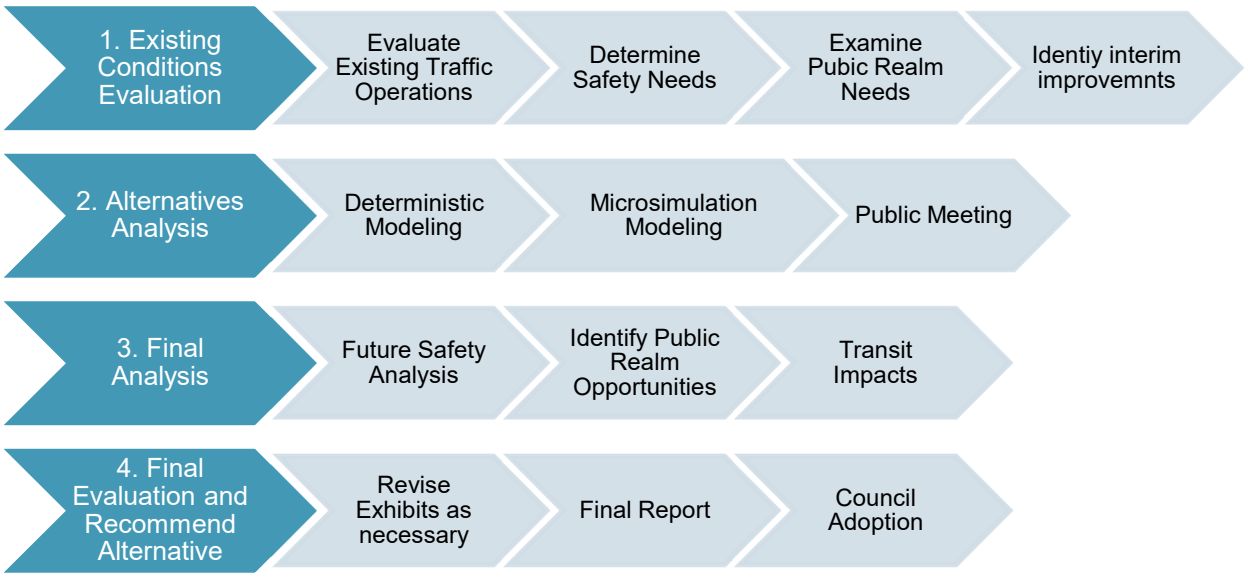


Figure 2. Study Process

1.4 Organization of Report

Following the introduction in Section 1, this report is also organized following the general structure of the study process shown in Figure 2.

- Section 2 describes existing conditions and determines needs;
- Section 3 presents the forecasted travel models and presents the deterministic modeling results;
- Section 4 describes the interim improvements;
- Section 5 discusses the microsimulation analysis;
- Section 6 details the safety evaluation and presents safety recommendations for each alternative;
- Section 7 summarizes the public meeting; and
- Section 8 compares alternatives, recommends a preferred alternative, presents a cost estimate, and discusses next steps.

2 Existing Conditions Evaluation

2.1 Land Use

The Main Street corridor is entirely within the Downtown Core neighborhood and the Community Core – specifically Retail Core – districts within the Ketchum zoning map. These designations match the land uses on the ground, as evident by a thriving main street corridor. The City's *2014 Comprehensive Plan*[5] identifies potential gateways to the city located at River Street and 6th Street along Main Street that are intended to let travelers to know they are entering an important part of Ketchum. Though it is evident that a traveler is entering a special district as a result of the walkable, Main Street land uses, no specific gateway elements exist. This stretch of town is a major part of the heart of Ketchum, supporting small businesses, restaurants, tourist destinations, and local life.

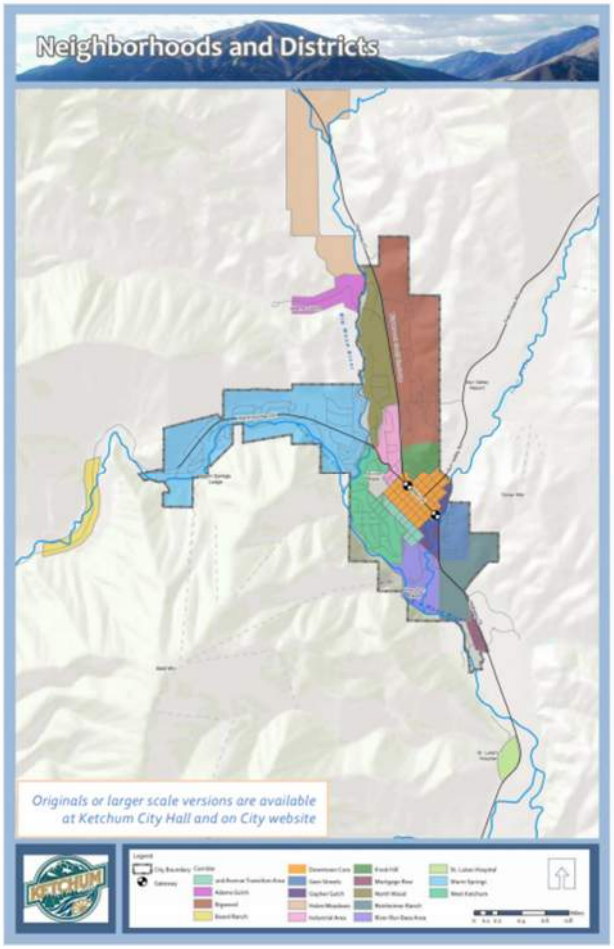


Figure 3. Ketchum Neighborhoods and Districts

This corridor is expected to continue with commercial land uses in the future as it provides a core identity to the town. The

[5] City of Ketchum. 2014 Comprehensive Plan. February 18, 2014. Available online: https://www.ketchumidaho.org/planning-building/page/comprehensive-plan

2014 Comprehensive Plan points to a slight differentiation in land uses along this stretch, with a specific focus on the portion between 1st and 5th Streets acting as the Retail Core. The areas bookending that segment are designated as either Commercial Employment or Mixed-Use Commercial, indicating a slightly decreased focus in the Main Street retail environment but a continuation of the diverse mix of uses that comprise much of the rest of downtown. With the construction of the mixed-use building on the south side of Main Street between River and 1st Streets, and the potential development diagonally across the intersection east of River Street, this distinction is not likely evident to most users. Similar change is possible west of 5th Street as well. As a result, the larger stretch between River and 6th Streets largely feels like one place type.

2.2 Public Realm

Of the six blocks that make up the Main Street corridor between River and 6th Streets, some blocks are more successful than others at providing a public realm that supports the walkable, vibrant downtown feel associated with Ketchum. However, more challenging than the success of any given block is the inconsistency of the public realm along the stretch. For instance, the blocks along Main Street from 4th to 6th Streets have a strong public realm supporting pedestrians with amenities such as identity and wayfinding signage, landscaping, larger sidewalks, benches, and bike racks. This stretch feels consistent and promotes a cohesive feel to the corridor (Figure 4). However, moving north or south, the amenities along the blocks oscillate between having a less comfortable and safe public realm and providing certain desirable elements (Figure 5).

Figure 4. Successful Public Realm

Figure 5. Challenged Public Realm

Areas with an inadequate public realm along the corridor currently consists of small, attached sidewalks that share limited space with retail shops, either making walking uncomfortable or lending to a cramped feeling for the adjacent establishments. Many areas along the corridor have limited or no amenities such as trash receptables or benches, as well as limited or no landscaping or tree canopy. The investment in a consistent tree canopy is one of the most successful methods of creating a desirable and safe walking environment. This public realm inconsistency from block to block prevents the downtown core from being unified from a pedestrian point of view and creates smaller segments of the street, rather than one combined corridor. Even the stronger segments of the corridor are limited in their space and amenities,

pointing to an opportunity to reconsider the entire corridor's streetscape in the future. A potential reconfiguration of the roadway may provide a rare opportunity to attempt a larger overhaul.

2.3 Transit Facilities

Mountain Rides is the local transit authority maintaining bus routes throughout the City. Main Street serves as one of the main connection points for the bus system with several different lines running along the roadway. Stops are present in both directions at the 4th Street intersection near the Wells Fargo and at the 1st Street intersection near the Limelight Hotel and Kentwood Lodges. A single Mountain Rides sign delineates the stops but the stops themselves do not feature shelters, safety lighting, or other enhancements.

In conversations with Mountain Rides, the merge taper between 1st Street and River Street makes it difficult for busses to merge back into traffic after picking up passengers.

2.4 Existing Traffic Operations

2.4.1 Existing Intersection Control

The Main Street corridor features a variety of intersection controls along the six blocks. Sun Valley Road, 1st Street, and 5th Street are all signal controlled. 2nd Street and River Street are two-way stop controlled (TWSC) on the side streets and uncontrolled on Main Street. 4th Street is a right out on the side streets with a pedestrian hybrid beacon (PHB) or high intensity activated crosswalk (HAWK) beacon to stop traffic on Main Street for pedestrian crossings.

The Sun Valley Road intersection with Main Street is currently split phased on the north-south (Main Street) movements, meaning these movements occur separately from each other and are not timed concurrently. The east and west (Sun Valley Road) movements feature dedicated left-turn lanes with three section green-arrow signal heads allowing for a protected left-turn phase to occur. Until recently, no pedestrian movements were allowed at Sun Valley Road during vehicular movements but pedestrians were allowed to cross in any direction, even diagonally, during an exclusive pedestrian phase. This pedestrian phase is known as a "pedestrian scramble" or "barn dance" where all vehicles are stopped while pedestrians cross the intersection. As noted in Section 4 of this report, the pedestrian scramble was decommissioned as part of the interim improvements.

The 1st and 5th Street intersections with Main Street are two-phase intersections, meaning the northbound and southbound traffic (Main Street traffic) has a green light to proceed and then the east and westbound traffic proceeds. No exclusive left-turn phases exist and the pedestrian phases occur with the corresponding vehicle through movements. The 4th Street PHB is timed to operate twice during the Sun Valley Road cycle; however, poor compliance is observed with both pedestrians and vehicles, and this causes additional delay and queuing along Main Street.

2.4.2 Existing Volume Development

The project team took traffic counts on August 31, 2021 and identified an AM peak hour beginning at 8:00am and a PM peak hour beginning at 4:15pm. In the AM peak, the northbound movements are the largest traffic volumes throughout the corridor. Conversely, the PM peak is

characterized by commuters traveling southbound, with larger volumes at the southern end of the corridor. Additionally, in the PM peak hour, the number of vehicles taking the westbound left turn at Sun Valley Road increases by a factor of approximately 2.5 times the volume in the AM peak. Traffic counts are provided in **Appendix A**.

The City is a resort destination community with travel patterns that vary throughout the year. The City does not have any automated traffic recorder (ATR) stations of their own, but ITD has two ATRs at the following locations to estimate seasonal variations on SH-75 near Ketchum:

- ATR #28 – SH-75 @ mile post (MP) 135.95 (7.6 miles north of the SH-75 Spur junction)
- ATR #68 – SH-75 @ MP 119.4 (2.9 miles north of Bullion Street in Hailey, ID)

Using data from the ATRs, the project team analyzed traffic volumes on SH-75 for fluctuations throughout a given year. The highest traffic volumes were observed in the summer months, averaging over 15,000 vehicles per day (vpd) in June, July, and August at ATR #68 and around 2,400 vpd at ATR #28. The lowest traffic volumes were observed in the winter months of December, January, and February with volumes less than 12,000 vpd at ATR #68 and less than 900 vpd at ART #28. There is a significant drop in volume on the highway from north and south of Ketchum. Table 1 shows the average monthly seasonal factors determined from the historical ATR data. Volumes from 2020 are not included in the analysis due to the Covid-19 pandemic and associated shutdowns.

Table 1. Monthly Seasonal Factors (MSFs)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Avg MSF	0.90	0.94	0.88	0.85	0.93	1.11	1.24	1.19	1.08	1.03	0.88	0.98
w/o 2020	**0.89**	**0.93**	**0.89**	**0.89**	**0.94**	**1.11**	**1.24**	**1.18**	**1.06**	**1.02**	**0.88**	**0.97**

The seasonal adjustments results are calculated by dividing the August 2021 count by a factor of 1.18. This represents an 18 percent decrease in volumes to represent a typical day. Figure 6 details the results of the volume adjustments.

Figure 6. Main Street AM and PM Peak Hour Turning Movement Counts

2.4.3 Capacity and Level of Service

Capacity is defined as the maximum rate at which vehicles can pass through a given point in an hour under prevailing conditions. Intersection capacity is measured by evaluating the critical lane groups that experience the most delay for stop-controlled intersections. A volume to capacity (v/c) ratio less than 0.85 generally indicates that adequate capacity is available, and vehicles are not expected to experience significant queues or delays. As the v/c ratio approaches 1.0, traffic flow may become unstable and significant delay and queuing conditions may occur. Once the demand exceeds capacity, defined as a v/c ratio greater than 1.0, traffic flow is unstable and excessive delay and queuing is expected. The concept of level of service (LOS) was developed to correlate numerical traffic operational data to subjective descriptions of traffic performance at intersections. LOS is defined as the system of six designated ranges, from “A” (best) to “F” (worst), used to evaluate performance. Table 2 presents the Highway

Capacity Manual (HCM)[6] thresholds based on delay at stop-controlled and signalized intersections.

Table 2. LOS Thresholds for Motor Vehicles at Intersections

LOS	Stop Control Intersection Control Delay (seconds/vehicle)	Signalized Intersection Control Delay (seconds/vehicle)
A	≤ 10	≤ 10
B	10 – 15	10 – 20
C	15 – 25	20 - 35
D	25 – 35	35 - 55
E	35 – 50	55 - 80
F	> 50	> 80

Source: National Academies Press. Highway Capacity Manual, 6th Ed. A Guide for Multimodal Mobility Analysis.

The project team used Synchro 11 software to model and analyze study area intersections under existing conditions, and HCM 6th Edition and HCM 2000 analysis methods to produce the analysis reports.

2.4.4 Existing Corridor Inefficiencies

The corridor had several operational inefficiencies that affect intersection performance that were modeled in the initial deterministic analysis. A separate signal timing update occurred parallel to this analysis and HDR worked with City staff and ITD to implement some mitigation measures, described in Section 4. The inefficiencies include:

- The Sun Valley Road intersection is currently split phased on the north-south (Main Street) movements, meaning the movements occur separately from each other and are not timed concurrently. This impedes two-way progression on the corridor and increases the cycle length at the intersection, which intern increases delay;
- The pedestrian scramble at Sun Valley Road increases the signal cycle length. At the pedestrian clearance, time is calculated using the diagonal distance across the intersection instead of the shorter distance on the legs of the intersection;
- Although the signals along the corridor are closely spaced, they are not interconnected, which does not allow for a coordinated signal timing plan to be implemented. This limits vehicle progression through the corridor as green bands are unlikely to line up;
- The southbound travel lanes must merge from two lanes to one lane between River Street and 1st Street. Drivers were observed getting into the continuous left lane before 1st Street to avoid having to perform the merge maneuver before River Street. This creates an underutilization of lanes at the 1st Street intersection, degrading operations and capacity at the intersection; and

[6] National Academies Press. Highway Capacity Manual, Sixth Edition: A Guide for Multimodal Mobility Analysis.

- The "split" of Main Street at the 6th Street intersection causes some confusion due to the lack of proper pavement markings and way finding signage in advance of the intersection.

2.4.5 Summer Peak Existing Traffic Operations

Given the large variability of traffic volumes during the summer months compared to other months, the project team analyzed the intersections with the unadjusted August volumes for comparison with the seasonally adjusted volumes.

Table 3. Summer Peak Existing Traffic Operations

Intersection	Overall Intersection LOS	Movement				
		Lane Group	Delay (s)	LOS	95th Percentile Queue Length (feet)	V/C Ratio
1, River / Main	C (D)	NET/L/R	18.1 (24.7)	C (C)	4.4 (15.4)	0.072 (0.199)
		SWT/L/R	23.4 (28.9)	C (D)	2.2 (4.4)	0.033 (0.053)
		NWT/L/R	8.2 (10.5)	A (B)	2.2 (2.2)	0.032 (0.022)
		SET/L/R	0 (8.4)	A (A)	0 (0)	0 (0.004)
2, First / Main	A (A)	NET/L/R	16.7 (15.1)	B (B)	15.4 (50.6)	0.19 (0.34)
		SET/L	3.2 (7.7)	A (A)	13.2 (77)	0.16 (0.39)
		SET/R	3.2 (7.7)	A (A)	13.2 (72.6)	0.17 (0.42)
		NWT/L	4.7 (6.6)	A (A)	46.2 (50.6)	0.40 (0.26)
		NWT/R	4.7 (6.6)	A (A)	44 (44)	0.44 (0.29)
		SWT/L/R	17 (16.8)	B (B)	22 (99)	0.26 (0.58)
3, Second / Main	C (B)	NET/L/R	16.6 (14)	C (B)	4.4 (4.4)	0.052 (0.087)
		SWT/L/R	19.3 (14)	C (B)	2.2 (2.2)	0.044 (0.049)
		SET/L	9.1 (8.2)	A (A)	0 (0)	0.005 (0.004)
		SET/R	0 (0)	A (A)	0 (0)	0 (0)
		NWT/L	8 (9.1)	A (A)	2.2 (2.2)	0.025 (0.024)
		NWT/R	0.1 (0.1)	A (A)	0.1 (0)	0 (0)
4, Sun Valley / Main*	D (D)	NWT/L/R	57.6 (52.4)	E (D)	#345 (#250)	0.95 (0.83)
		NEL	47.3 (51.1)	D (D)	48 (66)	0.43 (0.44)
		NET/R	43.8 (48.5	D (D)	88 (122)	0.42 (0.52
		SWL	48.8 (50.2)	D (D)	90 (199)	0.37 (0.41)
		SWT/R	43.2 (44.7)	D (D)	95 (153)	0.37 (0.41)
		SET/L/R	28.3 (41.5)	C (D)	138 (281)	0.41 (0.73)

Intersection	Overall Intersection LOS	Movement				
		Lane Group	Delay (s)	LOS	95th Percentile Queue Length (feet)	V/C Ratio
5, Fourth / Main*	A (A)	SET/L/R	0.1 (0.2)	A (A)	0 (0)	0.14 (0.21)
		NWT/L/R	0.1 (0.1)	A (A)	0 (0)	0.19 (0.14)
		NER	0 (0)	A (A)	0 (0)	0.01 (0.01)
		SWR	0 (0)	A (A)	0 (0)	0.03 (0.04)
6, Fifth / Main	A (A)	NET/L/R	19.5 (19.2)	B (B)	72 (61.6)	0.43 (0.45)
		NWT/L	3.9 (4)	A (A)	33 (26.4)	0.27 (0.19)
		NWT/R	4 (4.1)	A (A)	33 (24.2)	0.28 (0.21)
		SET/L	3.7 (4.9)	A (A)	24.2 (50.6)	0.23 (0.35)
		SET/R	3.8 (5.2)	A (A)	26.4 (50.6)	0.24 (0.37)
		SWT/L/R	18.5 (19.5)	B (B)	31 (63.8)	0.22 (0.51)
7, Sixth / Main	B (B)	NEL	10.2 (10.9)	B (B)	2.2 (2.2)	0.023 (0.036)
		SWL	10.2 (9.8)	B (A)	2.2 (4.4)	0.03 (0.051)

AM (PM) results
= 95th percentile volume exceeds capacity, queue may be longer
*Indicates that HCM 2000 was used due to pedestrian phase methodology not being supported

Table 3 represents the overall operations of intersections during the month of August, which is projected to see higher than average traffic due to tourism in the Ketchum region. Overall, the intersections operate well during each peak hour under existing conditions with some left-turning movements that have longer than desirable delays. The intersection of Main Street and Sun Valley Road operates poorly during the PM peak hour as the existing pedestrian scramble phase causes added delay to the intersection. In addition, the Main Street and Sun Valley Road intersection had significant delay of over 50 seconds for the NWT and left-turn movements onto Main Street in the AM and PM peaks. The NWT AM peak had the longest delay of 57.6 seconds at LOS E. The overall for this intersection is LOS D. The River and Main Street intersection also experienced high delays for the NEL and SWL movements. The delay for these movements was about 21 seconds in the AM and 26 seconds in the PM. The intersection has an overall LOS C for the AM peak and LOS D for the PM peak. Several queue lengths from intersections are estimated to be long and impact adjacent intersections. Detailed reports are provided in **Appendix B**.

2.4.6 Seasonally-Adjusted Traffic Operations

Table 4. Seasonally Adjusted Traffic Operations

Intersection	Overall Intersection LOS	Movement				
		Lane Group	Delay (s)	LOS	95th Percentile Queue Length (feet)	V/C Ratio
1, River / Main	C (C)	NET/L/R	14.6 (19.5)	B (C)	2.2 (11)	0.045 (0.136)
		SWT/L/R	19.7 (22.3)	C (C)	2.2 (2.2)	0.022 (0.034)
		NWT/L/R	8 (9.7)	A (A)	2.2 (2.2)	0.026 (0.016)
		SET/L/R	0 (8.2)	A (A)	0 (0)	0 (0.003)
2, First / Main	A (A)	NET/L/R	16.7 (15.4)	B (B)	13.2 (41.8)	0.17 (0.31)
		SET/L	2.9 (6.1)	A (A)	11 (55)	0.13 (0.32)
		SET/R	3 (6.4)	A (A)	11 (50.6)	0.14 (0.34)
		NWT/L	3.9 (5.4)	A (A)	33 (33)	0.34 (0.22)
		NWT/R	4.3 (5.6)	A (A)	33 (30.8)	0.37 (0.24)
		SWT/L/R	16.9 (16.8)	B (B)	19.8 (81.4)	0.13 (0.54)
3, Second / Main	C (B)	NET/L/R	14.4 (12.5)	B (B)	2.2 (4.4)	0.038 (0.063)
		SWT/L/R	15.7 (12.4)	C (B)	2.2 (4.4)	0.028 (0.054)
		SET/L	8.7 (8)	A (A)	0 (0)	0.003 (0.003)
		SET/R	0 (0)	A (A)	0 (0)	0 (0)
		NWT/L	7.9 (8.7)	A (A)	2.2 (4.4)	0.021 (0.019)
		NWT/R	0 (0.1)	A (A)	0 (0)	0 (0)
4, Sun Valley / Main*	D (D)	NWT/L/R	46.4 (47)	D (D)	#252 (178)	0.39 (0.43)
		NEL	56.2 (51.9)	E (D)	43 (58)	0.57 (0.49)
		NET/R	46.4 (47)	D (D)	76 (105)	0.39 (0.43)
		SWL	47.1 (50.4)	D (D)	78 (168)	0.55 (0.68)
		SWT/R	42.4 (44.2)	D (D)	81 (129)	0.30 (0.36)
		SET/L/R	26.3 (36.1)	C (D)	113 (229)	0.33 (0.59)
5, Fourth / Main*	A (A)	SET/L/R	0.1 (0.1)	A (A)	0 (0)	0.11 (0.18)
		NWT/L/R	0.1 (0.1)	A (A)	0 (0)	0.16 (0.11)
		NER	0 (0)	A (A)	0 (0)	0.01 (0.01)
		SWR	0 (0)	A (A)	0 (0)	0.02 (0.04)
6, Fifth / Main	A (A)	NET/L/R	19.6 (19.2)	B (B)	63 (72)	0.39 (0.41)
		NWT/L	3.3 (4.4)	A (A)	24.2 (11)	0.20 (0.16)
		NWT/R	3.5 (3.6)	A (A)	24.2 (11)	0.23 (0.17)

Intersection	Overall Intersection LOS	Movement				
		Lane Group	Delay (s)	LOS	95th Percentile Queue Length (feet)	V/C Ratio
		SET/L	3.2 (4.2)	A (A)	17.6 (19.8)	0.19 (0.29)
		SET/R	3.3 (4.4)	A (A)	17.6 (19.8)	0.20 (0.31)
		SWT/L/R	18.7 (19.5)	B (B)	29 (59)	0.21 (0.47)
7, Sixth / Main	A (A)	NEL	9.9 (10.4)	A (B)	2.2 (2.2)	0.018 (0.028)
		SWL	9.9 (9.6)	A (A)	2.2 (2.2)	0.024 (0.04)

The seasonal adjusted volume operations reduced the overall delay times (Table 4); however, the Sun Valley Road and Main Street intersection still has significant delays for the NET movement in both the AM and PM peak hours. The intersection has an overall LOS D as generally the queues clear during one signal cycle. All other intersections operate with a LOS C or better during both AM and PM peak hours. Detailed reports are provided in **Appendix B.**

2.5 Crash History & Evaluation

2.5.1 Annual Average Daily Traffic Volume

The project team converted PM peak hour traffic volume data to annual average daily traffic (AADT) by using a conversion factor of 8.70. This factor was developed by comparing the AADT values on Main Street between 4th Street and 5th Street and between 2nd Street and Sun Valley Road to the related PM peak volume. The AADTs were divided by the PM peak hour traffic volumes to estimate a conversion factor from peak to AADT volumes on the corridor. The calculated factors were 8.72 for the segment between 2nd Street and Sun Valley Road and 8.68 for the segment between 4th Street and 5th Street. The average of these two values (8.70) was applied throughout the corridor.

2.5.2 Crash Costs and EPDO Weighting Factor

Average crash costs by severity are used in the existing conditions equivalent property damage only (EPDO) crash analysis. Average crash costs, shown in Table 5**,** are taken from ITD's 2020 traffic crash resource[7]. The costs are economic costs reflecting the tangible (e.g., medical bills, car repairs, towing, legal, loss of productivity, etc.) cost of crashes. The EPDO weighting factors in Table 5 are calculated relative to property damage only (PDO) crash costs (i.e., fatal crash cost of $10,322,433 divided by PDO crash cost of $3,430 equals a weighting factor of 2,968).

[7] Idaho Traffic Crashes 2020 ; https://apps.itd.idaho.gov/Apps/OHS/Crash/20/Analysis.pdf

Table 5. Economical Crash Costs

Crash Severity	Economic Crash Costs	EPDO Weighting Factor
K - Fatal	$ 10,322,433	2,968
A – Suspected Serious Injury	$ 493,671	142
B – Suspected Minor Injury	$ 134,460	39
C – Possible Injury	$ 68,660	20
Property Damage Only (PDO)	$ 3,478	1

The project team conducted a crash analysis on Main Street for the intersections and the blocks (or segments) between the intersections. Crashes are considered intersection crashes if coded as so in the Local Highway Technical Assistance Council (LHTAC) data; otherwise, the crashes are considered segment crashes. Crashes are summarized by frequency, type, and severity.

In addition, the project team ranked intersections and segments separately using a combined ranking of crash frequency, crash rate, and EPDO. EPDO assigns the weighting factors from Table 5 to crashes, by severity, to develop a score that reflects frequency and severity. The combined rank is developed by ranking the intersections and segments three times; according to 1) crash frequency (the number of crashes), 2) crash rate and 3) EPDO. The intersection crash rate is calculated by dividing the crash frequency by the total entering traffic volume from 2016 to 2020. The rankings are summed for each location and the location with the lowest score has the highest potential for safety improvement.

2.5.3 Intersection Crashes

During the 5-year study period (2016-2020) there were 25 crashes at intersections on Main Street between River Street and 6th Street. The most frequent crash type was rear end (13 crashes), and the most frequent contributing circumstance was following too close (8 crashes). Most of the crashes were PDO (15 crashes), with two suspected serious injury (A Injury) crashes, four minor injury (B Injury), and four possible injury (C injury) crashes. Most of the crashes occurred in daylight conditions (21 crashes) and on dry roads (17 crashes).

These types of crash patterns are consistent with congested signalized corridors and poor vehicular progression. The congestion increases the likelihood drivers are following too close and will rear-end another vehicle. Poor vehicular progression also increases the number rear end crashes as drivers behave in a stop-and-go pattern, instead of a consistent flow.

Figure 7 shows the number and severity of crashes at the study intersections. Table 6 shows the crash types at the study intersections, and Table 7 shows most frequent crash contributing circumstances.

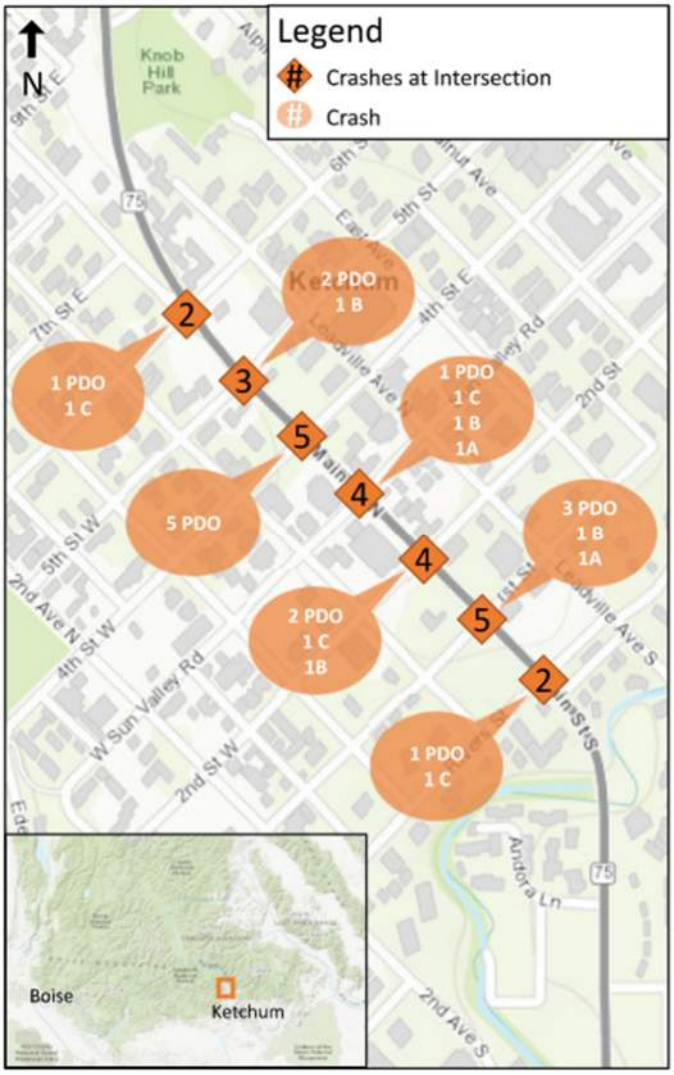


Figure 7. Intersection Crashes by Location and Severity (2016-2020)

Table 6. Intersection Crash Types (2016-2020)

Intersection	Total	Crash Types					
		Rear-end	Side Swipe	Angle	Pedestrian / Pedalcycle	Head on Turning	Road Departure
E River Street / Main Street*	2	1	1				
1st Street / Main Street**	5	1		2	1	1	
2nd Street / Main Street*	4	2	1		1		
Sun Valley Road / Main Street**	4	3	1				
4th Street / Main Street***	5	3	1				1

Intersection	Total	Crash Types					
		Rear-end	Side Swipe	Angle	Pedestrian / Pedalcycle	Head on Turning	Road Departure
5th Street / Main Street**	3	1	2				
6th Street / Main Street****	2	2					
Total	**25**	**13**	**6**	**2**	**2**	**1**	**1**

* Two-way stop-controlled intersection
** Signalized intersection
*** Two-way stop-controlled with rectangular rapid flashing beacon (RRFB) intersection
**** Five-way intersection with two-way stop-controlled

Table 7. Intersection Contributing Circumstances (2016-2020)

Intersection	Total	Circumstances						
		Following Too Close	Failed to Yield	None / Other	Failed to Maintain Lane	Failed to Obey Signal	Inattention	Too Fast for Conditions
E River Street / Main Street*	2	1			1			
1st Street / Main Street**	5	1	1			2	1	
2nd Street / Main Street*	4	2	1	1				
Sun Valley Road / Main Street**	4			2	1			1
4th Street / Main Street***	5	2	1	1	1			
5th Street / Main Street**	3	1	1				1	
6th Street / Main Street****	2	1		1				
Total	**25**	**8**	**4**	**5**	**3**	**2**	**2**	**1**

* Two-way stop-controlled intersection
** Signalized intersection
*** Two-way stop-controlled with rectangular rapid flashing beacon (RRFB) intersection
**** Five-way intersection with two-way stop-controlled

Table 8 shows the frequency, crash rate and EPDO scores for each of the study intersections, and Table 9 shows the resulting ranking and potential for safety improvement. The 1st Street and Sun Valley Road intersections ranked first and second, respectively. They each have experienced one suspected major injury (A injury) crash and rank in the top half of crash frequency.

Table 8. Intersections – Frequency, Crash Rate, EPDO Score (2016-2020)

Intersection	Crash Frequency (Total Crashes from 2016-2020)	Crash Rate (Crashes per Million Entering Vehicles (MEV))	EPDO Score
E River Street / Main Street	2	0.12	21
1st Street / Main Street	5	0.28	184
2nd Street / Main Street	4	0.28	61
Sun Valley Road / Main Street	2	0.25	202
4th Street / Main Street	4	0.37	5
5th Street / Main Street	5	0.18	41
6th Street / Main Street	3	0.13	21

EPDO = equivalent property damage only

Table 9. Intersection - Potential for Safety Improvement (2016-2020)

Intersection	Crash Frequency Rank	Crash Rate Rank	EPDO Score Rank	Combined Score
1st Street / Main Street	1	2	2	5
Sun Valley Road / Main Street	3	4	1	8
2nd Street / Main Street	3	3	3	9
4th Street / Main Street	1	1	7	9
5th Street / Main Street	5	5	4	14
6th Street / Main Street	6	6	5	17
E River Street / Main Street	6	7	5	18

EPDO = equivalent property damage only

2.5.4 Segment Crashes

During the 5-year study period, there were 18 non-intersection related crashes on Main Street between E River Street and 6th Street. The most frequent crash type was rear end (9 crashes), and the most frequent contributing circumstance was following too close (4 crashes). Most of the crashes were PDO (11 crashes), with two suspected serious injury (A Injury) crashes, and five possible injury crashes (C Crashes). Most of the crashes occurred in daylight conditions (17 crashes) and clear sky (17 crashes).

Figure 8 shows the number and severity of crashes at the study segments. Table 10 shows the crash types on each segment, and Table 11 shows most frequent crash contributing circumstances. As with the intersection crashes, these types of crash patterns are consistent with congested signalized corridors and poor vehicular progression. The congestion increases the likelihood drivers are following too close and will rear-end another vehicle. Poor vehicular

progression also increases the number rear end crashes as drivers behave in a stop-and-go pattern, instead of a consistent flow.

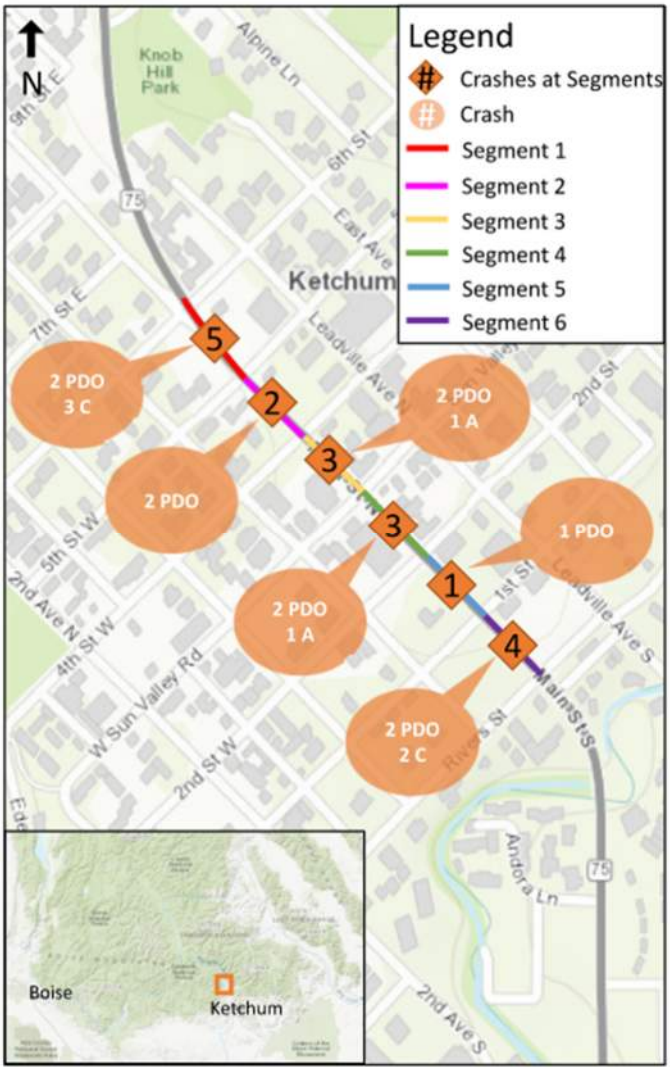


Figure 8. Segment related crashes by location and severity

Table 10. Segment Crash Types (2016-2020)

Intersection	Total	Crash Types							
		Rear-end	Side Swipe Same Direction	Parked Car	Pedestrian / Pedalcycle	Overturn	Same Direction Turning	Backed into	Angle
E River Street to 1st Street	4	3		1					
1st Street to 2nd Street	1	1							
2nd Street to Sun Valley Road	3	3							
Sun Valley Road to 4th Street	3				1			1	1
4th Street to 5th Street	2	1		1					
5th Street to 6th Street	5	1	2			1	1		
Total	**18**	**9**	**2**	**2**	**1**	**1**	**1**	**1**	**1**

Table 11. Segment Contributing Circumstances (2016-2020)

Intersection	Total	Circumstances								
		Following Too Close	None / other	Inattention	Failed to Maintain Lane	Alcohol Impaired	Distraction	Foot Slipped Off or Caught on Pedal	Improper Turn	Failed to Signal
E River Street to 1st Street	4	2		2						
1st Street to 2nd Street	1							1		
2nd Street to Sun Valley Road	3	1	1				1			
Sun Valley Road to 4th Street	3		1			2				
4th Street to 5th Street	2	1	1							
5th Street to 6th Street	5		1		2				1	1
Total	**18**	**4**	**4**	**2**	**2**	**2**	**1**	**1**	**1**	**1**

Table 12 shows the frequency, crash rate and EPDO scores for each of the study segments and Table 14 shows the resulting ranking and potential for safety improvement. Table 13 shows the crash rates and the related critical crash rates using a level of confidence of .95 (K=1.645). Idaho's 2020 crash rate for local roads was 1.653[8]. Critical crash rate was calculated by adding

[8] Idaho Traffic Crashes 2020 ; https://apps.itd.idaho.gov/Apps/OHS/Crash/20/Analysis.pdf

1.653 (Idaho's 2020 crash rate for local roads) to K*(1.653/MVM)$^{1/2}$ +.5/MVMT. Million vehicle miles (MVM) was specific to each segment. Critical crash rates were calculated since the segment lengths are only .05 miles each. The highest ranking for segment crashes is between 5th Street and 6th Street, and it is the only segment to be over the critical crash rate. In addition, the crash rate for the entire Main Street segment is over the calculated critical crash rate.

Table 12. Segment – Frequency, Crash Rate, EPDO Score (2016-2020)

Segment	Crash Frequency (Total Crashes from 2016-2020)	Crash Rate (Crashes per MVM)	EPDO Score
E River Street to 1st Street	4	3.45	42
1st Street to 2nd Street	1	1.09	1
2nd Street to Sun Valley Road	3	3.37	144
Sun Valley Road to 4th Street	3	3.91	144
4th Street to 5th Street	2	2.44	2
5th Street to 6th Street	5	5.26	62

MVM = million vehicle miles; EPDO = equivalent property damage only

Table 13. Segment – Crash rate vs Critical Crash Rate (2016-2020)

Segment	Crash Rate (Crashes per MVM)	Critical Crash Rate (Crashes per MVM)	Over or under Critical Crash Rate
E River Street to 1st Street	3.45	4.05	Under
1st Street to 2nd Street	1.09	4.41	Under
2nd Street to Sun Valley Road	3.37	4.46	Under
Sun Valley Road to 4th Street	3.91	4.72	Under
4th Street to 5th Street	2.44	4.60	Under
5th Street to 6th Street	5.26	4.35	Over
Entire Segment	3.27	2.65	Over

MVM = million vehicle miles

Table 14. Segment - Potential for Safety Improvement (2016-2020)

Segment	Crash Frequency Rank	Crash Rate Rank	EPDO Score Rank	Combined Score
5th Street to 6th Street	1	1	3	5
Sun Valley Road to 4th Street	3	2	1	6
2nd Street to Sun Valley Road	3	4	1	8
E River Street to 1st Street	2	3	4	9
4th Street to 5th Street	5	5	6	15
1st Street to 2nd Street	6	6	5	18

EPDO = equivalent property damage only

2.5.5 Additional Qualitative Safety Issues

The project team learned of safety concerns with the corridor from conversations with City staff, the public at public involvement meetings, and with the City Council. These concerns may not be directly contributing to crashes within the study area, but they do increase the amount of stress that pedestrians, bicyclists, and motorists feel when navigating the area.

Several intersections have multiple approaches to single parcels or long vehicle approaches that could be consolidated. For example, at 1st Street, the access to the Village Market is very long and close to the intersection, which creates more turning conflicts with pedestrians than necessary if the access was consolidated. Additionally, the Veltex property has two access points less than 10 feet away from the intersection, which cause confusion at the intersection. City staff noted that some individuals use the two approaches to avoid the intersection by cutting through the Veltex parking lot. Figure 9 and Figure 10 show the existing conditions at these locations.

Figure 9. Large Access and Lack of ADA/PROWAG Complaint Facilities at 1St Street

Figure 10. Multiple Approaches Close to the 5th Street Intersection

The Main Street Corridor also is lacking facilities that are compliant with the Americans with Disabilities Act (ADA) and Public Rights-of-Way Accessibility Guidelines (PROWAG). Most of the curb ramps do not have truncated domes or wheelchair-accessible pedestrian pushbuttons. This increases the likelihood that visually impaired and wheelchair-dependent users may enter the intersection during a conflicting vehicle movement. Figure 11 shows a non-compliant corner on the corridor.

Figure 11. ADA/PROWAG Noncompliant Corner at Sun Valley Road and Main Street

In conversations with City staff, and during a walking tour, concerns were raised about the ability of northbound traffic seeing pedestrians crossing at the River Street intersection. Vehicular traffic is traversing up a hill and the crosswalk markings on the north side of the intersection are difficult to see. With two new hotels expected to redevelop adjacent lots on the corner, there is concern for an increase in pedestrians and that drivers may not be able to stop in time when a pedestrian is crossing. Figure 12 shows the existing conditions at the River Street Intersection.

Figure 12. River Street Intersection View from the South.

3 Future Conditions and Initial Alternatives

3.1 Study Year and Target LOS

For the purposes of this study, the project team identified year 2042 as the design year for the improvements. Per section A.15 of ITD's *Roadway Design Manual*[9] LOS D is "applicable for Federal-aid construction on State and local highway excluding highways on the National Highway System." Since ITD owns Main Street, the project team set a target LOS D for the operations analysis.

3.2 Forecasted Traffic Patterns

The City of Ketchum does not lie within boundaries of a Municipal Planning Organization (MPO) that would produce a travel demand model that projects trip generation out into the future. Therefore, the project team calculated an average growth rate to represent traffic volume growth.

Traffic volumes on SH-75 were analyzed using historical data from ITD's ATRs to see how they have grown between 1990 and 2019. Due to the Covid 19 pandemic shutdowns, 2020 data was

[9] Idaho Transportation Department (ITD). Roadway Design manual. 2012

again excluded. Historical data from the ATR stations show patterns of steady and rapid growth on SH-75 up to the early 2000s, followed by a steep decline that coincides with the Great Recession. Traffic volumes started increasing again around 2012 and have steadily increased each year approaching the highest volumes seen before the Great Recession. Using the ATR data, the project team calculated a historical annual average growth rate of 1.44 percent for SH-75 and applied it as a regional growth factor for the City of Ketchum. Figure 13 and Figure 14 show the historical patterns of the AADT along SH-75.

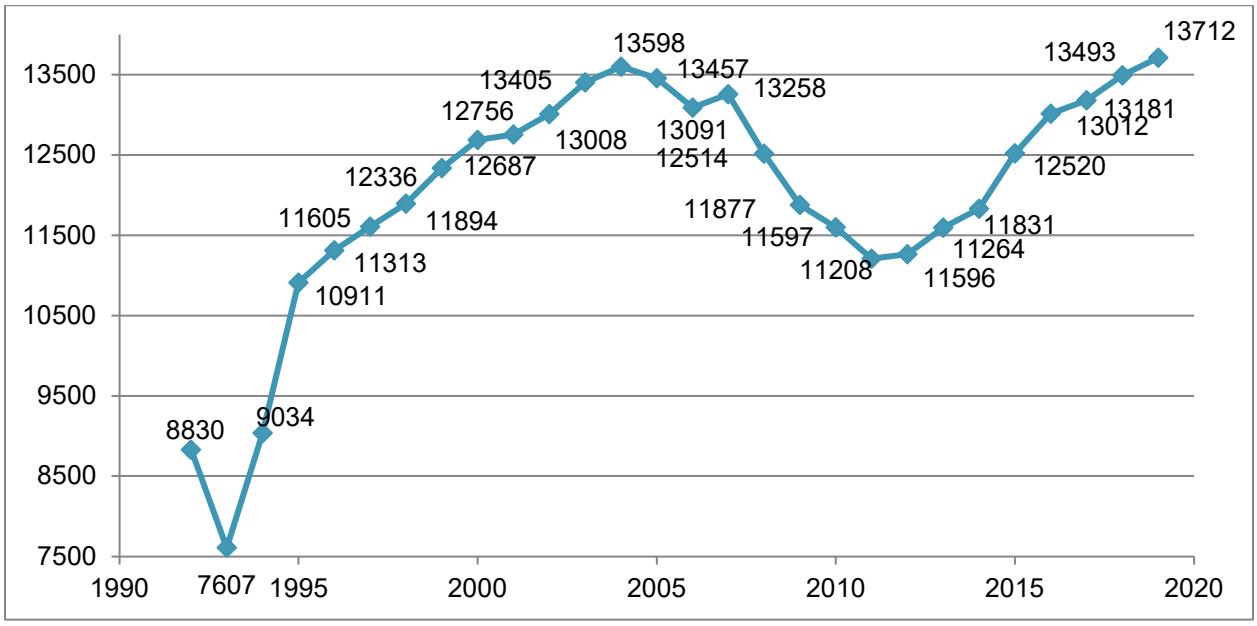


Figure 13. ATR #68 Historic AADT

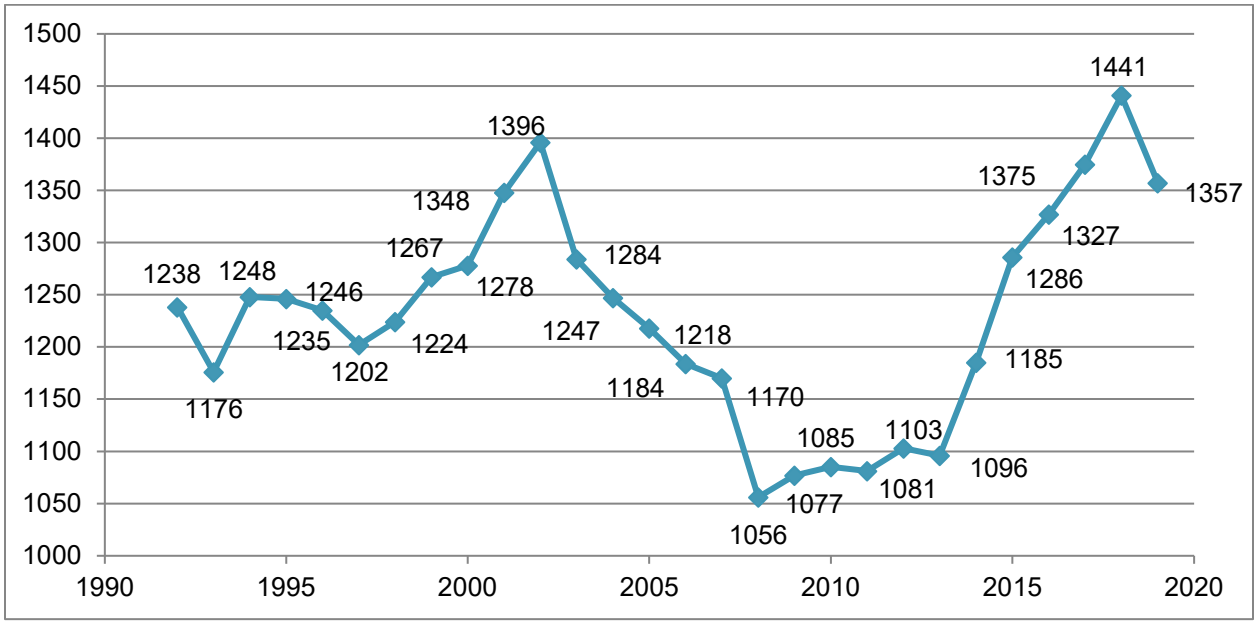


Figure 14. ATR #28 Historic AADT

The project team developed two separate volume scenarios for this study: 1) applying the growth rate to the unadjusted August counts, called the summer volumes, and 2) applying the growth rate to the adjusted counts, called the average volumes. Forecasted traffic volumes for the AM and PM peak hours are provided in Figure 15 and Figure 16.

Figure 15. Average Main Street 2042 Volumes

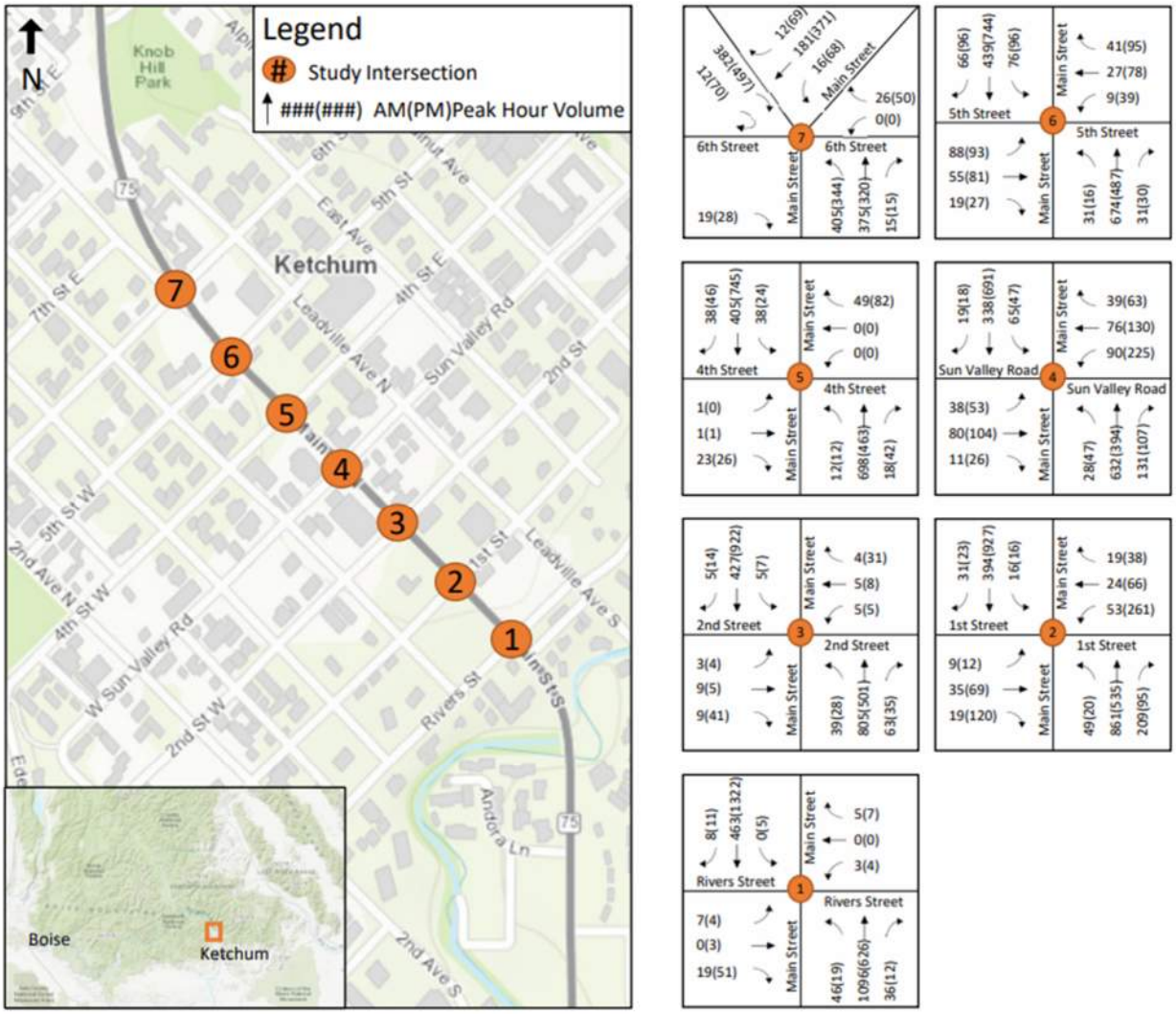


Figure 16. Summer Main Street 2042 Volumes

3.3 Future Scenario Evaluation

The project team developed two scenarios (No-Build and Build 3-lane configuration) along Main Street for both the average and summer volumes conditions for a total of four analysis scenarios (AM and PM peak for each). Table 15 summarizes different analysis scenarios. The analysis results of each are discussed in detail in **Appendix C** – Draft Future Conditions Memo.

Table 15. Main Street Analysis Scenarios

No.	Volumes Used	Scenario	Main Street Cross Section	Signal Operations	Peak Hour Factor
1	2042 Average	No-Build	Two lanes in each direction, no dedicated turn lanes at intersections	Existing signal timing parameters	0.92
2	2042 Summer				
3	2042 Average	Build	One lane in each direction, dedicated left-turn lane at each intersection on Main Street	100 second cycle length, flashing yellow arrows (FYA) for left turns	
4	2042 Summer				

3.3.1 Main Street Scenario 1

The first scenario on Main Street evaluates the existing four-lane section and timing parameters with the 2042 average volumes. Only the Sun Valley Road intersection and River Street intersection perform below ITD's recommended LOS D threshold. Sun Valley Road is estimated to operate at LOS F during the AM peak hour and LOS E during the PM peak hour, largely due to the split phasing of Main Street traffic.

Side street traffic at River Street looking to turn onto Main Street becomes overwhelmed by the large PM peak volumes of southbound traffic and cannot find a gap to turn left. This reduces River Street to an estimated LOS F. The remaining intersections are estimated to operate at an LOS C or better in the AM and PM peak hours. The average speed through the corridor is expected to be 14 miles per hour (mph) in the AM peak and 10 mph in the PM peak.

3.3.2 Main Street Scenario 2

Like the first scenario, the second scenario evaluates the existing four-lane section and timing parameters but with the summer 2042 volumes. Again, the Sun Valley Road and River Street intersections operate below ITD's recommended LOS D threshold. Sun Valley Road is estimated to operate at LOS F in both peak hours with northbound queues approaching 600 feet in the AM peak hour. The northbound traffic is expected to exceed the capacity of the intersection in both the AM and PM peak hours and the southbound traffic is expected to exceed capacity in the PM peak.

River Street continues to operate at LOS F in the PM peak hour, with the remaining intersections operating at an estimated LOS D or better in both peak hours.

The average speed through the corridor is expected to be approximately 8 mph in the morning and 7 mph in the evening peak. The capacity of the corridor is exceeded and over 200 vehicles are estimated to not be served during the peak hours.

3.3.3 Main Street Scenario 3

In scenario three, the 2042 average volumes are analyzed with a three-lane section, one lane in each direction with dedicated left-turn lanes at each intersection along Main Street. Side streets will remain in their existing configurations. The signalized intersections were evaluated with 100-second cycle lengths and flashing yellow arrow (FYA) left-turn operations. Pedestrian clearance

times were reduced due to the smaller crossing distances expected. Sun Valley Road's split phasing and pedestrian scramble phase were replaced with a standard signal phasing.

Overall, the intersections through the corridor are expected to operate at a better LOS in 2042, with the Sun Valley Road intersection experiencing the largest improvement to LOS B in both peak hours.

In terms of the corridor's performance, the average speed through the corridor is expected to be 14 mph in the morning peak and 10 mph in the evening peak. However, the corridor's capacity is exceeded in the evening and 28 vehicles will not be served.

Unfortunately, the LOS and delay benefits expected at the intersections may not be fully realized due to excessive queue lengths. For example, the southbound queue lengths at 1st Street are expected to exceed 330 feet, which would back up traffic through the 2nd Street intersection. 5th Street's estimated queue lengths are also large in the evening peak with southbound traffic backing up nearly 370 feet, which would clog the 6th Street intersection. The HCM's methodology analyzes intersections in isolation and does not consider queue spillback. It's expected that these large queue lengths would interfere with upstream intersection operations, degrading their LOS. Therefore, reported LOS and delay benefits should be read with caution and within the context of the queue lengths.

3.3.4 Main Street Scenario 4

The final scenario on Main Street analyzes the same roadway cross section as Scenario 3, but with the 2042 summer volumes. Signal operations, pedestrian clearances, and phasing are also the same as in Scenario 3.

With the increase in volumes in the summer months, River Street, 1st Street, and 2nd Street are expected to operate at LOS E or LOS F during the peak hours. The traffic at River Street and 2nd Street, both stop-controlled intersections, struggle to find a gap to turn left onto Main Street, increasing delays. In the case of the signalized operations at 1st Street, it is estimated to operate at LOS E in the PM peak hour with the southbound movements experiencing LOS F. The remaining intersections are expected to operate at an acceptable LOS.

As with Scenario 3, the LOS and delay benefits experienced at the intersection may not be fully realized due to excessive queue lengths. For example, at 1st Street, the PM peak southbound traffic experiences an estimated queue length of 1,309 feet. This long of a queue would back traffic up nearly to 6th Street, blocking the other intersections on the corridor. Similarly, the queued northbound traffic at 1st Street in the morning is expected to back up 721 feet, extending beyond River Street.

3.3.5 Main Street Initial Scenarios Comparison

At first glance, reducing the number of lanes from four to three and adding FYA for left turns, analyzed in scenarios 3 and 4, appears to improve the LOS along the corridor. For example, the Sun Valley Road/Main Street intersection operations improve from an LOS F in the PM peak hour to an LOS C with these improvements. However, when looking at the estimated queue lengths at the intersections, they can exceed 1,000 feet in some cases with the reconfigured

cross section. These excessive queues are significantly longer than those estimated under the No-Build scenarios and would back up from one signal through the upstream signalized intersections, causing significant congestion and potential gridlock.

The HCM capacity analysis methodology and the reported measures of effectiveness (MOE) generally do not consider how closely spaced signals interact with one another. Long queue lengths from one signalized intersection would interfere with another's operations, ultimately increasing delay and reducing LOS. By separating the left-turn traffic from the through traffic and adding FYA left-turn operations along Main Street in the 2042 Build scenario, traffic flow tends to improve, but there simply is not enough room on Main Street to store the queued traffic without blocking adjacent intersections.

Side street queue lengths also increase from the No-Build to the Build alternatives under average conditions and get even worse under summer conditions. Short city block lengths, on-street parking, and a single lane in each direction limit the amount of storage available on the side streets. Operations at the stop-controlled intersections are not expected to improve in the Build scenario and delays are expected to increase during the summer peak.

Overall, these results indicate that there is significant operational improvement by removing the split phasing at Sun Valley Road and installing left-turn lanes with FYA. The closely spaced intersections prevent the large volume of traffic from being stored, ultimately creating congestion.

3.4 Additional Scenarios

In consultation with City staff, the project team evaluated the following three additional scenarios, using 2042 summer volumes, to quantify the potential benefits and trade-offs to improve the corridor

- Scenario 5: Add left-turn lanes on Main Street at Sun Valley Road, removing split phasing and pedestrian scramble.
- Scenario 6: Prohibit left-turn movements from Main Street, except at Sun Valley Road where left-turn lanes are added.
- Scenario 7: Install a five-lane section along Main Street with left-turn lanes at each intersection.

Scenario results are summarized below. Summary tables and detailed reports are provided in **Appendix C**.

3.4.1 Main Street Scenario 5 – Add Left-Turn Lanes at Sun Valley Road

In this scenario, parking is removed along two blocks at the Sun Valley Road intersection to add a left-turn lane in each direction on Main Street. The split phasing and pedestrian scramble are removed creating an intersection with traditional phasing. The results show a marked decrease in queue lengths, with queue lengths at Sun Valley Road at less than 65 feet.

3.4.2 Main Street Scenario 6 – Add Left Turns at Sun Valley Road and Prohibit at Other Intersections

This scenario is similar to Scenario 5 in that it adds turn lanes on Main Street at the Sun Valley Road intersection, but it also prohibits left turns at the 1st and 5th street intersections. This pushes all left-turning traffic from Main Street to the Sun Valley Road intersection. This scenario also decreases queue lengths along the corridor, but slightly increases travel times as compared to Scenario 5.

3.4.3 Main Street Scenario 7 – Create a 5-lane Section along Main Street

The final scenario removes parking along the entirety of Main Street to add left-turn lanes at each intersection. The configuration removes the split phasing and pedestrian scramble at the Sun Valley Road intersection. It improves operations to LOS A at 1st Street, Sun Valley Road and 5th Street in the AM peak hour. In the PM peak hour, Sun Valley Road and 5th Street are expected to operate at an LOS B, while 1st Street operates at an LOS C. Travel times for this scenario are expected to be higher than scenarios 5 and 6, but less than the three-lane scenario.

3.4.4 Comparing Additional Scenarios

When compared to the No-Build or three-lane scenarios, scenarios 5, 6, and 7 decrease congestion on the corridor and reduce travel times. Each scenario provides better LOS, less congestion/gridlock, and better progression and travel time for vehicles and pedestrians. The shorter cycle lengths with these scenarios will shorten the wait times for pedestrians at intersections. Scenario 7 achieves vehicle progression goals; however, it produces the greatest impact by removing parking along the corridor. The Scenario 7 configuration may also limit opportunities to install curb extensions on Main Street to shorten the pedestrian crossings.

Figure 17 shows a comparison of the travel times between the three-lane scenario and the other scenarios. During the PM peak hour, the three-lane configuration southbound travel time is nearly double the other alternatives. Adding the left turns at Sun Valley Road reduces the travel times the most. Scenarios 6 and 7 also reduce travel times; however, they have a greater impact on the public in turn restrictions or removing more parking than Scenario 5. Average speeds, shown in Figure 18, are lowest in the three-lane scenario due to the increase in congestion and limited capacity of the roadway.

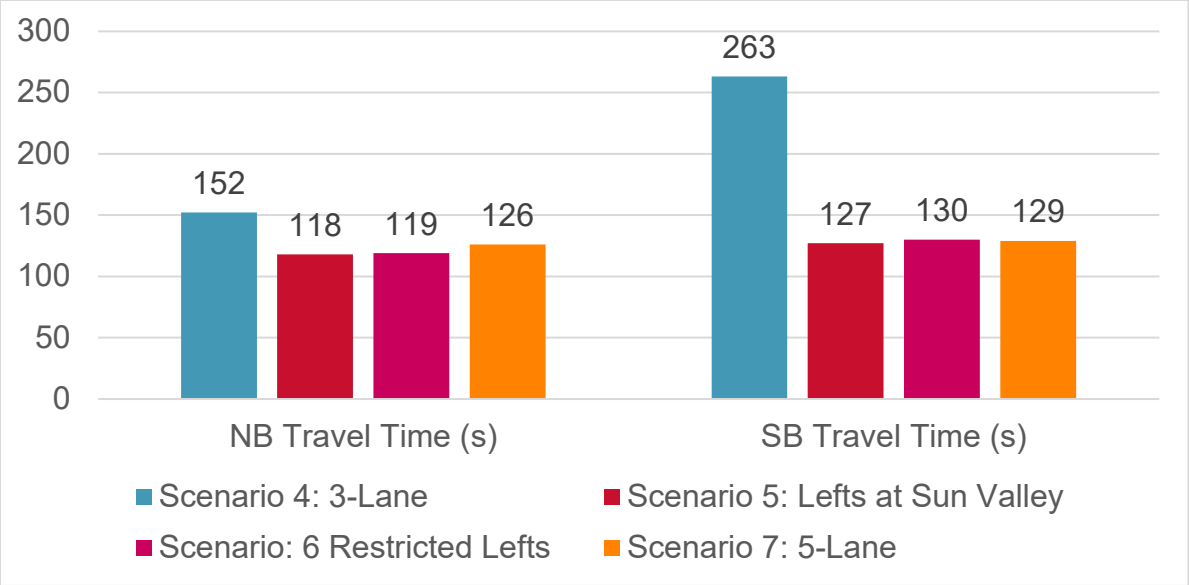


Figure 17. PM Peak Travel Time Comparison of Additional Scenarios

Figure 18. PM Peak Average Speed Comparison of Additional Scenarios

3.5 Initial Recommendation and Limitations of the Analysis

HDR presented the findings of the deterministic analysis to the City Council on April 11, 2022. HDR recommended against pursuing the three-lane section due to the significant impacts to motorized vehicle flow and travel time. Congestion on Main Street could cause traffic to use adjacent streets to get through town, increasing volumes, congestion, and conflicts on local streets. Instead, HDR recommended the City pursue adding left-turn lanes at the Sun Valley Road Intersection, similar to scenario 5, and HDR provided a conceptual rendering, shown in Figure 19.

Figure 19. Conceptual Rendering of Adding Left Turns at Sun Valley Road

The above results were performed using HCM methodologies, which are deterministic in nature. The methodologies use parameters, including volume, saturation flow rates, signal timing settings, and others to estimate a statistical model representing traffic. This methodology, employed in Synchro, is usually accurate enough for basic projects, but generally does not consider the immediate influences of adjacent intersection or impacts to individual drivers. Deterministic analysis also does not produce a visual representation of the operations.

The City Council asked for a visual representation of the corridor operations to understand the potential impacts of the different lane reconfiguration scenarios. HDR explained the limitations of the macroscope methodologies and recommended performing a microsimulation analysis to improve the confidence of the analysis and provide videos of the operations.

4 Interim Improvements

At the City's request, HDR and the project team implemented short-term solutions to enhance the corridor operations in the interim period. These improvements were in response to inefficiencies previously identified in Section 2.4.4.

- The project team coordinated with ITD to interconnect the signals to implement a coordinated signal timing plan.

- The City and ITD agreed to remove the pedestrian scramble. While good in its intentions to provide more opportunities for pedestrians to cross Main Street, the scramble added undo delay to vehicles along the corridor.
- HDR developed signal timing plans for the AM and PM peak hours to reduce the number of stops and increase progression during the peak hours. Additionally, HDR recalculated the pedestrian clearance intervals to increase pedestrian safety.
- ITD is currently designing a project south of Ketchum that is scheduled to be built before improvements on Main Street and would provide an opportunity to revise the location of the merge taper between 1st Street and River Street to be south of River Street. This would allow drivers to stay in their lanes for a longer period of time before merging and reduce the impact of the merge on the 1st Street signal. Figure 20 below shows the existing merge taper and proposed merge taper for this area.

Figure 20. Existing Merge Between 1st and River (Top) and Proposed Merge South of River (Bottom)

5 Microsimulation Analysis

The project team performed a microsimulation analysis using Vissim software. The microsimulation is a higher-grade analysis than the previously described deterministic analysis that treats vehicles individually instead of in flow relationship equations. This level of analysis creates a higher confidence in vehicle-to-vehicle interaction and a visual example of estimated operations can be produced. The project team analyzed the following specific alternatives:

- Existing Conditions
- Alternative 1: No-Build
- Alternative 2: Adding Main Street left-turn lanes at Sun Valley Road
- Alternative 3: Three-lane section

The Existing Conditions alternative and Alternative 1 were developed under the following assumptions:

- the pedestrian scramble was removed,
- the new signal timing plans were implemented,
- the merge taper was moved south of River Street, and
- Left turns were protected only and FYA's were not used.

Each alternative evaluated August 2042 volumes grown by the 1.44 percent average annual growth rate and no seasonal adjustments were made to traffic volumes.

In Vissim, the intersection LOS is computed from a microsimulation analysis that is reported as an "estimated LOS." Vissim quantifies overall intersection delays more realistically than typical equation based HCM methods because it models the entire network and how operations at one intersection influences adjacent intersection as it tracks individual vehicle movements and interactions. The estimated LOS for existing conditions is based on HCM criteria and thresholds for signalized and unsignalized intersections. The overall intersection delay and LOS for signalized intersections is based on the total control delay of all movements. The overall intersection delay and LOS for unsignalized intersections is based on the worst stop-controlled movement per HCM standards. Detailed measures of effectiveness tables for individual movements are provided in **Appendix D**. Unlike in the deterministic analysis, FYAs were not considered for left-turn lanes.

5.1 Existing Conditions Alternative

Like the earlier analysis, the existing conditions are modeled using August 2022 volumes with results shown in Table 16. Each intersection is operating at an estimated LOS C or better in the AM peak hour. The average delay at the Sun Valley Road intersection is at 31 seconds with northbound and southbound queue lengths at approximately 240 feet, or nearly the entire block. In the PM peak hour, each intersection operates at LOS D or better with 40 seconds of average vehicle delay at the Sun Valley Road intersection. At 1st Street and Sun Valley Road, the queue lengths are estimated to be at or exceeding 300 feet both westbound and southbound.

Table 16. Existing Conditions Microsimulation Results

Intersection	Traffic Control	AM Peak		PM Peak	
		Delay (sec/veh)	Estimated LOS	Delay (sec/veh)	Estimated LOS
SH-75 and 6th St	Unsignalized	6.5	A	7.4	A
SH-75 and 5th St	Signalized	9.3	A	9.9	A
SH-75 and 4th St	Unsignalized	15.5	C	15.4	C
SH-75 and Sun Valley Rd	Signalized	31.4	C	38.2	D
SH-75 and 2nd St	Unsignalized	12.0	B	13.1	B
SH-75 and 1st St	Signalized	7.0	A	18.2	B
SH-75 and River Rd	Unsignalized	16.2	C	24.8	C

sec/veh = seconds per vehicle; LOS = level of service

5.2 Alternative 1: No-Build

In the 2042 No-Build conditions, each intersection operates at an LOS C or better in the AM peak with delays at Sun Valley Road approaching 31.3 seconds. The 6th Street intersection performs the worst in the PM peak with an average delay of 146.7 seconds and an LOS F. Although the average delay at the Sun Valley Road intersection is only 47.4 seconds per vehicle, the westbound left turn is estimated to experience delays exceeding 80 seconds at LOS F and queue lengths approaching 590 feet. The 1st Street intersection is expected to have queue lengths exceed 500 feet in the PM peak hour. Table 17 shows a LOS summary for each of the intersections.

Table 17. Alternative 1: No-Build Microsimulation Results

Intersection	Traffic Control	AM Peak		PM Peak	
		Delay (sec/veh)	Estimated LOS	Delay (sec/veh)	Estimated LOS
SH-75 and 6th St	Unsignalized	7.1	A	146.7	F
SH-75 and 5th St	Signalized	11.3	B	24.6	C
SH-75 and 4th St	Unsignalized	15.7	C	48.2	E
SH-75 and Sun Valley Rd	Signalized	33.9	C	47.4	D
SH-75 and 2nd St	Unsignalized	19.4	C	16.9	C
SH-75 and 1st St	Signalized	9.3	A	20.3	C
SH-75 and River Rd	Unsignalized	30.8	D	28.7	D

sec/veh = seconds per vehicle; LOS = level of service

~~5.4~~5.3 Alternative 2: Install Left-Turn Lanes at Sun Valley

In Alternative 2, the 2042 volumes are analyzed with left-turn lanes added at the Sun Valley Road intersection. During the AM peak hour, each intersection performs above ITD's LOS D threshold, with River Street performing the worst at LOS D and 31.0 seconds of average delay. In the PM peak hour, each intersection performs at an LOS C or better with River Street again operating the worst at LOS D with 32.2 seconds of delay. The westbound left-turn lane at Sun Valley Road has a queue length of 413 feet in the PM peak hour, but only experiences an average delay of 49.1 seconds. Queue lengths for the 1st Street westbound movements again exceed 500 feet. Table 18 shows a LOS summary for each intersection.

Table 18. Alternative 2: Install Left-Turn Lanes at Sun Valley Microsimulation Results

Intersection	Traffic Control	AM Peak		PM Peak	
		Delay (sec/veh)	Estimated LOS	Delay (sec/veh)	Estimated LOS
SH-75 and 6th St	Unsignalized	7.1	A	9.1	A
SH-75 and 5th St	Signalized	10.6	B	12.6	B
SH-75 and 4th St	Unsignalized	7.5	A	16.6	C
SH-75 and Sun Valley Rd	Signalized	22.9	C	28.1	C
SH-75 and 2nd St	Unsignalized	15.8	C	13.8	B
SH-75 and 1st St	Signalized	8.1	A	16.3	B
SH-75 and River Rd	Unsignalized	31.0	D	32.2	D

sec/veh = seconds per vehicle; LOS = level of service

~~5.5~~5.4 Alternative 3: Three-Lane Section

In Alternative 3, the 2042 volumes are analyzed with the roadway lanes configured into one lane in each direction and left-turn lanes at each of the intersections. During the AM peak hour, the River Street intersection operates at an LOS F with 69.7 seconds of delay. The remaining intersections operate at LOS D or better. In the PM peak hour, the operations at the 6th Street intersection severely degrade. Delay is expected to exceed 11 minutes at this intersection. Main Street splits at 6th Street with SH-75 going northeast and Warm Springs Road going northwest. In the PM peak hour, these two lanes must merge down to one between 6th Street and 5th Street; however, there is such a large number of vehicles that this merge causes a more severe delay at the intersection.

Table 19. Alternative 3: Three-Lane Section Microsimulation Results

Intersection	Traffic Control	AM Peak		PM Peak	
		Delay (sec/veh)	Estimated LOS	Delay (sec/veh)	Estimated LOS
SH-75 and 6th St	Unsignalized	7.5	A	668.3	F
SH-75 and 5th St	Signalized	22.5	C	52.2	D
SH-75 and 4th St	Unsignalized	18.8	C	27.4	D
SH-75 and Sun Valley Rd	Signalized	26.5	C	37.4	D
SH-75 and 2nd St	Unsignalized	41.5	E	46.8	E
SH-75 and 1st St	Signalized	16.3	B	36.2	D
SH-75 and River Rd	Unsignalized	82.5	F	45.3	E

sec/veh = seconds per vehicle; LOS = level of service

Unlike the other three alternatives, the three-lane section does not fully serve the forecasted vehicle demand. In the VISSIM simulations, the model only serves about 81 to 89 percent of the forecasted vehicle traffic. This is due to both no room for vehicles to turn onto Main Street and the long wait north of 6th Street. Figure 21 and Figure 22 show the long queue lengths and congestion.

Figure 21. Alternative 3 Long Queue Lengths – South End

Figure 22. Alternative 3 Long Queue Lengths - North End

~~5.6~~5.5 Travel Times and Average Speeds

Figure 23 and Figure 24 summarize the estimated travel times of each alternative under 2042 conditions and the existing conditions (2022) model. The travel time segments are assumed to begin and end 500 feet north of 6th Street and 500 feet south of River Street.

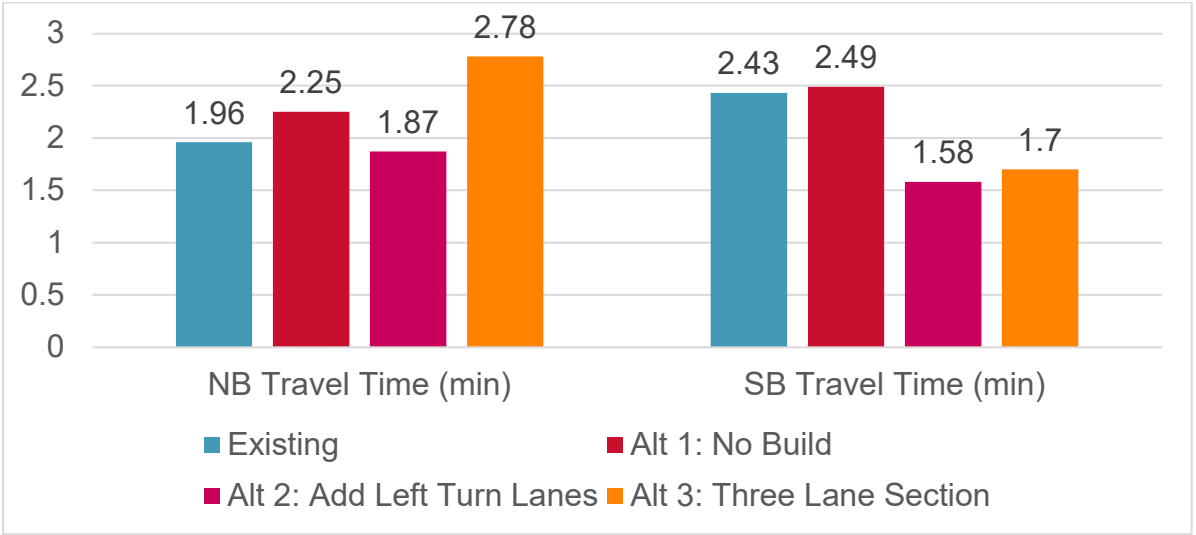


Figure 23. AM Peak Microsimulation Travel Time Comparison

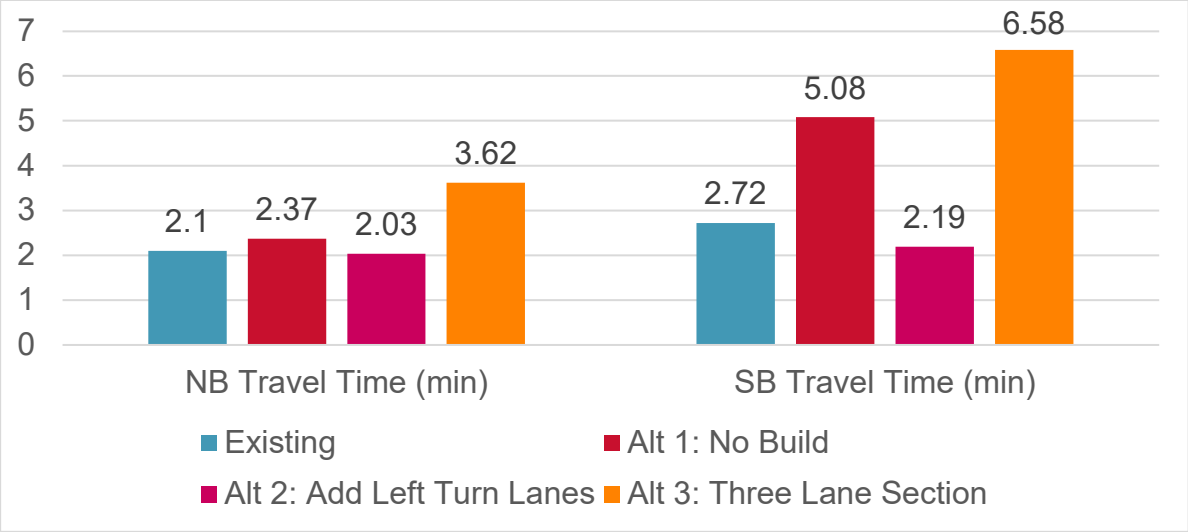


Figure 24. PM Peak Microsimulation Travel Time Comparison

Table 20 outlines the differences in travel times between the alternatives. Alterative 2 decreases the total travel time when compared to the other alternatives.

Table 20. Microsimulation Travel Time Comparison

Travel Time Segments		Difference (minutes)			
Peak Hour	Direction	Alt 1: No-Build vs Existing	Alt 2: Add Left-Turn Lanes vs Alt 1: No-Build	Alt 3: Three-Lane Section vs Alt 1: No-Build	Alt 2: Add Left Turns vs Alt 3: Three-Lane Section
AM	NB	0.29	-0.37	0.54	-0.91
	SB	0.06	-0.91	-0.79	-0.12
PM	NB	0.27	-0.34	1.25	-1.59
	SB	2.36	-2.88	1.51	-4.39

Figure 25 and Figure 26 present the average vehicle speed through the corridor. In both the AM and PM peaks, the average speed is highest in Alternative 2, although still below the posted speed limit. The added left-turn lanes allow for removing the split phasing, which provides better two-way progression. In turn, more vehicles can proceed through the corridor without stopping. The three-lane section is considerably slower than other alternatives in the PM peak hour, nearly slowing vehicles to a crawl in the southbound direction.

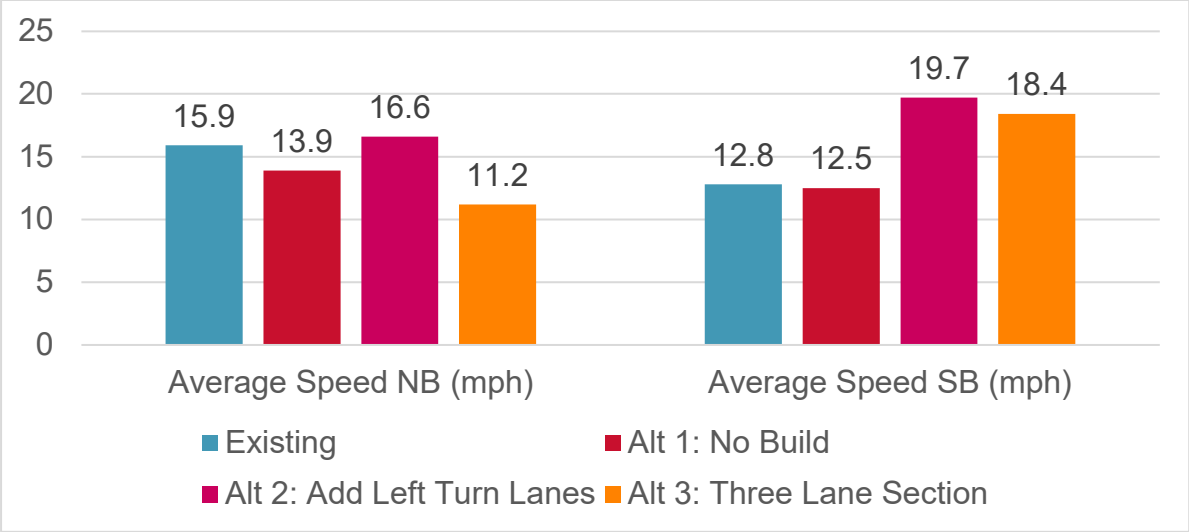


Figure 25. Microsimulation AM Peak Average Speed Comparison

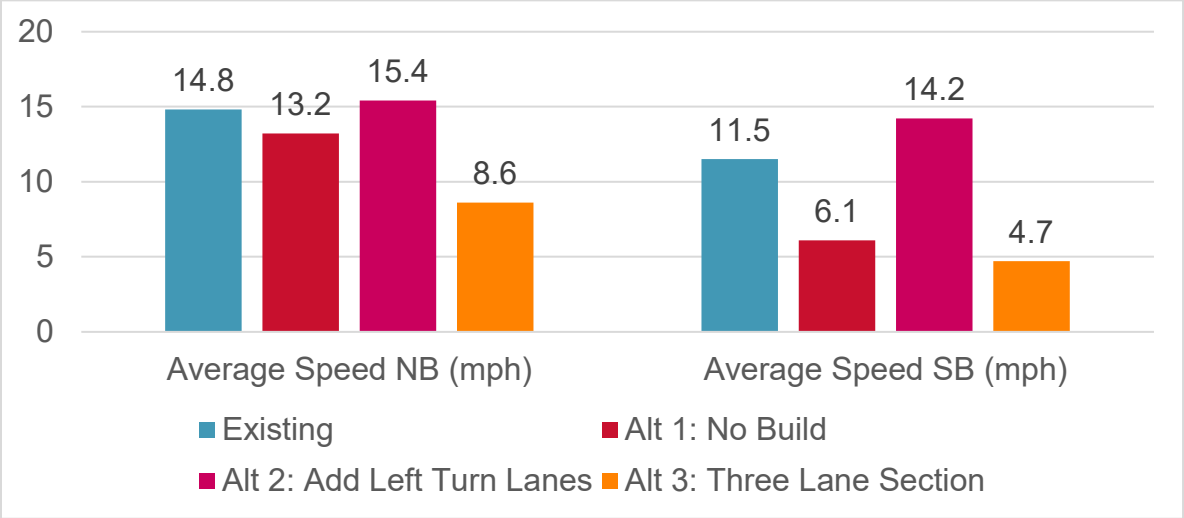


Figure 26. Microsimulation PM Peak Average Speed Comparison

6 Safety and Public Realm Enhancements

6.1 Safety and Public Realm Enhancements

The project team evaluated the corridor for recommendations that could be applied to either Alternative 2 or Alternative 3 to further enhance corridor safety. Following are the recommended treatments as part of the project.

6.1.1 Narrow the Travel Lanes from 12 Feet to 11 Feet

The existing travel lanes are 12 feet wide. These could reasonably be reduced to 11 feet, thereby providing 4 feet to increase the pedestrian space (2 feet on each side). Reducing the parking lane width from 8.5 feet to 8 feet from the face to curb would give an additional half-foot

to the pedestrian realm on each side of the roadway. Figure 27 and Figure 28 are conceptual drawings of the increased pedestrian space. The reduced travel lane width would reinforce slower speeds and calm traffic through the corridor.

Figure 27. Additional Sidewalk Concept

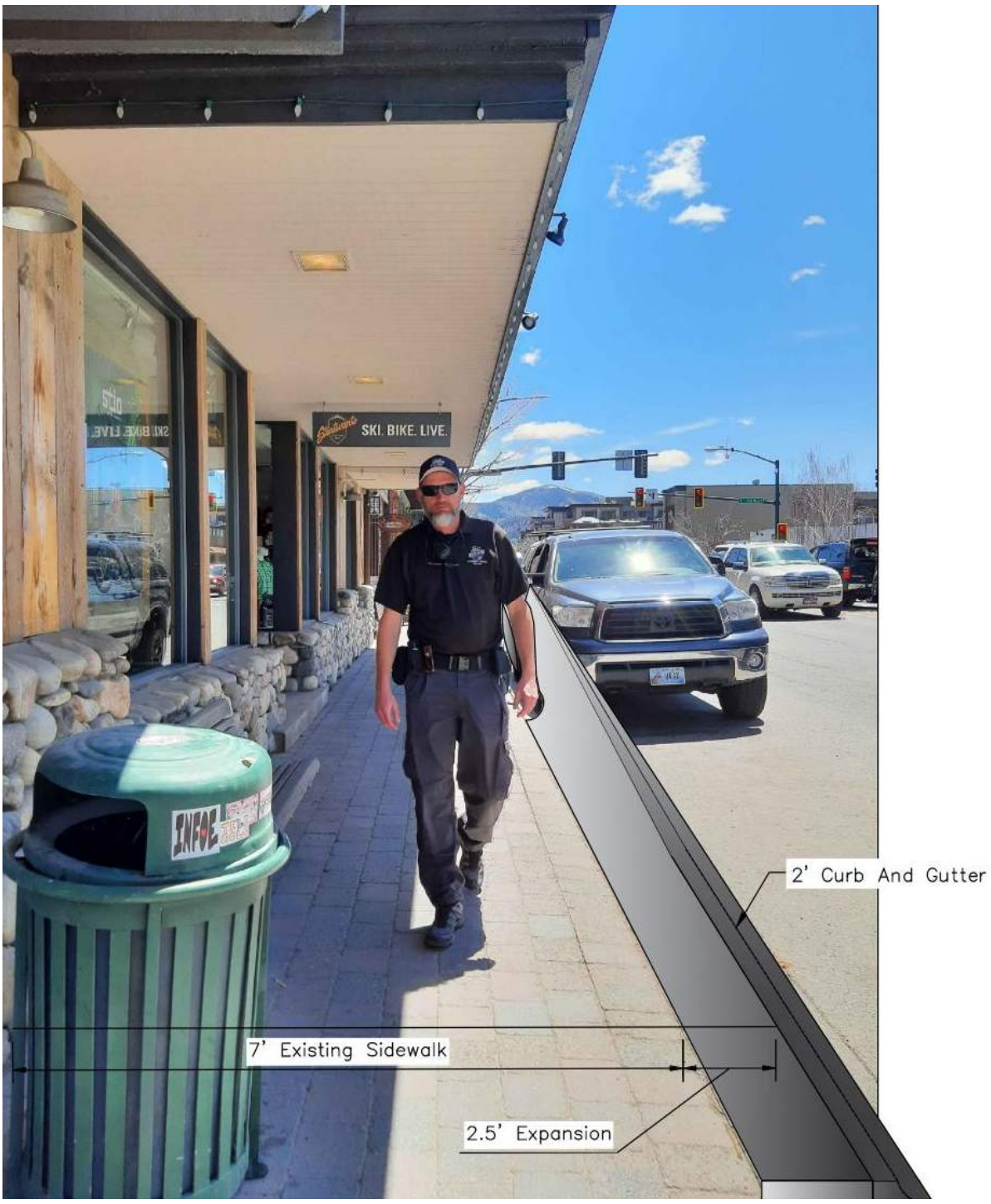


Figure 28. Additional Sidewalk Concept

6.1.2 Provide Bulb-Outs at Intersections

Bulb-outs, also known as curb extensions, shorten the pedestrian crossing distance by extending the curb out into the adjacent parking lane. Bulb-outs increase pedestrian safety by increasing their visibility as they are no longer hidden to drivers behind adjacent parked vehicles. Figure 29 is a National Association of City Transportation Officials (NACTO) rendering of a bulb-out. The extra curb space can be used to provide placemaking signs or landscaping along the corridor to enhance the public realm. As shown in Figure 30, there are bulb-outs presently at the 4th Street intersection. Similar bulb-outs could be implemented with minimal impacts to parking along the rest of the corridor.

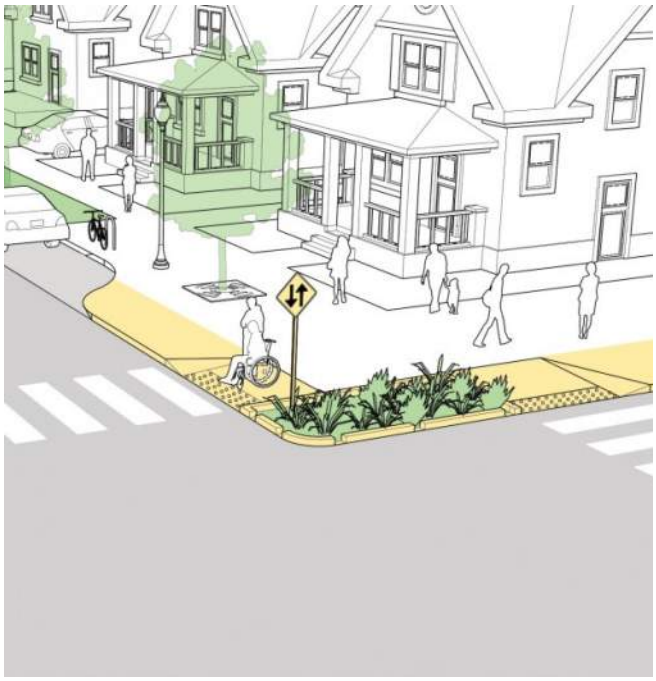


Figure 29. NACTO Bulb-out Rendering

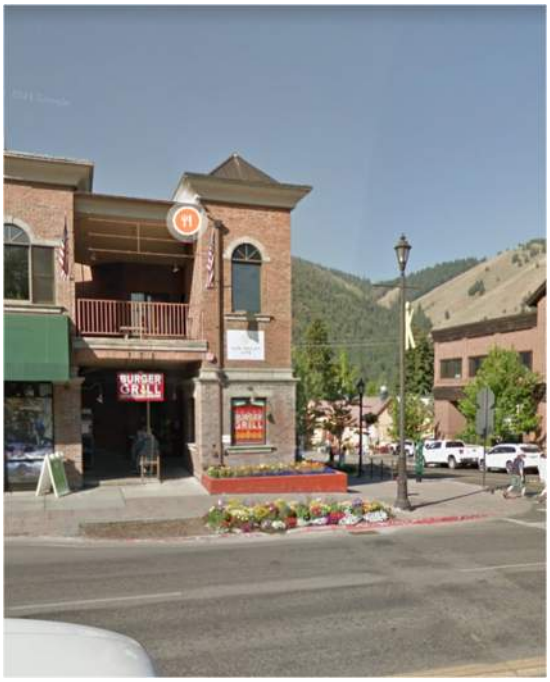


Figure 30. Existing Bulb-out at 4th Street

6.1.3 Public Realm Improvements

The extra space afforded by narrowing the lanes and providing bulb-outs where applicable, may allow the City to install public realm improvements that would provide a place-making feel and redefine the downtown area. These can include specialty landscaping, identifying signage, banner poles, artwork and sculpture, tree-lined street, and enhancing seating options. Some examples are shown below in Figure 31.

Figure 31. Example Public Realm Improvements

6.1.4 Raised Intersection at Sun Valley Road

A raised intersection may be explored at Sun Valley Road to improve the pedestrian experience along the corridor (Figure 32). According to the NACTO *Urban Street Design Guide*[10], "Raised intersections create a safe, slow-speed crossing and public space…they reinforce slow speeds and encourage motorist to yield to pedestrians at the crosswalk." This type of intersection treatment may keep speeds low along the Main Street corridor, helping facilitate a calmer presence along the corridor.

The Sun Valley Road intersection features corners without truncated domes and curb ramps with steep grades, making the intersection out of compliance with ADA/PROWAG guidelines. The intersection is also likely to prove challenging to bring into compliance because the building entrances and sidewalk height on the northeast corner are higher above the roadway than is typical. Installing ramps may prove challenging as the grades and tight corner do not allow much flexibility. However, a raised intersection could be feasible because instead of lowering the pedestrian to the level of the roadway, the roadway would rise to the pedestrian. Then, the sidewalk would not need to ramp down with unnecessarily steep grades and long pedestrian ramp runs can potentially be avoided.

This intersection treatment would need to be evaluated in coordination with ITD during design to ensure that the design vehicles can safely traverse the intersection. Additionally, drainage may be an issue as the raised intersection would change the drainage patterns of the intersection.

[10] National Association of City Transportation Officials. 2013. *Urban Street Design Guide*.

Figure 32. NACTO Raised Intersection Rendering

6.1.5 Leading Pedestrian Interval

According to the NACTO's *Urban Street Design Guide,* "A leading pedestrian interval (LPI) typically gives pedestrians a 3-7 second head start when entering an intersection with a corresponding green signal in the same direction of travel." The LPI enhances pedestrian visibility as they establish their presence in the crosswalk prior to the vehicles getting a green. This can be implemented with any of the alternatives and would need to be evaluated in coordination with ITD when programing the signal timing.

6.2 Future Safety Evaluation

The project team used the Federal Highway Administration's (FHWA's) Crash Modification Factor (CMF) Clearinghouse[11] to identify the potential change in crash frequency or severity associated with the possible intersection changes and/or changes to the number of lanes on Main Street. CMFs were selected based on study similarities to Main Street's roadway conditions and star rating (i.e., minimum of three stars). Each CMF also needed to include all crash types and crash severities. When there were no CMFs available for the specific situation, a qualitative discussion is provided.

[11] FHWA CMF Clearinghouse, http://www.cmfclearinghouse.org/index.cfm

6.2.1 Alternative 1: No-Build

Few opportunities existing within the No-Build alternative. The City and ITD could implement a LPI, which according to CFM ID 9910 (5 stars) shows a 16 percent decrease in crashes when LPIs are used on either all crossings or only across the minor roadway.

6.2.2 Alternative 2: Adding Left-Turn Lanes

The following CMFs can be applied to Alternative 2:

- CMF ID 153 (3 stars) shows a 20 percent decrease in crashes when prohibiting on-street parking.
- CFM ID 9910 (5 stars) shows a 16 percent decrease in crashes when LPI are used on either all crossings or only across the minor roadway.
- Installing a raised intersection at the Sun Valley Road intersection may help keep Main Street's speeds low.
- Bulb-outs have been shown to increase safety by decreasing the pedestrian crossing distance, reducing speeds caused by a decreased roadway width, and increasing pedestrian visibility to drivers.
- Install a rectangular rapid flashing beacon (RRFB) at the River Street intersection and disallow crossings on the south side of the intersection. This would enhance the visibility of pedestrians at the intersection and help alleviate the issues caused by the steep grade on the south side of the intersection as described in Section 2.5.5 and Figure 12.

6.2.3 Alternative 3: Three-Lane Section

The following CMFs can be applied to Alternative 3:

- CMF ID 2841 (5 stars) estimates a 47 percent reduction in crashes when converting the existing four-lane roadway to a three-lane roadway.
- CFM ID 9910 (5 stars) shows a 16 percent decrease in crashes when LPIs are used on either all crossings or only across the minor roadway.
- Installing a raised intersection at the Sun Valley Road intersection may help keep Main Street speeds low.
- Bulb-outs have been shown to increase safety by decreasing the pedestrian crossing distance, reducing speeds caused by a decreased roadway width, and increasing pedestrian visibility to drivers.
- Install a rectangular rapid flashing beacon (RRFB) at the River Street intersection and disallow crossings on the south side of the intersection. This would enhance the visibility of pedestrians at the intersection and help alleviate the issues caused by the steep grade on the south side of the intersection as described in Section 2.5.5 and Figure 12.

6.3 Future Transit Impact

6.3.1 Alternative 1: No-Build

Alternative 1 would provide no or minimal benefit to the transit network. There are no dedicated bus lanes on Main Street and congestion is shown to get worse in the design year; therefore, the decrease in travel times along the corridor would negatively impact the headways of Mountain Rides. Additionally, with the pedestrian realm and sidewalk remaining unchanged, there is little opportunity to enhance the bus stops.

6.3.2 Alternative 2: Adding Left-Turn Lanes at Sun Valley

Alternative 2 would improve the transit operations on Main Street. Travel times along the corridor in the design year are expected to be similar to today's travel times, meaning Mountain Ride's headways are expected to improve or not be impacted by the change. The changes proposed to the public realm would allow an opportunity to enhance bus stops along the corridor and improve the ridership experience.

6.3.3 Alternative 3: Three-lane Section

Alternative 3 would be mixed in its impact to transit. The potential narrowing of the roadway may allow for more room on the sidewalk to enhance bus stops like Alternative 2. The drastic increase in congestion would negatively impact transit operations along the corridor. As congestion and travel times increase, bus headways would increase as they may be stuck in long queues of vehicles. Without another direct alternative route through town, busses would need to travel either across or through Main Street likely preventing an alternate bus route from being effective.

7 Public Meeting Summary

A public meeting was held on October 3, 2022, followed by 2-week online public comment period. The public meeting consisted of three separate presentations (one each in the morning, mid-day, and evening) that outlined the results of the microsimulation analysis, showed videos of the estimated operations for each alternative, and presented the benefits and draw backs of each alternative. For individuals who could not attend the meetings in person, an online form was made available to provide feedback. Additionally, the public meeting included a presentation and survey on a concept study project concerning the Lewis Street and 10th Street intersections on Warm Springs Road.

No every person at the in person public meeting answered every question. The results of the in person public meetings were as follows:

- When asked if the city should choose the "No Build" alternative, 33 percent (4 of 12 attendees) said "yes", 8% were neutral (1 of 12), and 58 percent (7 of 12) said "No"
- When asked if the city should explore the "Left turn Lanes" alternative: Sixty-three percent (7 of 11) said "yes", 18 percent (2 of 11) were neutral and 18 percent (2 of 11) said "No"

- When asked if the city should explore the “lane reconfiguration” alternative: 18 percent (2 of 12) said “yes”, 25 percent (4 of 12) were neutral and 58 percent (7 of 12) said “No”

A total of 151 respondents filled out the online survey and not every respondent answered every question. The online results were as follows:

- When asked if the city should explore the “No Build” alternative, 44 percent (41 of 93) said “yes”, 23 percent (21 of 93) were neutral, 31 percent (29 of 93) said “No”, and 2% (2 of 93) responded other.
- When asked if the city should explore the “Left turn Lanes” alternative, 42 percent (39 of 93) said “yes”, 15 percent (14 of 93) were neutral, 39% (36 of 93) said “No”, and 4% (4 of 93) responded other.
- When asked if the city should explore the “Lane Reconfiguration” alternative, 22 percent (20 of 93) said “yes”, 16 percent (15 of 93) were neutral, 61 percent (57 of 93) said “No”, and 1 percent (1 of 93) responded other.

A summary of the public involvement results is provided in **Appendix E**.

8 Recommendations and Additional Opportunities

8.1 Comparing the Alternatives

Alternative 3 provides many benefits to the pedestrian and public realms, but at a significant cost to vehicle traffic flow. Based on historical growth rates, this alternative produces congestion and does not serve all traffic during future peak periods. This level of congestion could push traffic onto neighboring streets, increasing conflicts and negating large safety benefits from the potential lane reconfiguration. This alterative also does not meet ITD’s LOS D threshold.

Although the three-lane section may decrease the number of lanes pedestrians need to cross the roadway, vehicle congestion is likely to reduce gaps pedestrians will have to cross at unsignalized intersections. Side streets are expected to see large increases in vehicle queue lengths as vehicles are unable to enter Main Street due to a lack of gaps. The 6th Street intersection is especially problematic with delays exceeding 11 minutes.

Alternative 2, which removes parking for two blocks to add turn lanes at the Sun Valley Road intersection, serves all estimated traffic during the design year. Estimated travel times for future vehicles are similar to existing conditions. By removing the split phasing, the bottle neck at Sun Valley Road is removed and all other intersections on the corridor are able to increase operational efficiency for both pedestrians and vehicles. The safety benefits of Alternative 2 may not be as great as for Alternative 3; however, many safety improvements discussed in Section 6 can be implemented along the corridor to enhance pedestrian and multi-modal safety. The

remaining intersections could still see improvements to the pedestrian and public realms with bulb-outs and wider sidewalks.

8.2 Recommendation

Alternative 2 is recommended over Alternative 3. Alternative 2 serves vehicular traffic and improves traffic operations; it meets ITD's LOS D threshold for improvements on a state highway; and provides excess capacity. Excess capacity allows some contingency for performance i.e., suggesting that if Ketchum sees a greater increase in vehicle traffic than estimated, this alternative would best be able to handle that increase. Although the opportunity to widen the pedestrian space is not as great as with Alternative 3, there are still opportunities to enhance the public realm, improve the placemaking feel of Ketchum's Main Street, and further enhance corridor safety performance. Final conceptual exhibits are provided in **Appendix F**. During design, the city should implement enhancements discussed in Section 6 of this report.

8.3 Opinion of Probable Costs

8.3.1 Opinion of the Probable Cost of the Recommended Alternative

The project team developed an opinion of probable cost based upon the conceptual exhibits. The costs assume complete sidewalk replacement, signal upgrades, tree cells, ADA ramp improvements and bulb-outs. ITD has programed a project to resurface Main Street in the near future and the Alternative 2 costs assume that ITD will pay for the resurfacing, including base material. The budget for their work is $7,322,000, according to ITD's STIP. Those costs include new pavement, aggregate, ADA ramp improvements and signal upgrades from River Street to Club House Drive. There will be some overlap in the costs assumed for this project, so cost sharing with ITD to the financial impact to the City and costs should be negotiated.

Three costs are estimated: engineering fee, construction costs, and right-of-way costs. The Alternative 2 probable costs are summarized in Table 21.

Table 21. Opinion Of Probable Costs

Cost	Amount
Engineering Fee:	$353,000
Construction Costs:	$3,880,000
Right-of-way Costs:	$10,000
Total Project Costs:	$4,243,000

The costs assume the following:

- All costs are in current (2022 dollars)
- Curb, gutter, and sidewalk will be removed and replaced along the length of the corridor.

- The pedestrian realm will be expanded by narrowing the travel lanes to 11 feet and the extra space given to the sidewalk.
- Tree cells will be installed to improve the tree canopy and provide a sustainable option for stormwater treatment.
- The traffic signal at the Sun Valley Road intersection will be completely rebuilt and no signal materials will be salvaged.
- The traffic signals at 1st Street and 5th Street as well as the PHB at 4th Street will be removed and reset as needed as their components are likely to be able to be reused.
- Bulb-outs will be installed at every intersection except at Sun Valley Road where vehicle turning movements may preclude their installation.
- ITD will pay for the raised intersection at Sun Valley Road as part of their improvements.
- 20 percent of the construction costs are assumed for contingency items that may arise.
- 10 percent of the construction costs are assumed for the engineer fee to complete the City's portion of the work.
- The right-of-way costs are estimated for the unlikely event of an easement or other access to a private property require complete construction.

8.3.2 Opportunities to Reduce Costs

As previously stated, the cost to construct the preferred alternative includes replacing sidewalk and installing bulb-outs at each intersection. This substantially increases project costs; however, the City may reduce total project costs by limiting the number of bulb-outs installed and not narrowing the travel lanes. This would decrease the benefits to the public realm and pedestrians.

The tree cell system is estimated to improve the tree canopy on Main Street; however, drainage benefits may be redundant with the existing storm sewer system in place. Excavation and material costs can be reduced by eliminating the tree cells from the concept.

8.4 Additional Opportunities

The following minor opportunities exist to enhance the corridor and provide longevity to the recommended improvements.

- Install mast arms long enough to add future dedicated left-turn lanes at 1st Street. Although the analysis indicates that future queue lengths and delays are acceptable, if the City experiences more growth than estimated, the longer mast arms would decrease costs associated with adding left-turn lanes on 1st Street.
- The City should look at controlling access at businesses along the corridor to mitigate conflicts and reduce confusion at the intersections. Coordination with the Village Market and the Valtrex property will be necessary.

- Enhance the wayfinding in advance of the 6th Street intersection to help non-locals identify which lane they need to be in before Main Street splits. This could be accomplished with new signage before intersection.

8.5 Next Steps

City staff should review this report for completeness and provide any comments. HDR will revise and resubmit the report for adoption by the City Council. After adoption, the City should pursue grant opportunities to fund the improvements. Outreach for stakeholder participation in the grant pursuits should occur, including with Mountain Rides, Blaine County School District, and the Ketchum Urban Renewal Agency.

The City should coordinate with ITD to get approval for the preferred alternative. ITD owns Main Street and will have final say on the implementation of any chosen alternative. Additionally, the City should coordinate design improvements to align with an upcoming maintenance project on SH-75. Coordination will decrease the amount of mobilization required to improve the roadway and reduce impacts to the public. The curb extensions and raised intersection will need to be evaluated in coordination with ITD during design to evaluate truck turning movements and stormwater needs in detail.