

Bridge River Capital Projects: La Joie Access and Accommodation Study

Upper Bridge River Valley, Virtual Open House – June 2024



Spring 2024 Virtual Open House

La Joie Access & Accommodation Study

BC Hydro Bridge River Capital Projects

June 2024



Agenda

- 1 Study Overview
- 2 Evaluation Framework
- 3 Integrating Your Feedback
- 4 Draft Emerging Options
- 5 Next Steps





1 Study Overview

Context Map



Legend

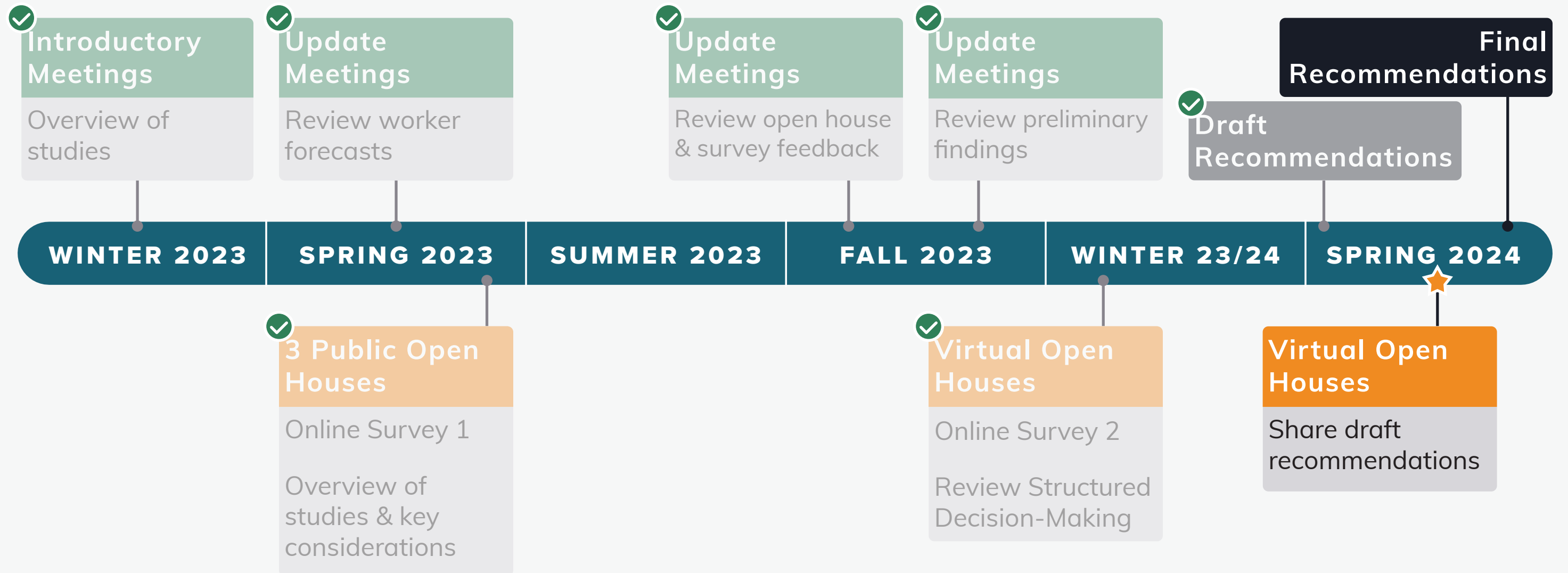
Lands & Transportation

-  Provincial Parks
-  Waterbodies
-  Provincial Highway
-  Regional Roadway

BC Hydro Facilities

-  La Joie Dam

Study Timeline



How Information Will Be Used

- This study represents a baseline of information and conceptual level analysis of options
- BC Hydro will complete further feasibility studies on leading options and recommendations
- As projects advance, BC Hydro will integrate new information and consider implementation planning

Engagement Activities (Phases 1 & 2)



Community
Surveys



St'át'imc
Nation
Consultation



Public Open
Houses

SURVEY 1

71

Responses

SURVEY 2

233

Responses

Stakeholder
Meetings &
Calls

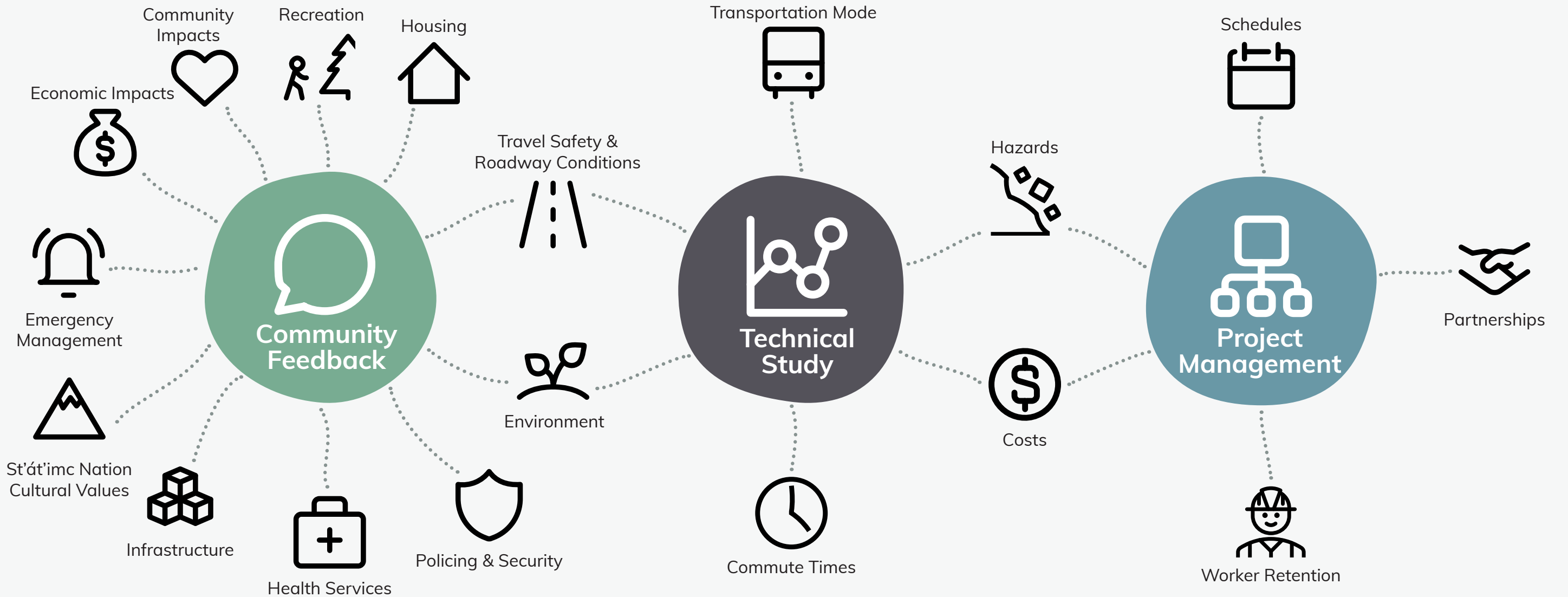


2
In-Person

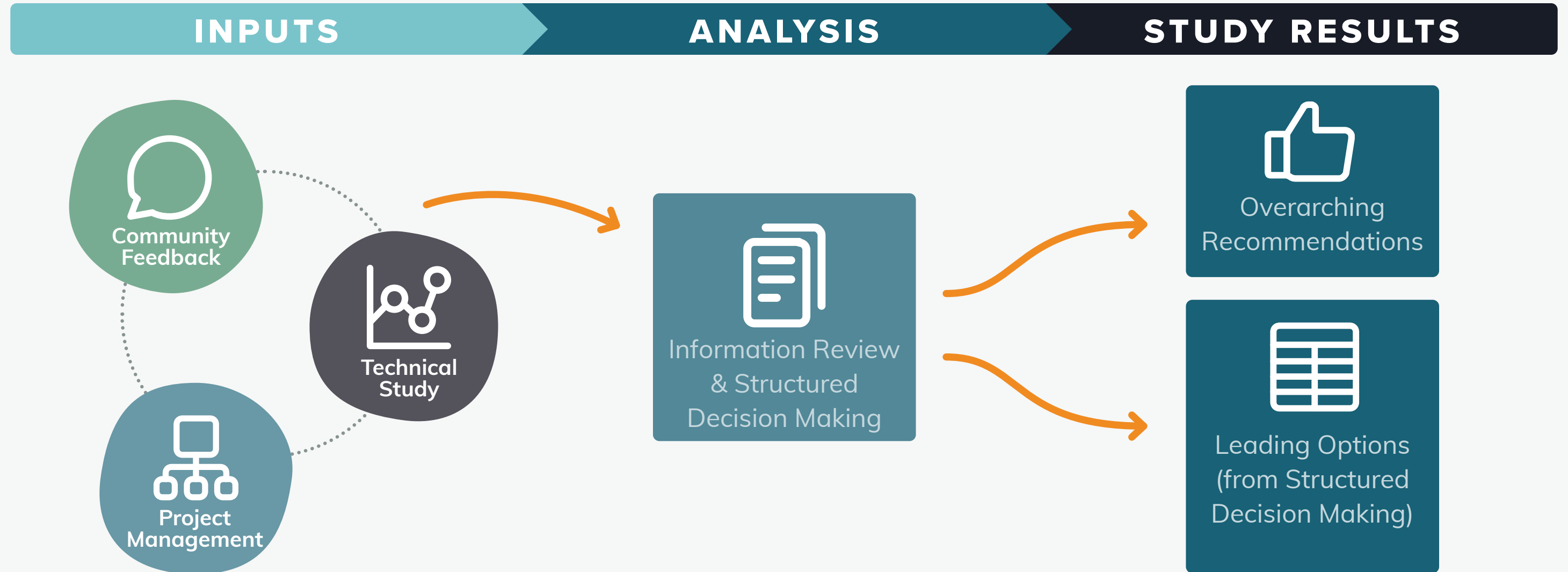
3
Virtual

2 Evaluation Framework

Study Inputs



Evaluation Process



Study Results

Overarching Recommendations

- Informed by technical data as well as St'át'imc, stakeholder, and public feedback
- Evaluated for implementation no matter which option is chosen

Example - Mitigating impacts to recreation amenities

Since the use of recreation amenities will occur no matter which option is selected, we have included recommendations for the Worker Code of Conduct and other tools to ensure recreation areas are used responsibly and environmentally sensitive areas are protected from overuse.

Study Results

SDM Objectives & Measures

- Informed by technical data as well as St'át'imc, stakeholder, and public feedback
- These **are differentiators** between potential options - concerns that help to choose between options
- Are used to **compare** each option's benefits and trade-offs

Example - Accommodation Costs

Each option presents different associated costs. These differences are used to compare the options

3 Integrating Your Feedback

St'át'imc Nation, Stakeholder, & Public Engagement

KEY THEMES



Travel Safety &
Roadway Conditions



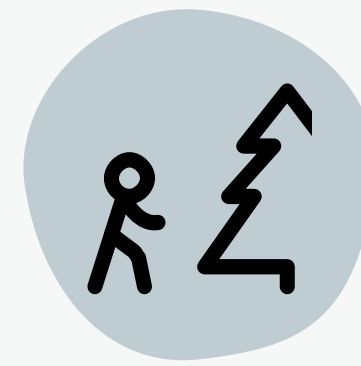
Housing



Community
Impacts



Environment



Recreation



Emergency
Management



St'át'imc Nation
Cultural Values



Infrastructure



Economic Impacts



Health Services



Policing &
Security



Travel Safety & Roadway Conditions

WHAT WE HEARD

- Unsafe driver behaviour
- Worsening roadway conditions and geohazards (rockfall, debris, etc.)
- Increased roadway incidents
- Road closures and slower travel times

“The road condition is already pretty bad getting in and out of the Upper BRV, this is inevitably going to be worse with the increased traffic. In saying that, **we do not want the Hurley paved. Ever.**”

Quote from Phase 2 survey

“More traffic on Road 40 would not be a positive impact however, if the **Hurley F.S.R** were to be **opened up year round that would be fantastic.**”

Quote from Phase 2 survey



Travel Safety & Roadway Conditions

INTEGRATING FEEDBACK



Overarching Recommendations

- Shuttle buses for transporting workers
- Worker Code of Conduct including safe driving practices
- Local communication regarding project traffic
- Road surfacing
- Geohazard mitigations (roadside barriers, scaling, drape mesh, etc.)



SDM Objectives

- Minimize increase in traffic on main and residential roadways
- Minimize project related traffic on the road networks
- Minimize risk to road user safety due to increased traffic



Housing

WHAT WE HEARD

- Increased rental and housing prices
- Limited rental and housing availability
- Exacerbated homelessness

“I live in Gold Bridge. It is **very hard to find accommodation for rent**, almost impossible. There is also a huge lack of property to purchase.”

Quote from Phase 2 survey

“**Rental prices and hotel rates will increase** which will impact locals and **discourage tourism** which we have been working for years to encourage.”

Quote from Phase 2 survey



Housing

INTEGRATING FEEDBACK



Overarching Recommendations

- Avoid relying solely on private accommodations for worker accommodations
- Monitor the private accommodation market

**Many concerns regarding impacts to housing are mitigated through the use of a work camp to accommodate the temporary workforce throughout the project*



Community Impact

WHAT WE HEARD

- Safety for women and girls
- Damage to infrastructure and local amenities
- Opportunities for new positive social connections
- Noise, nuisance, and disorderly conduct incidents
- Employment opportunities for locals

“It will be nice to have an influx of different people and enjoy their stories and **share our valley with them.**”

Quote from Phase 2 survey

“A **signed Code of Conduct** for the workforce reviewed and **signed on a yearly basis.** It should state the outcomes of bad behavior in the community.”

Quote from Phase 2 survey

Community Impact **INTEGRATING FEEDBACK**

Overarching Recommendations

- Develop ongoing communication strategy
- Dust mitigation
- Worker Code of Conduct
- Coordination with local service providers

SDM Objectives

- Minimize noise and nuisance due to project traffic in residential areas
- Minimize camp visibility and aesthetic impact



Environment

WHAT WE HEARD

- Impact to wildlife and wildlife habitat
- Disturbance of natural environment
- Respect for land, local environment, and wildlife
- Impact to environmental recovery following wildfires

“Consideration to **wildlife** already impacted by **reduced habitat from forest fires.**”

Quote from Phase 2 survey

“Impact of invasive plant species on area... will require **invasive species control and monitoring** during and after project completion.”

Quote from Phase 2 survey



Environment

INTEGRATING FEEDBACK



Overarching Recommendations

- Invasive Species Management Plan
- Post-construction site re-vegetation
- Worker Code of Conduct



SDM Objectives

- Minimize proximity to environmentally sensitive areas
- Minimize clearing of trees required for work camp

**Environmental screening through desktop review is currently ongoing and will be incorporated into the evaluations when completed.*



Recreation

WHAT WE HEARD

- Overuse of existing recreation amenities
- Unauthorized trail use and trail building
- Vandalism and litter

“Putting workers closer to **trails** is great for them but our **committee that manages those trails is small** and will need help with the influx of people.”

Quote from Phase 2 survey

“There needs to be some arrangement between local trails committee and BC Hydro to **support maintenance of our outdoor recreation spaces.**”

Quote from Phase 2 survey



Recreation

INTEGRATING FEEDBACK



Overarching Recommendations

- Worker Code of Conduct
- Communication regarding appropriate use of recreation amenities
- Recreation facilities will be available in work camp for workers



Emergency Management

WHAT WE HEARD

- Emergency management planning, including evacuation planning
- Emergency response capacity, especially in remote areas

“The **rescue teams need additional resources** to respond to increased traffic. Accidents shut down the road for a long period of time.”

Quote from Phase 2 survey

“Minimal to no emergency communication and **emergency response time from centers is lengthy.**”

Quote from Phase 2 survey



Emergency Management

INTEGRATING FEEDBACK



Overarching Recommendations

- Emergency management planning for access and accommodation (with consideration for wildfires, wildlife encounters, domestic animal encounters, and large-scale evacuation planning)
- Planning sessions with local authorities



SDM Objectives

- Minimize worker travel time
- Provide route redundancy



St'át'imc Nation Cultural Values

WHAT WE HEARD

- Lack of cultural awareness among workers
- Disturbance of cultural and spiritual sites
- Disturbance of areas used for traditional activities
- Impact on Indigenous women and girls

“Our Indigenous population is vulnerable and there should be **cultural training** provided to the Hydro workers.”

Quote from Phase 2 survey

“Our **First Nation communities** and members should be **key benefactors** and be provided **meaningful engagement and consultation** on decisions.”

Quote from Phase 2 survey



St'át'imc Nation Cultural Values

INTEGRATING FEEDBACK



Overarching Recommendations

- Cultural awareness training
- Coordination with local social service organizations



SDM Objectives

- Minimize proximity to environmentally sensitive areas
- Minimize clearing of trees required for work camp
- Minimize impacts to cultural and socio-economic values



Infrastructure

WHAT WE HEARD

- Some infrastructure either near or at capacity
- Further strain on services
- Increased costs for services for locals

“Limited amounts of potable water for additional housing.”

Quote from Phase 2 survey

“Our infrastructure is barely able to cope with the current demand and will need to be addressed. **Water, sewage, garbage, provisions etc. will be impacted.**”

Quote from Phase 2 survey



Infrastructure

INTEGRATING FEEDBACK



Overarching Recommendations

- Coordination with Lillooet Landfill
- Assessment and mitigation of project infrastructure needs

**Work camp is expected to include self-contained water and sewer.*



Economic Impacts

WHAT WE HEARD

- Ability of businesses to adapt to changes in demand
- Support for local businesses

“More people in the Valley the better. Positive business development.”

Quote from Phase 2 survey

“Hosting incoming workers in the area would help to **stimulate the local economy** within the Bridge River Valley.”

Quote from Phase 2 survey



Economic Impacts

INTEGRATING FEEDBACK



Overarching Recommendations

- Communicate employment opportunities to local community members
- Communicate with local businesses regarding fluctuations in service demand



Health Services

WHAT WE HEARD

- Strained hospital services
- Limited first responder capacity, especially for remote areas

“The biggest problem is the **fluctuations** ... from **high demand to very low demand** ... so it is difficult to provide support services for example health services.”

Quote from Phase 2 survey

“Medical services would be one thing that I would be worried about as right now our local **hospital ... [is] strained to the hilt.**”

Quote from Phase 2 survey



Health Services

INTEGRATING FEEDBACK



Overarching Recommendations

- Consider employing a qualified medical professional to address and triage minor injuries at work site
- Encourage workers to refill prescriptions before coming to the region
- Ensure workers are able to consult virtually with their family doctor



Policing & Security

WHAT WE HEARD

- Added strain on RCMP services
- Increased policing on roadways

“Rd. 40 ... needs **policing** to ensure ALL drivers are **driving to road conditions** and on their side of the road, slowing down and crawling if necessary.”

Quote from Phase 2 survey

“There is currently no police presence, the **closest RCMP detachments being Lillooet and Pemberton**; the impact of 250-500 workers will be significant on Gold Bridge.”

Quote from Phase 2 survey



Policing & Security

INTEGRATING FEEDBACK



Overarching Recommendations

- Worker Code of Conduct
- Planning sessions with local RCMP

4 Draft Emerging Options

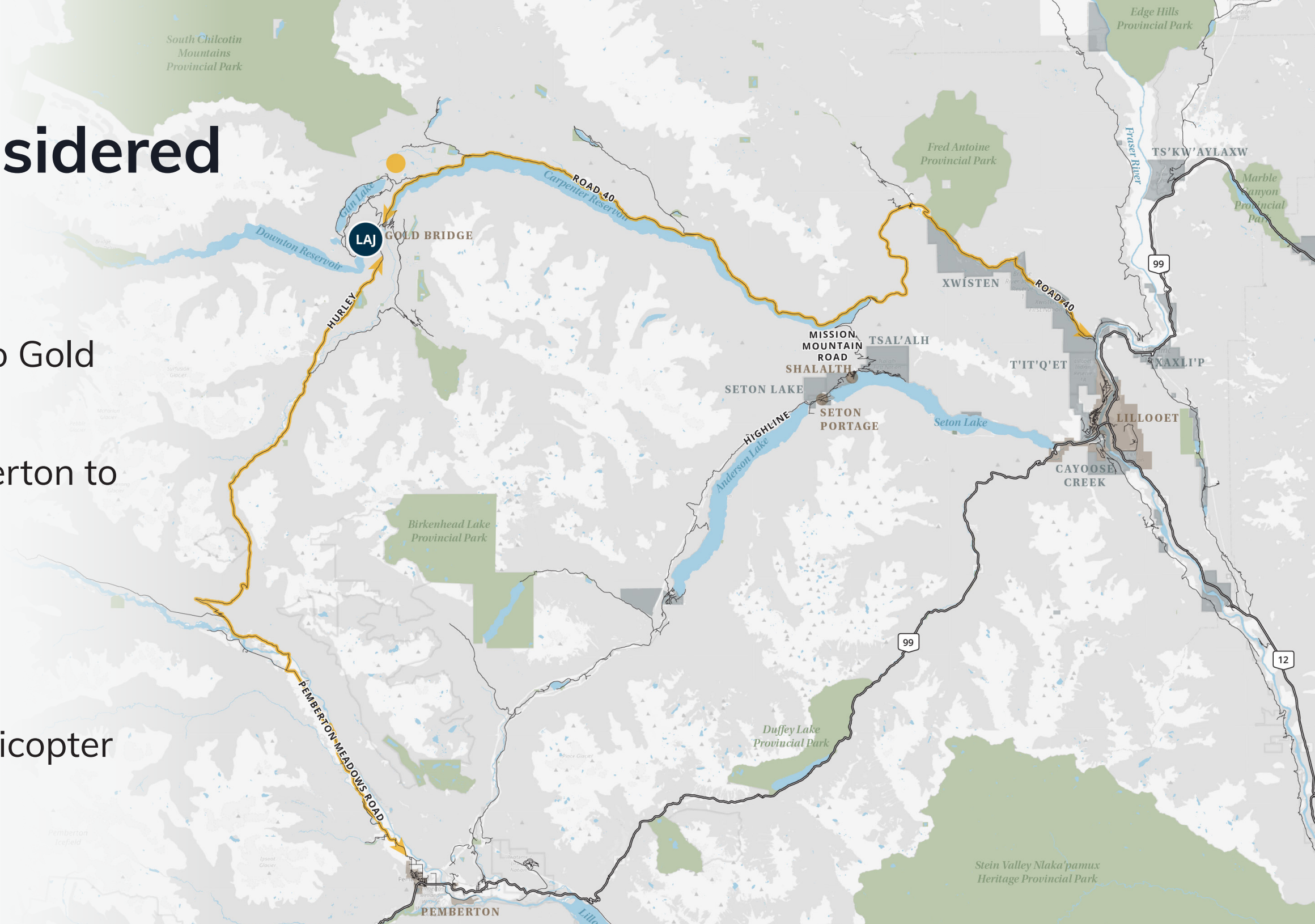
Options Considered

ROADWAYS

- Road 40 (Lillooet to Gold Bridge)
- Hurley FSR (Pemberton to Gold Bridge)

AIR

- Gun Lake airstrip
- Fixed wing and helicopter



Options Considered

ACCESS

Highway 40

- 15-16% increase in vehicle volumes (average of ~50 project-related vehicles per day)
- Workers are assumed to travel by 10-person shuttle vans
- Localized geohazard mitigations

Hurley FSR

- 17% increase in vehicle volumes (average of ~50 project-related vehicles per day)
- Workers are assumed to travel by 10-person shuttle vans
- All-season road upgrades
- Winter access - only for duration of project
- Investigating options for controlling public use/ access

Airplane

- 37 passenger capacity
- 3-4 round-trip flights per week, split over 2 days
- Supplies and equipment move by road
- Airstrip upgrades

Helicopter

- 10 passenger capacity
- 8-14 round-trip flights per week
- Supplies and equipment move by road

Options Considered

ACCESS

Highway 40

- 15-16% increase in vehicle volumes (average of ~50 project-related vehicles per day)
- Workers are assumed to travel by 10-person shuttle vans
- Localized geohazard mitigations

Hurley FSR

- 17% increase in vehicle volumes (average of ~50 project-related vehicles per day)
- Workers are assumed to travel by 10-person shuttle vans
- All-season road upgrades
- Winter access - only for duration of project
- Investigating options for controlling public use/ access

Airplane

- 37 passenger capacity
- 3-4 round-trip flights per week, split over 2 days
- Supplies and equipment move by road
- Airstrip upgrades

Helicopter

- 10 passenger capacity
- 8-14 round-trip flights per week
- Supplies and equipment move by road

**Initial evaluation showed the use of helicopters to be ill-suited as the primary mode of transporting workers due to overall cost, reliability, and potential for nuisance. It is no longer being evaluated as a primary option.*

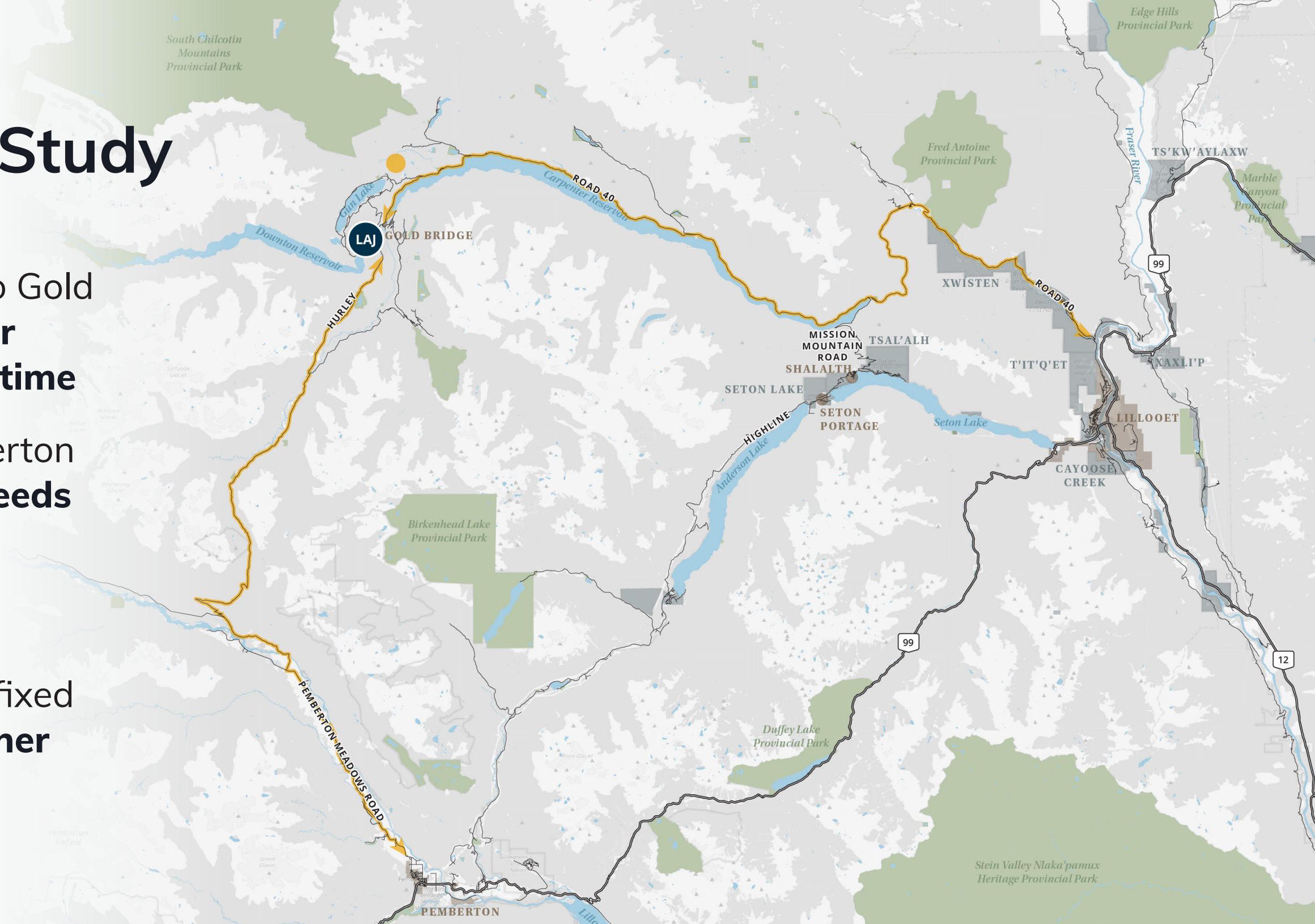
For Further Study

ROADWAYS

- Road 40 (Lillooet to Gold Bridge) - **no further evaluation at this time**
- Hurley FSR (Pemberton to Gold Bridge) - **needs further study**

AIR

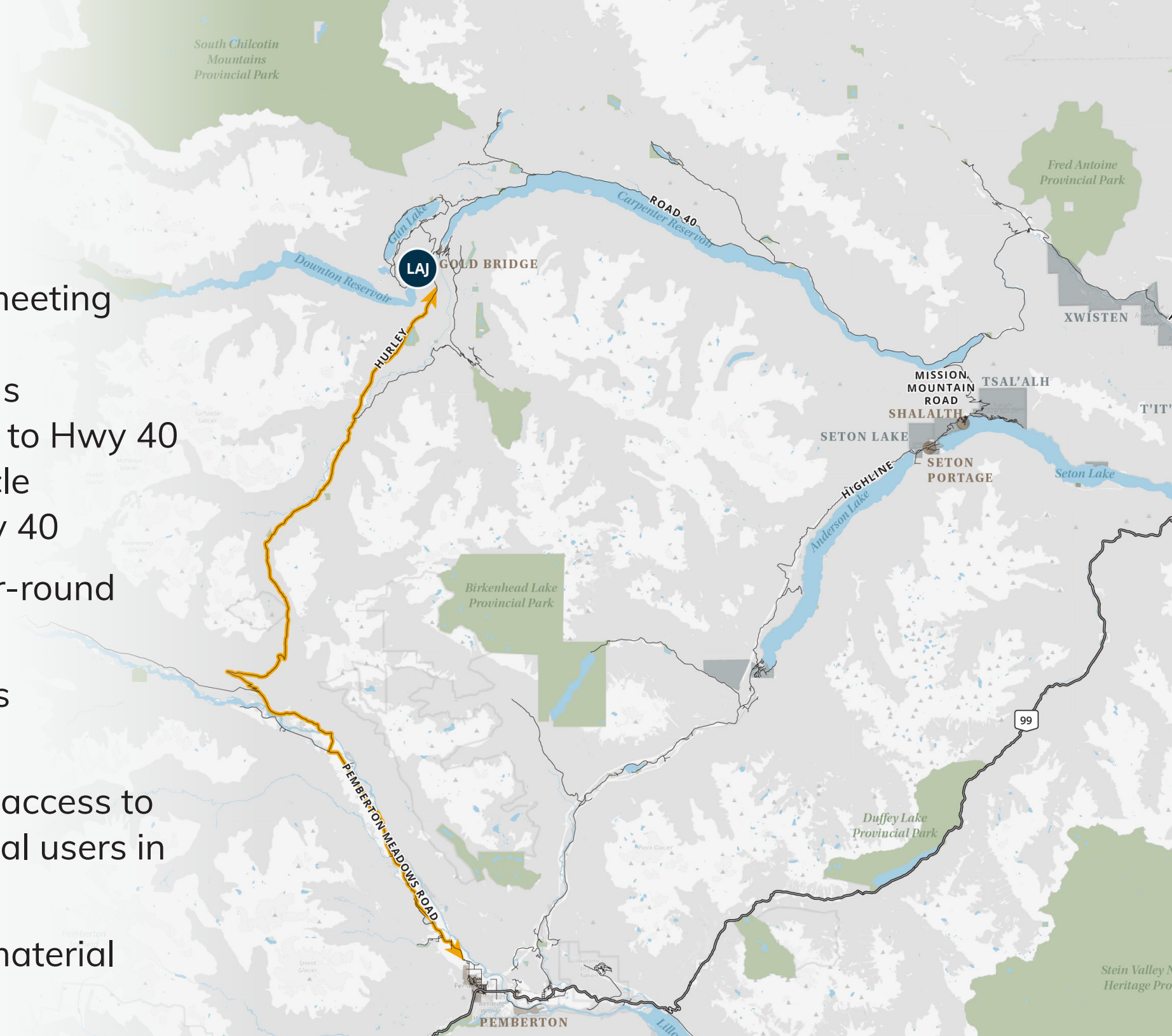
- Gun Lake Airstrip (fixed wing) - **needs further study**



Key Considerations

HURLEY FSR - ACCESS

- Provides access redundancy - critical to meeting tight construction windows
- Significantly less exposure to geohazards
- Less exposure to collision risk compared to Hwy 40
- Lower travel costs (travel time and vehicle operating costs) compared to using Hwy 40
- Major upgrades required to support year-round project access
- Cost associated with maintaining access throughout winter months
- Investigate options for managing public access to mitigate impacts from potential additional users in the area
- Further analysis regarding worker and material point of origin



Key Considerations

AIRPLANE - ACCESS

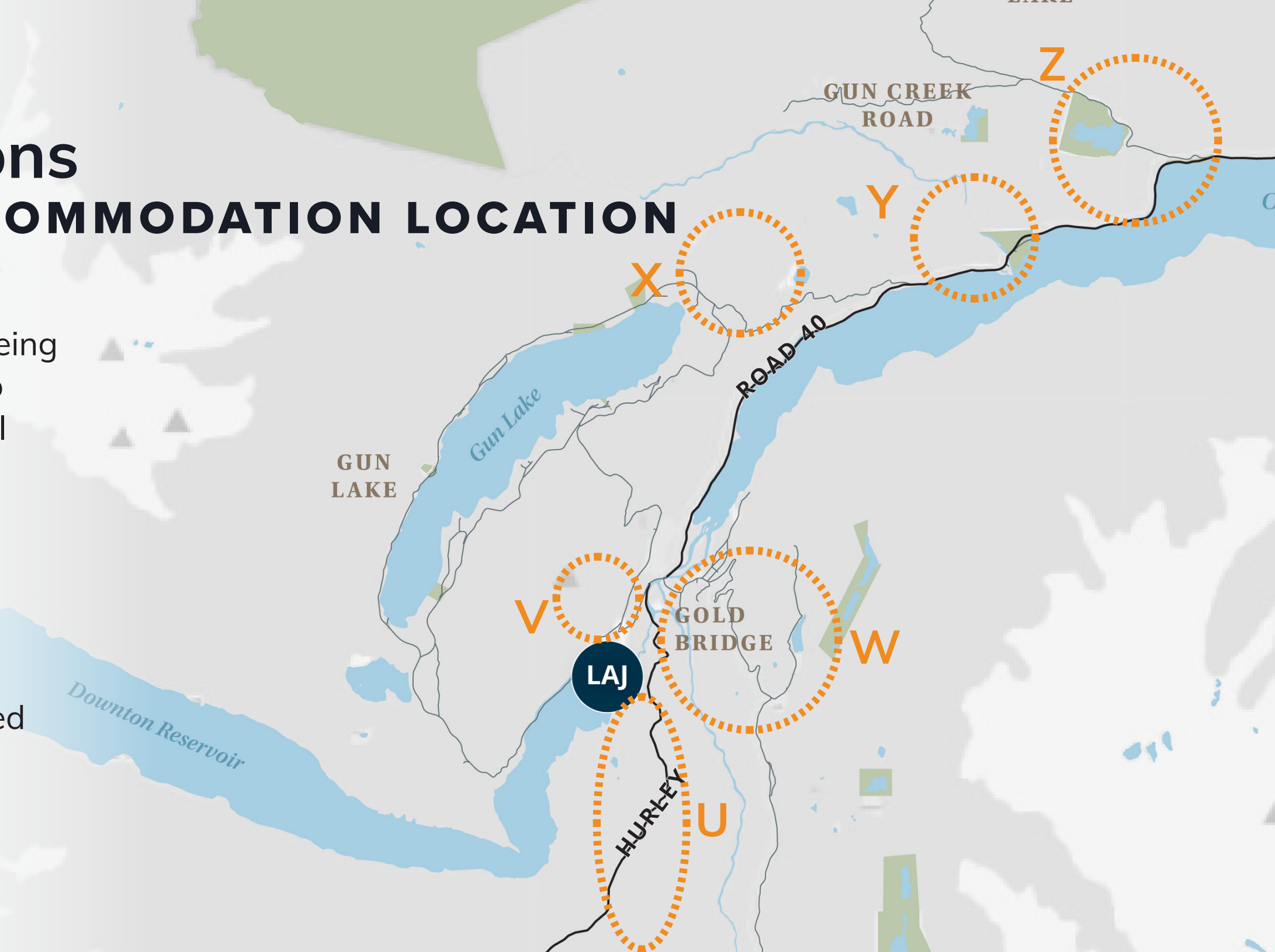
- Provides access redundancy
- Reduces traffic on roadways
- Less exposure to geohazard and collision risks compared to roadways
- Reduced travel time
- Positive worker retention impact due to reduced travel time
- Fewer flights compared to helicopter
- Major upgrades required
- Potential noise and disturbance to community
- Constraints on use of airplane due to visual flight rules only
- **Needs further study to determine number of flyable days**



Potential Options

WORK CAMP ACCOMMODATION LOCATION

- This does not represent an exhaustive list of options being considered - please refer to the final report to review all consider options
- Environmental screening through desktop review is currently ongoing and will be incorporated into the evaluations when completed



Potential Option U

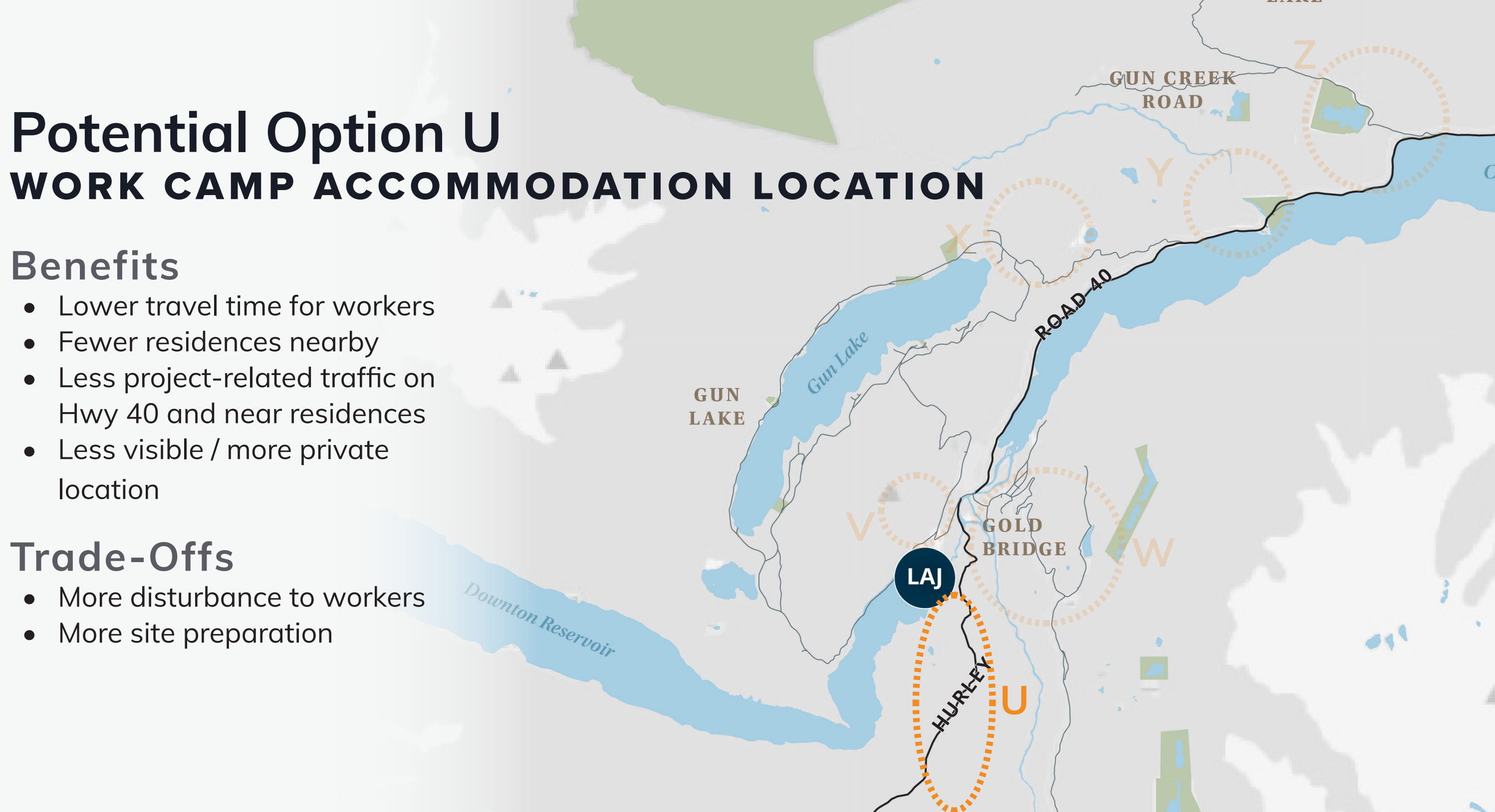
WORK CAMP ACCOMMODATION LOCATION

Benefits

- Lower travel time for workers
- Fewer residences nearby
- Less project-related traffic on Hwy 40 and near residences
- Less visible / more private location

Trade-Offs

- More disturbance to workers
- More site preparation



Potential Option V

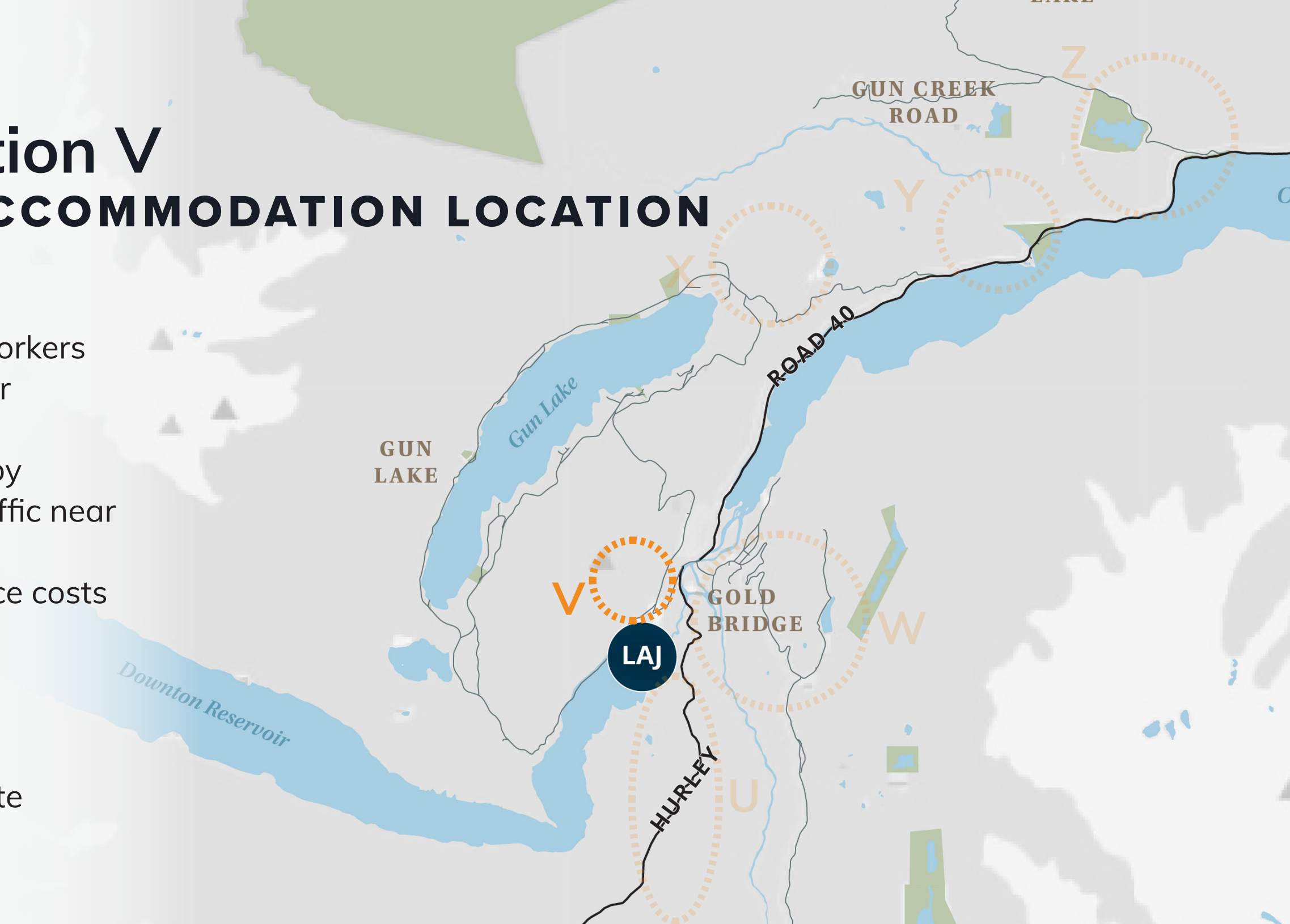
WORK CAMP ACCOMMODATION LOCATION

Benefits

- Lower travel time for workers
- Existing roads are in fair condition
- Fewer residences nearby
- Less project-related traffic near residences
- Lower road maintenance costs

Trade-Offs

- More site preparation
- Tree clearing required
- More visible / less private location



Potential Option W

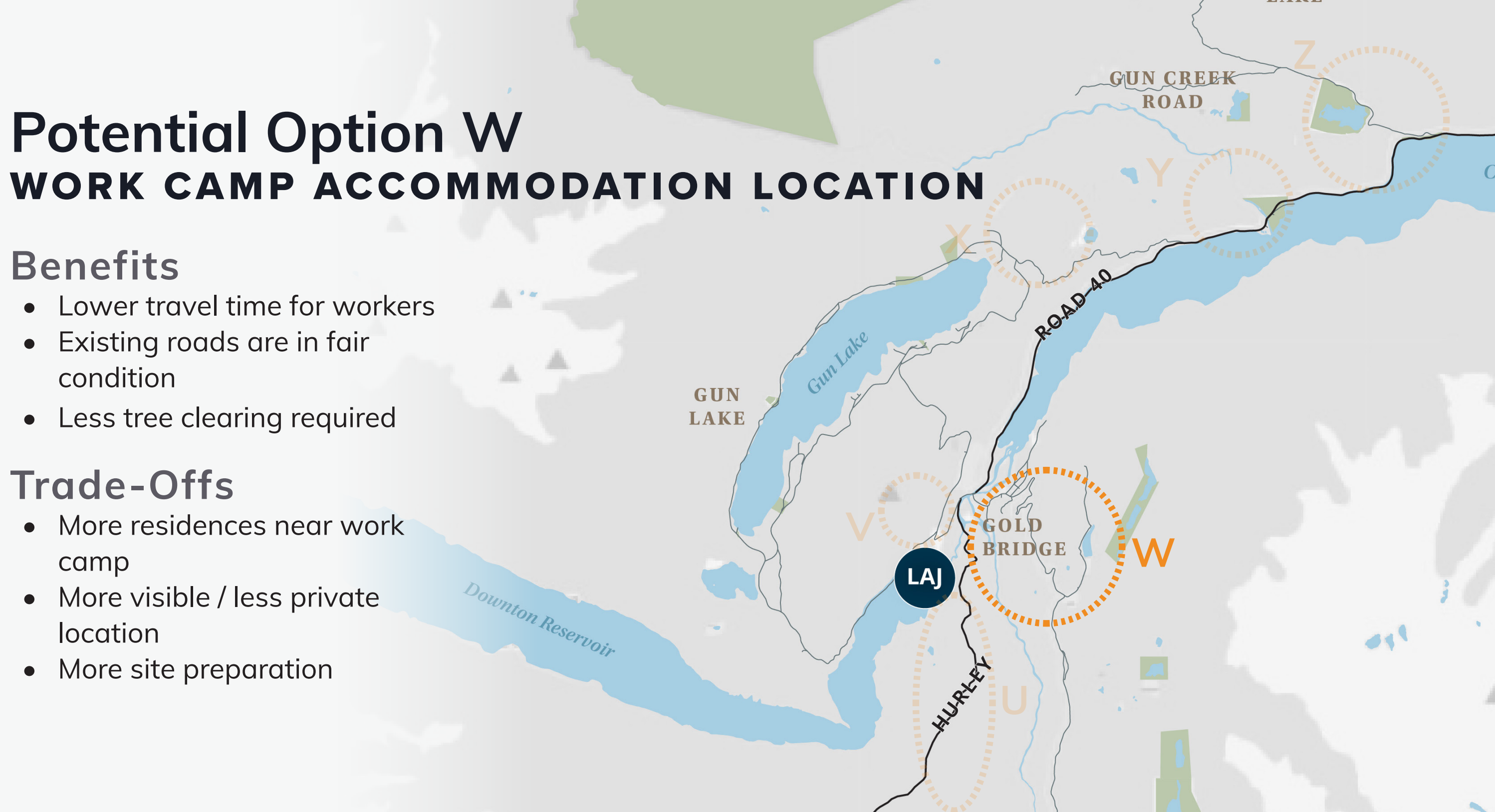
WORK CAMP ACCOMMODATION LOCATION

Benefits

- Lower travel time for workers
- Existing roads are in fair condition
- Less tree clearing required

Trade-Offs

- More residences near work camp
- More visible / less private location
- More site preparation



Potential Option X

WORK CAMP ACCOMMODATION LOCATION

Benefits

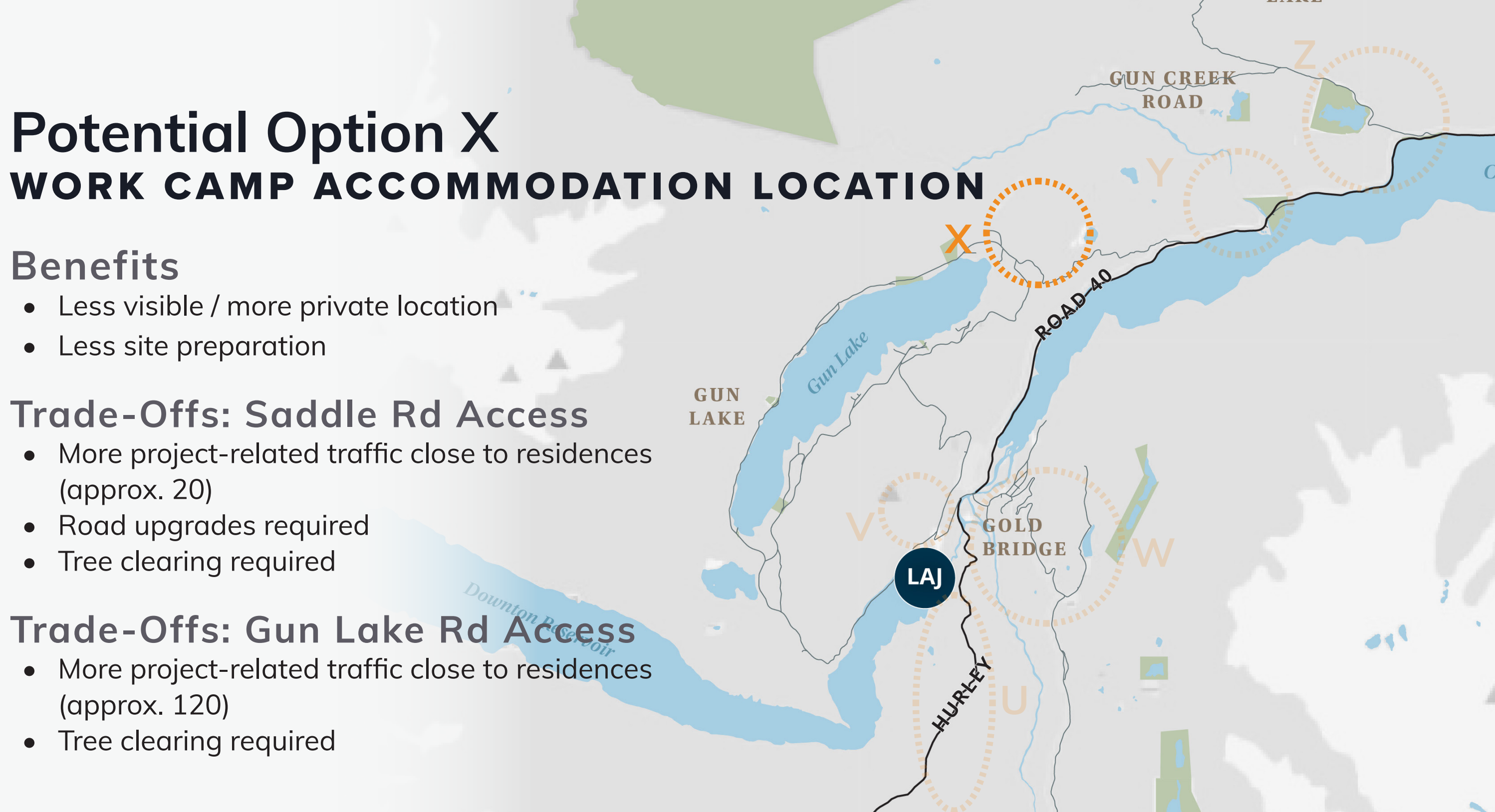
- Less visible / more private location
- Less site preparation

Trade-Offs: Saddle Rd Access

- More project-related traffic close to residences (approx. 20)
- Road upgrades required
- Tree clearing required

Trade-Offs: Gun Lake Rd Access

- More project-related traffic close to residences (approx. 120)
- Tree clearing required



Potential Option Y

WORK CAMP ACCOMMODATION LOCATION

Benefits

- Fewer residents near work camp
- Less project-related traffic close to residences
- Existing roads are in fair condition

Trade-Offs

- More visible / less private location
- Longer daily commuting time
- More project-related traffic on Road 40



Potential Option Z

WORK CAMP ACCOMMODATION LOCATION

Benefits

- Fewer residences near work camp
- Less project-related traffic near residences
- Existing roads are in good condition
- Less visible / more private location

Trade-Offs

- Longer daily commute time
- More project-related traffic on Road 40



5 Next Steps

Next Steps

FINALIZE STUDY

**SUBMIT
RECOMMENDATIONS**

RELEASE REPORT

**IMPLEMENT
RECOMMENDATIONS**

Report Recommendations Format



Overarching
Recommendations



Structured Decision Making
Objectives & Measures

Using the Structured Decision Making (SDM) Tables

The table is for descriptive purposes only. The final tables will be posted on the BC Hydro website.

Table 37: SDM 1 Consequence Table

Sub-Objective	Measure	Access & Accommodation Options									Results & Trade-Offs	Public & Stakeholder Engagement Feedback
		Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8			
		2 Camps, 7 workers in Uluwaa	2 Camps, 7 workers in Nelson Passage	3 Camps in Nelson Passage	2 Camps, 10 workers in Nelson Passage	3 Camps in Nelson Passage	3 Camps in Uluwaa	2 Camps, 10 workers in Uluwaa	3 Camps in Uluwaa			
		1.02 in Uluwaa (2024-2027) & 1.02 in Nelson Passage (2024-2027) Daily Commute by Road (2024-2027) No BRT Change (2024-2027)	1.02 in Uluwaa (2024-2027) & 1.02 in Nelson Passage (2024-2027) Daily Commute by Road (2024-2027) No BRT Change (2024-2027)	1.02 in Nelson Passage Daily Commute by Road (2024-2027) No BRT Change (2024-2027)	1.02 in Nelson Passage Daily Commute by Road (2024-2027) No BRT Change (2024-2027)	1.02 in Nelson Passage Daily Commute by Road (2024-2027) No BRT Change (2024-2027)	1.02 in Uluwaa Daily Commute by Road (2024-2027) No BRT Change (2024-2027)	1.02 in Uluwaa Daily Commute by Road (2024-2027) No BRT Change (2024-2027)	1.02 in Uluwaa Daily Commute by Road (2024-2027) No BRT Change (2024-2027)			
Maximize BRT use for partnership opportunities	Maximize BRT use for partnership opportunities. (i.e. no reasonable opportunities, it is possible for multiple opportunities to be used in an area)	0	0	0	0	0	0	0	0	Option 2 is the best for providing BRT use for partnership opportunities. However, partnership opportunities for BRT use are only possible in Option 2, which assumes a work camp will be located in or around the District of Uluwaa.	N/A	
Maximize Stakeholder Support	Maximize community resilience and social impact.	+5%	+5%	+5%	+5%	+5%	+5%	+5%	+5%	For both communities, the best impact will be seen in the Nelson Passage area. In all scenarios, workers will need to travel to each of the BRT stops. However, traveling there will be less time for daily workers in Nelson Passage and Uluwaa. This results in less "commute" time between communities, as the workers have to travel to each of the BRT stops in Nelson Passage and Uluwaa. This results in less "commute" time between communities, as the workers have to travel to each of the BRT stops in Nelson Passage and Uluwaa.	While some residents were optimistic about the presence of new people (workers) in the community and the opportunity for new social connections, they still noted concerns over potential noise and vibration that may arise as a result of the larger number of workers in the area. However, the accommodation provided for workers in one area, means the noise and vibration impact is localized to that area.	
Support spending in local communities	Maximize local spending that may result in local businesses, or new investment in local businesses, or high impact on local businesses.	0	0	0	0	0	0	0	0	Option 1 and Option 2 score highest overall as they provide spending opportunities in both communities.	Business owners shared concerns over being able to attract and retain staff and meeting the increase in demand from workers. However, the majority of business owners and stakeholders were supportive of new business from workers and looking forward to increased spending in the community.	
Maximize Travel Safety	Maximize project related traffic.	13.6% (40 eqd)	13.2% (41 eqd)	13.6% (40 eqd)	13.6% (40 eqd)	13.6% (40 eqd)	13.6% (40 eqd)	13.6% (40 eqd)	13.6% (40 eqd)	Option 1 and Option 2 reduce the largest traffic volume compared to the other options while all travel by road. Option 3 and Option 4 have the lowest traffic, however the reduction is minor when compared to Option 1 and Option 2 (ranging from 0.5% to 0.5%). Overall traffic and noise exposure for workers traveling to each of the BRT stops is similar. Overall traffic and noise exposure for workers traveling to each of the BRT stops is similar.	The top concern from stakeholders and the public related to travel safety, especially increased incidents resulting from the increase in traffic on Road 40.	
Maximize worker exposure to greenhouse while traveling to / from site	Average annual travel time for workers while traveling to / from site through moderate to very high air concentrations.	1,800 worker hours / year BRT Change: 1,800 worker hours / year Total: 3,600 worker hours / year	1,800 worker hours / year BRT Change: 1,800 worker hours / year Total: 3,600 worker hours / year	15,200 worker hours / year BRT Change: 1,800 worker hours / year Total: 17,000 worker hours / year	7,900 worker hours / year BRT Change: 1,800 worker hours / year Total: 9,700 worker hours / year	3,200 worker hours / year BRT Change: 1,800 worker hours / year Total: 5,000 worker hours / year	15,200 worker hours / year BRT Change: 1,800 worker hours / year Total: 17,000 worker hours / year	11,800 worker hours / year BRT Change: 1,800 worker hours / year Total: 13,600 worker hours / year	1,800 worker hours / year BRT Change: 1,800 worker hours / year Total: 3,600 worker hours / year	Option 1 and Option 2 reduce the annual greenhouse exposure compared to all other options with the exception of Option 3. Although travel by road introduces exposure to greenhouse, resulting up to 120 tonnes per day by road, the introduction of BRT into the mix, which are not included in this measure, travel by rail has the lowest greenhouse exposure due to road.	N/A	
	Highway 40 Mission Mountain Road	Holding Rate = 25.0 collisions / year Potential Future Rate = 25.0 collisions / year	Holding Rate = 25.0 collisions / year Potential Future Rate = 25.0 collisions / year	Holding Rate = 25.0 collisions / year Potential Future Rate = 25.0 collisions / year	Holding Rate = 25.0 collisions / year Potential Future Rate = 25.0 collisions / year	Holding Rate = 25.0 collisions / year Potential Future Rate = 25.0 collisions / year	Holding Rate = 25.0 collisions / year Potential Future Rate = 25.0 collisions / year	Holding Rate = 25.0 collisions / year Potential Future Rate = 25.0 collisions / year	Holding Rate = 25.0 collisions / year Potential Future Rate = 25.0 collisions / year	All options are relatively comparable for this measure, with travel by rail providing the lowest potential for collisions while all other options are relatively similar.		

Take our survey!

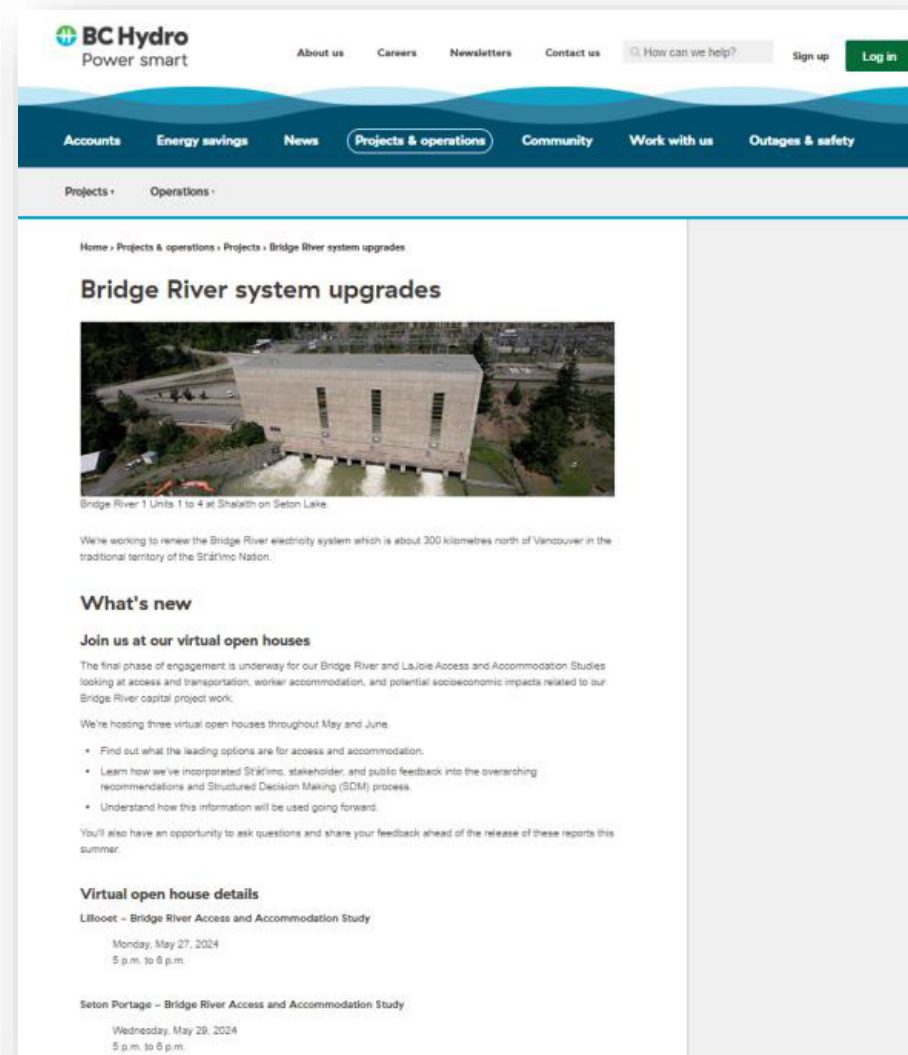


4 Ways to Find the Survey:

1. Scan the QR code with your phone and follow the link
2. Go to www.bchydro.com/bridgeriver
3. Click the link in the chat
4. Bridge River Capital Project update subscribers will receive an emailed link



Communications and Contact Info.



How we inform you about our work:

- Local ads
- Open Houses
- Bi-annual newsletter
- Delegations to local governments
- www.bchydro.com/bridgeriver
- Email projects@bchydro.com
- Phone: 1-866-647-3334

Questions?



BC Hydro

Power smart