Section 6

6.0 Project Development Planning Process

Project Development Planning is the next phase that advances a strategic transportation plan from vision and strategy toward implementation. Although various factors influence when and whether a vision moves forward to realization, project development planning is typically more focused and narrower in both timeframe and scope. These plans require more detail and analysis, such as concept designs and modelling, to better understand project impacts, costs, and risks. Project development plans should result in clear recommendations including a preferred option, an understanding of project costs and risks, project benefits and opportunities, and sufficient technical inputs to inform the development of a project business case. For infrastructure improvement projects, project development planning would be followed by preliminary, functional, and detailed design, tendering, and then construction. The vision, goals, and recommendations established in the project development plan are expected to be carried through each of the project delivery phases.

Strategic transportation plans (including regional, area, or highway corridor plans) can be used as a guide to inform project development planning. However, before initiating the project development process, you should confirm when the strategic transportation plan was last evaluated and update it as needed, to account for any changes and risks to the project development process.

IN THIS SECTION

If no relevant strategic transportation plans exist, it may be necessary to undertake some of the strategic transportation planning steps during the project development planning process. This is especially relevant if the project cannot be tied to objectives in higher level documents that guide the Integrated Transportation Planning and Development Process (e.g. Provincial Assessments, Ministry Service Plans, Mandate Letters, and Provincial Strategies).

The Project Development Planning Process includes 13 steps over five phases:

The Project Development Planning Process includes five Phases:

PHASE 6 Define the Scope and Confirm Existing and Future Conditions	**Step 6.1**	Define the Scope
	Step 6.2	Confirm and Update Background Information
	Step 6.3	Confirm and Update Existing and Future Conditions of the Study Area
	Step 6.3	Determine the Problem Definition
PHASE 7 Confirm Alignment with Strategic Transportation Plan and Develop Goals & Objectives	**Step 7.1**	Confirm Alignment with the Strategic Transportation Plan
	Step 7.2	Develop Goals and Objectives
PHASE 8 Develop and Screen Opportunities and Options	**Step 8.1**	Identify Opportunities
	Step 8.2	Develop Options
	Step 8.3	Perform an Initial Screening of Options
PHASE 9 Refine and Evaluate Options	**Step 9.1**	Refine Options
	Step 9.2	Evaluate Options & Select the Preferred Option(s)
PHASE 10 Prioritize Recommendations and Finalize the Plan	**Step 10.1**	Prioritize Option(s)
	Step 10.2	Finalize Plan

PHASE 6

Define the Scope, and Confirm Existing and Future Conditions

The objective of Phase 6 is to clearly define the planning project scope and examine the current and future conditions of the study area to identify gaps and determine the problem definition(s).

The steps in Phase 6 are:

Step 6.1	Define the Scope
Step 6.2	Confirm and update background information
Step 6.3	Confirm and update existing and future conditions of the study area
Step 6.4	Determine the Problem Definition

Step 6.1

Define the Scope, and Confirm Existing and Future Conditions

The assessment completed in Phase 6 will inform the goals and objectives of the planning project prepared in Phase 7.

Step 6.1 Define the Scope

The first step of the project development planning process is defining (or confirming) the scope. The scope should be focused and provide details on the following key factors, where possible:

- Geographic area
- Relevant mode(s) of transportation
- Essential project components (i.e. replacement of a bridge or improvement of a transit facility)
- Relevant time horizons
- Key deliverables required to advance towards project implementation (i.e. design or business case development)

Most importantly, the scope should be aligned with the same vision, goals, and objectives as its corresponding strategic transportation plan (regional, area, or corridor plans). If no higher-level plan exists, it may be necessary to undertake some of the strategic transportation planning steps, as described in Section 5, during the project development planning process.

Guiding Questions

PHASE 6 | STEP 6.1

When defining the scope, consider:

- *Does the scope align with a Strategic Transportation Plan?*
- *Is the scope manageable – or can it be phased into smaller, more manageable project development plans?*
- *Can the scope be expanded or condensed? Consider phasing.*
- *Is the scope clearly defined?*
- *What are some of the factors that may impact the scope of the project development plan? Consider risk.*
- *How might engagement with internal and external interested parties, First Nations, or the public inform the scope?*
- *Why is this planning project being advanced? For example, has a funding commitment been made?*
- *What are the issues or concerns it is aiming to address?*
- *Did the Integrated Transportation Planning Assessment Tool indicate the scope aligned with the vision and goals?*

Step 6.2

Confirm and Update Background Information

Now that the scope of the planning study has been clearly defined and documented, review or collect any background information pertaining to the specific planning project for the following categories (refer to Step 1.1 in Section 5.0 Strategic Transportation Planning Process for details):

- Strategies, Policies, and Plans
- Geographic and Land Use Conditions
- Multi-Modal Transportation, Infrastructure, Systems, and Services
- Multi-Modal Travel Patterns, Mobility, Safety, and Reliability
- Socio-Community/Demographic Data

At project development planning level, the data required at this stage is typically more detailed and site specific than what may have been considered for the broader regional, area or highway corridor plan(s). For example, at the strategic transportation planning level, it may be sufficient to review Average Annual Daily Traffic volumes (AADTs) on key corridors, but at the planning project level, it may be necessary to review more detailed information such as hourly traffic profiles and detailed turning movement counts for the peak hours at every intersection within the study area.

The details gathered and analyzed during this phase will improve overall understanding of the study area and form the foundation for developing robust problem definitions in Step 6.4, and subsequent goals and objectives in Phase 7. Accounting for details early in the planning process creates more opportunities to identify and mitigate potential risks.

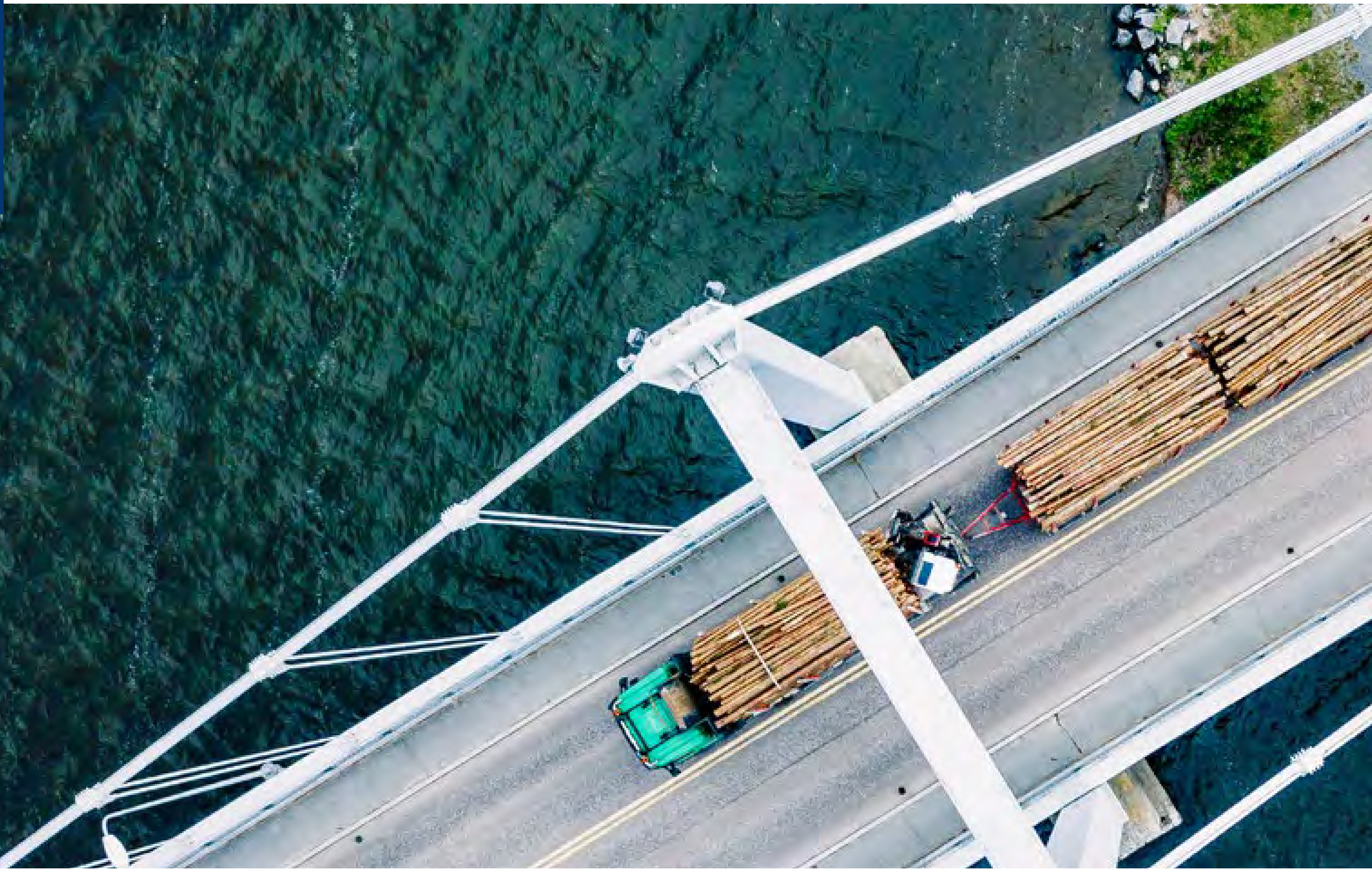
If no strategic transportation plan exists, it will be necessary to undertake a comprehensive background information scan during this step. In that case, refer to Step 1 of the Strategic Transportation Planning Process in Section 5.

Guiding Questions

PHASE 6 | STEP 6.2

When confirming and updating the background information, consider:

- *When was the last time detailed data was collected in the study area?*
- *Is there any additional information or spatial data required that was not collected during the strategic transportation planning process?*
- *Has the study area experienced significant change since the strategic transportation plan was developed? Examples could include major infrastructure changes (e.g. from natural disaster events), adoption of new land use plans, legislative/regulatory changes, or major development applications etc.*
- *How might engagement with internal and external interested parties, First Nations, or the public inform or enrich the data collection process?*
- *Are there any other adjacent or related transportation projects underway? Is there an opportunity to share data?*



Step 6.3

Assess the Existing & Future Conditions of the Study Area

Examine the data collected in Step 6.2 to develop detailed profiles of the existing and future conditions of the defined study area. The following profiles should be developed (refer to Step 1.2 in Section 5.0 Strategic Transportation Planning Process for more information):

- Geographic, Land Use & Demographic Profiles – detailed geographic, land use, and demographic (historic and current) data
- Multi-Modal Transportation Profile - travel patterns, mobility performance, safety performance, and reliability performance data

These profiles will identify the gaps between aspirations and current/future base conditions within the study area. These 'problems' will form the basis of the problem definition development in Step 6.4.

Guiding Questions

PHASE 6 | STEP 6.3

When assessing the existing and future conditions of the study area, consider:

- *How can engagement with internal and external interested parties, First Nations, and the public inform the existing and future conditions assessment of the study area?*
- *Are there qualitative and quantitative problem thresholds for factors such as safety, mobility, and reliability?*

Case Study: Highway 101 Alternate Route Planning Study

Situation

Highway 101 traffic volumes have grown approximately 20 per cent since 2017, primarily between Gibsons and Sechelt. As communities continue to grow, it is becoming increasingly important to protect the role and function of the highway for inter-regional and local travel, and to incorporate provincial plans for transit and active transportation, climate change resiliency and environmental protection. The Ministry of Transportation and Transit partnered with shishalh Nation to deliver the Highway 101 Alternate Route Planning Study, in collaboration with Squamish Nation. The purpose of the study is to develop a clear and supported long-term plan for the Highway 101 corridor between Gibsons and Sechelt.

Action

In order to ensure a comprehensive understanding of issues and concerns related to the Highway 101 corridor, an in-depth community engagement process was undertaken. This included two engagement phases to support project planning and analysis. First, the "Early Engagement" phase was undertaken directly with local governments and key stakeholders to assist in identifying the problem definition, interests, and concerns. Secondly, a "Public Engagement" phase was completed with all interested and affected parties, including the broader public. During this phase all were invited to learn about the study, draft options, evaluation methodology, and preliminary findings.

As part of commitment to true, lasting reconciliation, co-operation and partnership based on the recognition and respect for shishalh Nation and Squamish Nation's Aboriginal rights and title, and implementation of the United Nations Declaration on the Rights of Indigenous People, The Ministry of Transportation partnered with shishalh Nation and collaborated with Squamish Nation to deliver the study.

Opportunity

As a result of the engagement process, input from First Nations, local governments, dozens of interested parties and organizations, and local residents was collected an incorporated into the study. A variety of engagement tactics were used including targeted telephone/email surveys key stakeholders, in person meetings, public information sessions, and social media were used. The results of the engagement will inform decision making regarding long term solutions for the corridor.

The Highway 101 Alternate Route Planning Study Engagement Summary Report can be found here:

Highway 101 Alternate Route Planning Study Engagement Report - For the period of June 2021 to August 2022

Step 6.4

Determine the Problem Definition

Now that the gaps between existing and future conditions and aspirations are clearer, develop the problem definition(s) for the planning project. Problem definitions identify the need that a plan is aiming to address, as well as the root cause of the problem. The problem definition will inform the plan's goals and objectives, developed in Phase 7.

During this step, the project team will:

- Identify the issues and challenges within the study area
- Present key quantitative and qualitative data sources to support the problems identified
- Prepare a concise problem definition

For MOTT planning projects, there are quantitative performance thresholds for factors such as safety and mobility (e.g. acceptable level of service at intersections). Many of these data sources can be used to establish problem causes, such as the MOTT Collision Information System database, which can be used to define safety problems. In some cases, problems are defined in different ways, like issues that are in need of improvement or progress towards a more desirable outcome.

Sometimes the root cause of a problem is unknown. Understanding the cause of a problem is critical to the feasibility of a project, in order to develop cost-effective options and create a business case for investment. If this is the case, the recommended approach is to conduct a detailed study to identify the project's root cause before moving on to Phase 7.

As an example, active transportation collisions are known to be underreported or misrepresented in existing databases that rely on police reports and insurance claims. If your project requires you to understand the root cause of certain AT collisions, the recommended approach would be to complete additional work, such as a safety conflict analysis at multiple key locations.

Guiding Questions

PHASE 6 | STEP 6.4

When preparing a problem definition, consider:

- *What are the issues and challenges the plan will need to address?*
- *What evidence is there to suggest the problem is significant? Does the existing and future conditions assessment (Step 6.3) support this conclusion?*
- *Why are these challenges or opportunities important to address now? What are the consequences of not addressing them?*
- *Were the Integrated Transportation Planning Framework strategic goals and objectives considered in this process (Complete Communities; Safe & Integrated Transportation Systems; Economic Competitiveness'; Resilience & Climate Change)? Refer to Section 3.1.*
- *Were the Integrated Transportation Planning Framework strategic lenses applied to this process (Diversity & Inclusion; Equity; Reconciliation)? Refer to Section 3.2.*
- *Does addressing these issues and challenges align with the priorities, goals, and aspirations identified through Step 6.3?*
- *What specific transportation issues are residents, First Nations, and interested parties facing? Have all modes of transportation identified within the scope of the plan been considered?*
- *Does the scope interact with any other adjacent or related planning studies or projects?*
- *How are transportation and land use interlinked in this area? How does land use affect transportation and vice versa? Are there areas where transportation infrastructure is not supporting the desired land use outcomes?*
- *What land use challenges are being encountered? How well do current land use patterns support sustainable development and community needs?*
- *Does the data collected support the conclusion findings/identified challenges and opportunities, and has it been well documented?*
- *Has all the data and analysis completed been considered?*
- *Have climate change factors been considered? How do current transportation and land use practices impact the environment?*
- *Has the movement of goods and the impact on economic competitiveness been reviewed?*
- *Have all planned and future transportation infrastructure projects been identified?*
- *Does addressing these issues and challenges align with community priorities, goals, and aspirations?*
- *Can the challenges and opportunities identified be addressed within the scope of the plan?*

Case Study: Highway 97 Quesnel Transportation Plan

Situation

Highway 97 is a major provincial transportation corridor in British Columbia's interior that plays a key role in economic development for many northern communities. In 2018, MOTT undertook a planning exercise to better understand the existing conditions from the Barkerville Highway Junction to Basalt Road near Quesnel.

Action

The project team recognized that community engagement was essential to understanding the priorities, goals, and aspirations for the study area. The project team prepared an Existing Conditions report and held an open house to share the results with the community. Input was collected through an in-person and online survey that asked respondents to rank the top issues at different locations in the study area, including safety, congestion, and access to important local areas such as the hospital and downtown. The survey results were summarized in a report and made publicly available. The feedback from the community complemented the results of the technical review and confirmed there were a number of transportation challenges on the corridor relating to mobility, safety, highway geometry, active transportation, and pavement conditions.

Problem Definition Segment A - South Quesnel Commercial (LKI km 110.9 to km 115.1)

"The South Quesnel Commercial area of Highway 97 experiences road safety performance challenges and geometric challenges at a number of intersections along this study segment. High collision rates were observed at the intersections of Maple Drive and Cedar Avenue, and a high collision severity rate was observed at the Racing Road (Dragon Hill Road) intersection. The highway frontage roads provide minimal vehicle queuing storage at highway intersections and inhibits trucks from making turning movements without over-tracking into adjacent lanes and the road shoulder."

Segment C - Downtown Quesnel (LKI km 117.7 to km 121.0)

"The Downtown Quesnel area of Highway 97 experiences high collision rates at a number of intersections including at Kinchant Street, McLean Street, Front Street, and St. Laurent Avenue. There are a few mobility performance challenges for side-street movements on approaches to Highway 97 including vehicles leaving the hospital onto Front Street (Highway 97). There is a horizontal curve design to a minimum 90 metre radius just west of the Quesnel Overhead No. 01641 (LKI km 117.9) in which there is evidence some vehicles may be going off pavement. Lastly, a pedestrian and bicycle connection from Downtown to the Two Mile Flats area is a strong desire of the City."

Opportunity

The project team leveraged the findings to develop concise problem definition statements for each highway segment that aligned with the existing conditions and community priorities. For example, survey respondents rated safety as the most important issue on Highway 97, and this concern is reflected in the structure of the problem definitions, which lead with safety as the top issue and identify specific intersections with safety issues.

PHASE 7

Confirm Alignment with Strategic Transportation Plan and Develop Goals & Objectives

The objective of Phase 7 is to confirm that the problem definitions align with the Strategic Transportation Plan and establish specific goals and objectives for the planning project. The goals and objectives will serve as a framework in which to develop opportunities and options specific to the planning project in Phase 3.

There are two steps in Phase 7:

Step 7.1	Confirm Alignment with the Strategic Transportation Plan
Step 7.2	Develop Goals & Objectives.

Step 7.1

Confirm Alignment with the Strategic Transportation Plan

The vision outlined in the strategic transportation plan (or other higher order plan) should serve as a foundation for the planning project. During this step, validate that the identified problem definition(s) align with the vision, goals, and objectives of the strategic transportation plan. Pinpoint and document the strategic transportation plan's goals and objectives that the project directly addresses.

If there is no strategic transportation plan, develop a vision statement for the planning project during this Step. Refer to Phase 2 of the Strategic Transportation Planning Process in Section 5 for more information on developing a vision statement.

Consider using the ITPAT tool to help confirm if the vision and goals align with the strategic objectives of the Provincial Transportation Strategy.

Integrated Transportation Planning Strategic Lenses, Goals & Objectives

As the project plan's goals and objectives are developed, consider how they align with and are responding to the strategic lenses, goals and objectives of the Integrated Transportation Planning framework:

Lens 1: Equity
Lens 2: Diversity & Inclusion
Lens 3: Reconciliation

Goal 1: Complete & Connected Communities
Goal 2: Safe & Integrated Transportation Systems
Goal 3: Economic Competitiveness & Prosperity
Goal 4: Resilience & Climate Action

Step 7.2

Develop Goals & Objectives

Next, develop the goals and objectives specific to the planning project which respond to the problem definition(s) developed in Phase 6.

Goals and objectives of a planning project should be detailed and specific. They should delineate a clear set of qualitative and quantitative outcomes to accomplish within a well-defined timeframe and should address each of the identified problems.

The goals and objectives formulated in this phase will serve as guiding principles for developing, evaluating, and refining opportunities and options throughout Phases 8 to 10.

Guiding Questions

PHASE 7 | STEP 7.2

When developing the goals and objectives, consider:

- *Have the goals and objectives stated within the corresponding strategic transportation plan (if any) been considered?*
- *Are your goals and objectives specific, measurable (quantitatively, qualitatively) and attainable?*
- *Do the goals and objectives align with other federal, provincial, local, and First Nations priorities, goals, and aspirations?*
- *Did the ITPAT indicate the project goals and objectives align with the Provincial Transportation Strategy?*
- *Do the goals and objectives reflect the problem definition?*
- *Do the goals and objectives reflect all users and members of the community?*
- *Do the goals and objectives consider all modes of transportation?*
- *Were the Integrated Transportation Planning Framework strategic goals and objectives considered in this process (Complete Communities; Safe & Integrated Transportation Systems; Economic Competitiveness'; Resilience & Climate Change)? Refer to Section 3.1.*
- *Were the Integrated Transportation Planning Framework strategic lenses applied to this process (Diversity & Inclusion; Equity; Reconciliation)? Refer to Section 3.2.*
- *How can the goals and objectives define the development and evaluation of options?*

BACK TO TOP

PHASE 8

Develop and Screen Opportunities & Options

The objective of Phase 8 is to explore possible opportunities and options that could respond to the vision, goals, and objectives of the project. It is possible that the associated strategic transportation plan identified some project plan opportunities. These should be confirmed and further explored at this stage.

By the end of this phase, there will be a shortlist of effective and feasible options for further consideration, which will be further evaluated and refined in Phase 9.

There are three steps in Phase 8:

Step 8.1	Identify Opportunities
Step 8.2	Develop Options
Step 8.3	Perform an Initial Screening of Options

Step 8.1

Define the Scope, and Confirm Existing and Future Conditions

This step involves identifying all high-level opportunities that could respond to the vision, goals, and objectives of the project development planning process.

The project scope, budget, geography, timeframe, and mode of transportation all serve as crucial parameters for developing opportunities. Nevertheless, it remains essential to explore a wide range of potential opportunities comprehensively and to refrain from making assumptions about anticipated outcomes. Depending on the scope, opportunities could address key areas such as:

- Infrastructure – e.g. new multi-use pathway (MUP)
- Regulation – e.g. Transit-Oriented Areas
- Services – e.g. new transit routes
- Policies – e.g. access management policy
- Programs – e.g. Active Transportation, Infrastructure Fund and Grant Programs
- Technology – e.g. Intelligent Transportation Systems (ITS), real-time transit data
- Behaviour Change – e.g. mode shift.

The assessment completed in Phase 6 will inform the goals and objectives of the planning project prepared in Phase 7.

Engagement is an essential tool to leverage at this stage of the planning process. A wider range of backgrounds and experiences can contribute fresh perspectives and find new angles and approaches to achieving the overall vision. It is important to consider who should be engaged at this stage, whether it's internal specialists or external interested parties and First Nations.

Guiding Question

PHASE 8 | STEP 8.1

When identifying opportunities, consider:

- *Have a broad range of short- and medium-term opportunities been identified?*
- *Have a wide variety of perspectives been involved in this process?*
- *Were alternatives explored to account for potential project risks?*
- *Do the opportunities respond to what users within the study area (the public and interested parties) value? For example, travel time reduction, transportation mode choice, or transit network expansion.*
- *Do the opportunities respond to each of the goals and objectives identified in Step 7.2?*
- *Do the opportunities align with each of the Integrated Transportation Planning Framework goals and objectives (Complete Communities; Safe & Integrated Transportation Systems; Economic Competitiveness'; Resilience & Climate Change)? Refer to Section 3.1.*
- *Do the opportunities align with the Integrated Transportation Planning Framework strategic lenses (Diversity & Inclusion; Equity; Reconciliation)? Refer to Section 3.2.*
- *Have opportunities been identified in the past through previously completed planning studies or engagement?*
- *Have policy, program, operational, and infrastructure solutions to address each of the goals been considered?*
- *Have you considered opportunities that involve collaboration between jurisdictions (e.g. municipal, provincial, federal) or internal branches/program areas?*
- *Have all modes of transportation been considered?*
- *Have opportunities for co-benefits (e.g. land use, active transportation, transit, park & ride etc.) been explored?*
- *Is engagement with external interested parties and First Nations appropriate at this stage?*

Design Charettes

Design charettes are a common engagement tool used during this step of the project planning process. Design charettes are collaborative hands-on workshops during which individuals from various disciplines and backgrounds explore design options for a particular geography. Typically, this involves sketching and/or annotating maps, images, concept designs etc. to visually brainstorm project opportunities. They're an effective tool for fostering a shared sense of community through collaboration, and are an effective way to kickstart project ideas before moving into the option development and refinement steps.

Step 8.2

Develop Options

Develop a broad list of options by grouping together complementary opportunities. Typically, single opportunities can be grouped with other opportunities that enhance the overall outcomes, must be implemented together, or are related in some way (e.g. timeframe, geography, technology and mode-type, scale, and infrastructure).

During this step, clearly document both the scope of each option and how each option addresses the problem definition(s). At the project planning level, this typically requires conceptual designs, modelling, and analysis such as:

- Travel demand modelling
- Property acquisition review
- Archaeological data review
- Servicing review
- Safety review
- Land use plans review
- Order of magnitude cost estimates
- Desktop environmental review
- High-level geotechnical and hazards assessment, including resiliency and climate change considerations.

These high-level concept plans are necessary to better understand and demonstrate what is included in each option to inform option screening in the next step.

Step 8.3

Perform an Initial Screening of Options

Next, perform a preliminary screening of the options. The options should initially be screened based on their alignment with the goals and objectives. The Multiple-Criteria Analysis (MCA) method is commonly used to screen out options that are impractical or less promising, depending on the trade-offs of options.

By the end of this step, a shortlist of feasible options will be selected and advanced for further refinement and more detailed evaluation in Phase 9.

Multiple-Criteria Analysis

MCA is a structured decision-making methodology used to evaluate and compare complex project options based on multiple criteria or objectives. It is a systematic and transparent framework which allows decision-makers to consider multiple options simultaneously, and weigh trade-offs between different options.

MCA criteria typically consider quantitative and qualitative measures such as cost, time, risk, environmental impact, and social equity. For most projects, there should be criteria that assess multi-modal impacts, capture the user's perspective, and reflect community values, where possible. More criteria may be added and modified depending on the scope of the planning project. For example, in one case the MCA may emphasize geotechnical hazards and constructability while in another case the MCA may focus more on impacts to adjacent land use.

To perform an MCA, complete the following steps:

1. Identify criteria to evaluate each option against
2. Assign a scoring or ranking system for each criterion
3. Analyze each option against the criteria and assign scoring/ranking
4. Select a short list of options to proceed to the next phase (refinement and evaluation)

The screening process will highlight the most and least effective options, along with those that show comparable rankings. Prior to advancing to the subsequent phase, develop a short list of project options that warrant further refinement and assessment in the next phase.

Guiding Question

PHASE 8 | STEP 8.3

When screening options, consider:

- *What are the critical inputs to the MCA and how will these be reported out?*
- *Do the options align with the vision, goals, and objectives of the planning project?*
- *What are the trade-offs of the different options?*
- *Does the scale of the option(s) reflect the scale of the problem?*
- *Do the options consider short-, medium-, and long-term impacts for the study area?*
- *Have options considered integrated, multi-modal transportation of varying scales (walking, bicycling, micro-mobility, transit, goods movement, land use, etc.)?*
- *What is in scope vs. out of scope? Consider geographic span, high-level cost, available technology, etc.*
- *Have you considered the steps required to acquire land (private, First Nation, etc.)?*
- *What assumptions have been made that might require further analysis in later steps/ stages of the planning process?*
- *Do options complement or conflict with other strategic initiatives/policies/plans/projects (think Local Government, Provincial, Federal, First Nations)?*
- *Do the options consider resiliency factors such as redundancy, robustness, rapidity, and resourcefulness?*

PHASE 9

Refine & Evaluate Options

The objective of Phase 9 is to refine and evaluate the shortlist of options and identify the preferred option for the planning project. This critical phase will ensure decision-making is defensible and supported by clear technical rationale by identifying and fully understanding the project risks, impacts, and unknowns.

There are two steps in Phase 9:

Step 9.1	Refine Options
Step 9.2	Evaluate Options & Select the Preferred Option

Step 9.1

Refine Options

Further refine the shortlisted options from Phase 8. The purpose of this step is to minimize risk factors (or 'unknowns') within each option, so that the preferred option can be identified through a comprehensive evaluation process.

The refinement process is iterative and should continue until there is a comprehensive understanding of the options, including their features and components, their unknowns (risks), cost estimates, and their alignment with the problem definitions, goals and objectives. Through this process, it is important to remain flexible. Options may need to be added or adjusted by adding or removing elements when new information emerges or as conditions change.

This step will require more detailed technical analysis, preliminary designs (e.g. 30% detail), and a risk assessment. Preliminary design is often a key input of the refinement process as it can provide a more comprehensive understanding of what can feasibly be constructed, and at what cost. Risk assessments are discussed in more detail below.

Risk Assessment

Evaluating risk plays a pivotal role in selecting the best project option, and it significantly influences project cost estimates. The impacts of risk diminish after each subsequent planning stage, when projects become more detailed and your understanding of the work improves.

A risk assessment serves two key purposes:

- It identifies the sources and nature of the risk for different options, and the associated impact on the accuracy of the evaluation results.
- It evaluates the flexibility of the options to respond to events, and how this flexibility can be managed and enhanced through appropriate risk management strategies.

Key project risk categories typically include (but are not limited to):

- Policy
- Public interest
- Project management;
- Organization-wide issues;
- Design/construction/commissioning or partnership/supplier
- Site
- Financing
- Cost/economic/market
- Ownership and operations
- Climate change

For more information on Risk Assessment visit the MOTT Guidelines for Transportation Planning Business Cases web page and read Appendix 5: Cost Estimating and Risk Assessment.

Guiding Question

PHASE 9 | STEP 9.1

When refining options, consider:

- *What are the internal and external factors that might impact the success of each option? How could these factors be mitigated?*
- *Are there elements of previously screened-out options that can be included in another remaining option?*
- *Are there minor changes or modifications to any options packages that could mitigate potential challenges and risks identified during the option screening phase?*
- *Are there variations of options that should be considered?*
- *Could the options be packaged in different ways to better achieve the project objectives or mitigate risks?*
- *What measures have been put in place to eliminate bias and maintain impartiality during this process?*
- *Is engagement with external interested parties and First Nations appropriate at this stage?*

Step 9.2

Evaluate Options & Select the Preferred Option

In this final step of Phase 9, evaluate and compare the remaining options through a Multiple Account Evaluation to select the preferred option(s). Often there are multiple complementary options that are recommended, or multiple options that layer together as part of a phasing strategy.

During this step, you will:

- Perform a Multiple Account Evaluation
- Select the preferred option(s)

These processes are described below.

Multiple Account Evaluation (MAE)

MAE is a key tool that is used by MOTT during this step of the project planning process. MAE is a multi-criteria decision matrix tool designed to:

- Provide a balanced view to decision makers
- Understand any necessary compromises (trade-offs)
- Compare options within a project
- Mitigate potential bias and s ubjectivity by creating clear and consistent MAE criteria
- Draw comparisons with other projects
- Facilitate comparison with other program needs (such as health, education, and social services).

The MOTT uses five accounts in MAE:

- Financial
- Customer Service
- Social/Community
- Environmental
- Economic.

The MAE results should be summarized and documented in a clear and concise manner along with all supporting evidence (technical analysis and designs, etc.) to allow for an independent review of the assessment MAE.

For more information on MAE, visit MOTT's Transportation Planning Business Cases website and read Appendix 4: Optional Evaluation Guidelines, which includes Multiple Account Evaluation.

Selecting the Preferred Option(s)

In some cases, the evaluation of options will seek to identify the preferred option of two competing choices. In other cases, it may be possible to implement many options, but identifying the most effective or most urgent option is desired to inform the project prioritization.

The final decision on the preferred option should be well-informed by project team and interested party input and consider all relevant factors and considerations from your evaluation, including the MAE and the Risk Assessment.

Guiding Question

PHASE 9 | STEP 9.2

When evaluating options, consider:

- *What criteria is appropriate to use to rank each refined option?*
- *What measures have been put in place to eliminate bias and maintain impartiality during this process?*
- *Does the selected option align with each of the Integrated Transportation Planning Framework strategic goals and objectives (Complete Communities; Safe & Integrated Transportation Systems; Economic Competitiveness'; Resilience & Climate Change)? Refer to Section 3.1.*
- *Does the selected option align with each of the Integrated Transportation Planning Framework strategic lenses (Diversity & Inclusion; Equity; Reconciliation)? Refer to Section 3.2.*
- *Can the option be further optimized?*
- *Which options are the most effective at advancing the project vision, goals, and objectives?*
- *Which options are the most responsive to urgent needs?*
- *What are the implications of the selected option?*
- *Are there justifications for the decisions made and are they backed by evidence?*

Case Study: Highway 97 – Peachland Transportation Study

Situation

Highway 97 through the District of Peachland includes one of the last remaining segments of two-lane highway in the Okanagan Valley. With increasing demand on the corridor, highway mobility, safety, and reliability performance is expected to decrease over time. The Highway 97 – Peachland Transportation Study was completed to identify short-, medium-, and long-term improvements for the study area.

Action

Based on in-depth technical analysis and a comprehensive engagement process, a spectrum of potential improvement options were identified and developed. These included highway and intersection improvements along the existing corridor, as well as new off-line highway alignments. Following an Option Screening step that considered multiple criteria, a short list of option packages was recommended for further analysis. The Option Evaluation step included a thorough Multiple Account Evaluation (MAE) process that considered customer service, socio-community, environmental, and financial accounts. Each account was subdivided into more specific considerations, each with clear quantitative or qualitative metrics as is typical for MOTT planning studies. Combined with community input, the MAE process ensures that recommendations are backed by a clear rationale that advances projects toward implementation.

Opportunity

Results: The Options Evaluation process for the Highway 97 Peachland Transportation Study included a MAE of both online and offline highway improvements. The MAE resulted in the identification of a preferred offline option; however all offline options were found to result in marginal benefits. A online improvement package was recommended for implementation and a corresponding implementation strategy as developed as a final outcome of the study.

PHASE 10

Prioritize Recommendations & Finalize Plan

The final phase of the project development planning process is to prioritize actions, develop an implementation plan, prepare a business case, and seek executive approval for your project plan.

There are two steps in Phase 10:

Step 10.1 Prioritize Project Options

Step 10.2 Finalize Project Plan

Step 10.1

Prioritize Options

In this step, take the preferred option(s) and divide it into a series of short-, medium-, and long-term actions, with potential staging of the project components. This process will form the basis of an implementation plan that will effectively respond to the project vision, goals, and objectives.

At times, project goals and objectives may differ from the affected community's expectations. Following the ITP guide will help manage expectations by identifying the appropriate level and timing of engagement at each phase. Project teams and interested parties should be actively engaged in the prioritization process to ensure overall organizational alignment and clarity before finalizing the project plan in Step 10.2.

Guiding Question

PHASE 10 | STEP 10.1

When evaluating options, consider:

- *Are there clear implementation phases and project horizons? Are there obvious first steps?*
- *Are there any actions that are time-sensitive or critical to the success of the project? Which actions address urgent needs?*
- *Are there specific events (land use changes, mobility/volume thresholds, collision prone locations, climate disaster, etc.) that will trigger the implementation of a project action?*
- *What is the level of impact of each action on the project's vision, goals, and objectives?*
- *What is the scale of community impact and benefit?*
- *What are the critical vulnerabilities, potential risks, and challenges associated with the project, and how and when will they be mitigated? Can risk mitigation measures be implemented effectively and in a timely manner?*
- *Are there any dependencies or interrelationships between different project actions, or separate projects?*
- *How might prioritizing certain actions affect the timing or implementation of others?*
- *Which actions align with the priorities, goals, and aspirations of interested parties, First Nations, and the community?*
- *What resources, such as funding, personnel, and equipment, are required for each action? Are there any limitations on resource availability (grant funding deadlines, partnerships, etc.) that need to be considered?*
- *Are there any regulatory requirements that will direct the prioritization of certain actions?*
- *Can project actions be phased in a specific way to minimize re-work or throwaway costs?*

Step 10.2

Finalize the Plan

In the final step of project development planning, the team will finalize and launch the project plan. During this step, the project team will:

- Prepare an implementation and monitoring plan which clearly outlines the project's next steps
- Finalize the project plan
- Prepare a business case (if required for project funding and approval)
- Seek executive approval of the plan
- Communicate to First Nations and interested parties and launch the plan

As part of this step, it is recommended to prepare a final assessment of the plan using the ITPAT tool to understand and communicate how well the project aligns with the ITP goals and objectives.

Implementation and Monitoring Plans

Implementation and monitoring plans ensure effective project execution through progress tracking, performance evaluation, and role-setting within the project. The implementation plan will be based from the action prioritization completed in Phase 9 and should clearly identify immediate next steps.

A monitoring plan should also be developed to establish a framework for regular monitoring and assessment of the progress of the project plan. The plan should clearly outline the following key elements:

- Performance indicators, relevant to the project goals, to monitor progress and success
- Targets and benchmarks for each performance indicator, which are relevant to the project goals
- Monitoring schedules and mechanisms such as the frequency of progress reports, site visits, meetings, surveys, or multi-modal traffic counts
- Identify groups or individuals responsible for monitoring
- Procedures for adjusting the strategic plan based on changing conditions and/or performance of the plan.

Project Plan

Prepare a formal project plan document that encapsulates all findings throughout Phases 6 through 10. This should include:

- An executive summary
- An overview of the planning process

Guiding Question

PHASE 10 | STEP 10.2

When developing the implementation and monitoring plans, consider:

- *What is the project timeline? What are the key milestones and deadlines that need to be met throughout the implementation process?*
- *Who are the key interested parties involved in the project, and what are their roles and responsibilities? How will you engage with interested parties throughout the implementation process to ensure their input and support?*
- *What resources are required for the project implementation, including personnel, equipment, and funding? How will these resources be allocated and managed?*
- *How will the progress and impact of prioritized actions be monitored and evaluated over time? What key performance indicators (KPIs) will be used to measure success and adjust priorities as needed?*
- *How will compliance with these requirements be ensured?*

- Existing and future conditions and gaps assessment
- Problem definition(s)
- The project vision, goals, and objectives
- Option development, refinement and selection processes;
- An action plan describing specific initiatives, the associated timelines, resource requirements, and who is responsible for implementation
- Supporting analysis and evidence

Business Case

Before seeking project approval, it is important to demonstrate justification for the investment through a business case. Business cases provide the foundation for a rational, defensible, and transparent program development and implementation process. A business case generally summarizes most of the analysis that was completed throughout the project planning process and is used to support funding decisions.

For more information on business cases visit MOTT's Transportation Planning Business Cases website and read the Business Case Guidelines.

Project Approval and Advancement

Once the overall project and business plans are finalized, project approval and funding may be sought. In this case, a project could be advanced to the next phase of the project development life cycle (often preliminary design for infrastructure projects).

Project Development Planning Process

1 Define Scope & Confirm Existing & Future Conditions

1. Define the Scope
2. Confirm & Update Background Information/Data
3. Confirm & Update Existing & Future Conditions
4. Determine the Problem Definition

GUIDING QUESTIONS

- Is the scope clearly defined?
- Has the Integrated Transportation Planning Tool been used to refine and confirm the project scope?
- Has the study area experienced significant change since any previous phases?
- How can engagement with interested parties, local communities, and First Nations inform the project?
- Have all modes of transportation been considered?

2 Confirm Alignment with Strategic Transporation Plan & Develop Goals & Objectives

1. Confirm Alignment with the Strategic Transportation Plan of Applicable Local Governments, First Nations and Transit Agencies
2. Develop Project Goals and Objectives

GUIDING QUESTIONS

- Have the goals and objectives stated within the corresponding strategic transportation plan (if any) been considered?
- Are your goals and objectives specific, measurable (quantitatively, qualitatively) and attainable?
- Do the goals reflect all users and members of the community?
- Do the goals and objectives consider all modes of transportation?

3 Develop and Screen Opportunities & Options

1. Identify Opportunities
2. Develop Options
3. Perliminary Technical Assessment(s) & Feasibility
4. Perform Initial Screening of Options (Multi-Criteria Assessment)

GUIDING QUESTIONS

- Have a broad range of short and medium-term opportunities been identified?
- Have policy, program, operational and infrastructure solutions to address each of the goals been considered?
- Do the options align with the vision, goals, and objectives of the planning project?
- Do the options consider resiliency factors such as redundancy, robustness, rapidity, and resourcefulness?

4 Refine & Evalute Options

1. Refine Options
2. Additional Technical Assessment & Feasibility
3. Evaluate Options & Select Preferred Option
4. Undertake Benefit Assessment

GUIDING QUESTIONS

- Are there elements of previously screened-out options that can be included in another remaining option?
- Are there minor changes or modifications to any options packages that could mitigate potential challenges and risks identified during the option screening phase?
- Which options are the most effective at advancing the project vision, goals, and objectives?
- Which options are the most responsive to urgent needs?

5 Prioritized Recommendations & Finalize Plan

1. Prioritize Options
2. Recommend Solutions & Identify Action Plan/Next Steps
3. Finalize the Project Development Plan

GUIDING QUESTIONS

- Are there clear implementation phases and project horizons? Are there obvious first steps?
- Are there any actions that are time-sensitive or critical to the success of the project?
- What is the level of impact of each action on the project's vision, goals, and objectives?
- What is the scale of community impact and benefit?
- Who are the key stakeholders involved in the project, and what are their roles and responsibilities?