

# *Utility Coordination Process Manual*



**Alberta Transportation**



# Utility Coordination Process Manual

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# 1. Executive Summary

This Utility Coordination Process Manual (the “Manual”) is designed to act as a utility coordination road map for Alberta Transportation’s delivery of construction projects.

This process is intended to be used on design-bid-build (DBB) projects to coordinate all required utility adjustments and installations. For other delivery methods, the process may need to be adjusted.

The objectives of this utility coordination process are twofold:

1. To provide a standardized and consistent approach for identifying and resolving utility impacts on a project. Roles and responsibilities are defined for all parties involved so that it is clear who must do what, and when.
2. To engage the Utility Owners and other stakeholders early in the process. Early engagement enables Utility Owners to undertake planning, engineering, procurement, and to secure regulatory approvals to facilitate utility adjustments.

The intent is that this process will improve the overall coordination of utility adjustments or installations or any work regarding existing utilities as they relate to Alberta Transportation (AT) projects. This will be mutually beneficial to Alberta Transportation and the Utility Owners. Adoption of the utility coordination process is crucial to achieving these objectives.

This manual provides the tools to assist the Project Managers (PM), Consultants, Utility Owners and Contractors in making strategic decisions for both major and minor projects to ensure that utility coordination is optimized without impeding the progress of the project. It also provides utility planning tools to aid in future work within the same geographical areas.

Alberta Transportation requires that all affected utilities be adjusted prior to the commencement of construction; ideally prior to the tender preparation when feasible and practical. Occasionally some utility adjustment work must occur during construction. Such exceptions will require approval from the applicable Regional Director.



## 2. Introduction

### 2.1 Objective

The success of Alberta Transportation (AT) projects depends on coordination of projects between the Province and Utility Owners. This requires a comprehensive utility coordination process that begins during planning and continues through to construction. Alberta Transportation's utility coordination process is described in this Manual.

The first key objective of the utility coordination process is to provide a standardized and consistent approach for identifying and resolving utility impacts to a project. The process defines what actions are to be taken, by whom, and when. Tools are provided to facilitate the work.

A second, equally important objective is to engage the Utility Owners and other stakeholders early in the process. Alberta Transportation and Utility Owners will share relevant information for current and upcoming projects. This enables Utility Owners to undertake their work earlier in the process, resulting in minimal impact on AT's project schedule.

The utility coordination process outlined in this Manual is intended to be applied to projects of all sizes and scopes. The process may be simplified according to the needs of the project. For example, a Road Rehabilitation project with access removals or improvements where 1 or 2 power poles may be impacted. In situations where a streamlined process is required, professional judgement should be applied when reducing or eliminating parts of the process or steps. In situations where only a portion of the design life-cycle is to be conducted, such as Functional Planning, it is important to follow the utility coordination process as closely as possible.

Some elements of utility adjustment are done during construction due to dependencies and when it is more efficient or cost effective to do so. In those instances, the Province's Contractor will be responsible for coordinating and facilitating the utility adjustments.

The Consultant shall provide utility coordination services in accordance with the process outlined in this manual, including:

- Engineering Consulting Guidelines for Highway, Bridges and Water Projects - Volume 1 & 2,
- Design and Construction Bulletins,
- Permit Application and Installation Procedures,
- Engineering Services Contract,
- Construction Contracts,
- Any other relevant AT standards.

The Consultant shall ensure that all current legislation and regulations are being followed. Appendix J includes a list of authorities at different levels of government or other authorities that may be involved with the utility coordination.

## 2.2 Partnering

This utility coordination process advocates a partnering approach.

Partnering is defined as “a commitment to a collaborative approach to construction rather than an adversarial approach. It is a way of conducting business in which two or more organizations make a long-term commitment to achieve mutual goals. This requires a team based relationship with open communication based on trust, understanding, and teamwork.” Alberta Transportation’s partnering approach is documented here.

<http://www.transportation.alberta.ca/Content/docType29/Production/PartneringGuidelinesManual.pdf>

Utility issues are resolved using the partnering approach. At key points in a project, the relevant stakeholders (AT, Consultant, Utility Owners, and Contractor) meet to determine an approach that will satisfy everyone’s needs – the “Big Win”. This puts the priority on the project rather than on any one stakeholder’s interest. Where there are disagreements, Stakeholders circle back to the “Big Win” and sort it out as a team.

## 2.3 Audience

This Manual has been written for Alberta Transportation staff, their Consultants, Contractors, and the Utility Owners.

It has been prepared to provide a standardized, consistent approach to utility coordination, with collaborative communication between all stakeholders. Project delivery efficiencies are expected to improve after utility coordination becomes standardized and consistent.

## 2.4 Benefits

Use of this Manual benefits the stakeholders as follows:

- **Alberta Transportation's** authority and interests – assists in confirming authority by aligning with legislation and regulation, minimizing costs, minimizing conflicts, maintaining schedules, and managing risk.
- **Consultant's** interests – provides a clear process to follow to coordinate utilities from project inception to completion, including early engagement of utility owners.
- The **Utility Owners'** interests – assists in minimizing costs, protecting the integrity of the utility infrastructure, and managing risk.
- The **public interest** – helps in coordination (thereby saving taxpayer dollars), reducing traffic disruptions and impacts, and reducing greenhouse gas emissions by reducing traffic disruptions.
- **Safety for all** – proper, timely and early identification of utility infrastructures provides protection and safety of all parties involved in construction, maintenance, and utility work on provincial highways. It minimizes overall traffic disruption and safety for the motorists and the general public.

## 2.5 Tools

The following lists the tools that have been developed to assist in the utility coordination process. All of these files can be downloaded from Alberta.ca.

- Appendix F: Templates, Forms and Sample Deliverables
  - SUE Selection Criteria Form (Form, Excel)
  - Utility Base Plan (Sample Deliverable)
  - Utility Conflict Matrix (Template, Excel)
  - Composite Utility Plan (Sample Deliverable)

- Utility Adjustment Matrix (Template, Excel)
- Utility Coordination Plan (Sample Deliverable)
- Utility Assessment Outline (Template, word)
- Stakeholder Register and Communication Plan (Template)
- Appendix G: Utility Coordination Letters (Word)
  - Letter 1A - Functional Planning Initiation
  - Letter 1B – Functional Planning Completion
  - Letter 2 - Preliminary Design Initiation
  - Letter 3- Utility Base Plan Review
  - Letter 4A - Utility Coordination Notification – Utility Conflict
  - Letter 4B - Utility Coordination Notification – No Utility Conflict
  - Letter 5 - Preliminary Design Completion
  - Letter 6– Detailed Design Initiation Notification
  - Letter 7– Utility Design Initiation
  - Letter 8 – Notice to Prepare for Utility Adjustment
  - Letter 9 – Notice of Utility Agreements
  - Letter 10 – Notice of Permit Approval
- Appendix H: Checklists
  - Utility Coordination Checklist (word)
  - Utility Base Plan Checklist (word)
- Appendix I: Meeting Agendas
  - I.1 Project Initialization Meeting
  - I.2 Preliminary Design Initiation Meeting
  - I.3 Preliminary Design Utility Coordination Meeting
  - I.4 Utility Design Initiation Meeting
  - I.5 Pre-Construction Meeting
- Appendix K: Utility Data Sharing Confidentiality Agreement Template
- Appendix L: Process Maps
  - Utility Coordination Process – Level 1 (Page 1)
  - Planning Phase – Functional Planning Studies - Level 3 (Page 2)
  - Planning Phase – Scope Development - Level 3 (Page 3)
  - Design Phase - Overview – Level 2 (Page 4)
  - Design Phase – Preliminary Design - Level 3 (Page 5 & 6)

- Design Phase – Detailed Design - Level 3 (Page 7, 8 & 9)
- Tender Phase - Utility Adjustment Prior to Tender and Tender Final – Level 3 (Page 10)
- Construction Phase – Utility Adjustment During Construction and Utility Adjustment Completion – Level 3 – (Page 11)

## 2.5.1 Tools and Description

The following table provides brief descriptions of the tools listed above and others that are mentioned within this Manual.

Tool Type & Name	Description
<b>Subsurface Utility Engineering (SUE) Selection Criteria Form</b> (Excel Template)	<p>The Subsurface Utility Engineering (SUE) Selection Criteria Form provides guidelines and asks a number of questions that direct the user in determining the Quality Level of SUE information that will be required during various phases of a project lifecycle. Using this form during each Phase, helps determine whether utilities may be a concern, and indicates what Quality Level should be attained to address those concerns.</p> <p>See Appendix B: SUE Quality Levels – Excerpt from ASCE 38-02 Standard Guidelines, for the Collection and Depiction of Existing Subsurface Utility Data.</p> <p>The SUE Selection Criteria Form is included in Appendix F.</p>
<b>Utility Base Plan</b>	<p>A plan prepared by the project Consultant showing the existing utility infrastructures (aboveground and underground) and locations in relation to the highway/bridge alignment (existing or proposed) within the project limit. A sample deliverable is included in Appendix F.</p> <p>The Utility Base Plan Checklist indicates the minimum requirements of what to include in the Utility Base Plan. However, the Consultant should contact the AT PM to establish and agree on the information that will be required for the conflict analysis.</p> <p>While preparing this plan, Consultants are to follow the latest version of the Utility Coordination Process Manual, American Society of Civil Engineers (ASCE) 38-02 Standard Guidelines and Alberta Transportation’s Engineering Drafting Guidelines for Highway and Bridge Projects (EDGHBP). The EDGHBP can be found in the link below. (<a href="http://www.transportation.alberta.ca/Content/docType30/Production/CADDguidelines.pdf">http://www.transportation.alberta.ca/Content/docType30/Production/CADDguidelines.pdf</a>),</p>

<p><b>Utility Conflict Matrix</b> (Excel Template)</p>	<p>The Utility Conflict Matrix identifies a list of all existing utility infrastructure within the project limits that may be in conflict with the proposed scope of work. This matrix lists the utility infrastructure and tracks the mitigation measures of any potential utility conflicts with the proposed project improvements and other Utility Designs. A Utility Conflict Matrix Template is included in Appendix F.</p>
<p><b>Composite Utility Plan</b></p>	<p>A plan and profile view drawing prepared by the Consultant that overlays the proposed project design with all existing and proposed utility infrastructure (aboveground and underground) within the project limits.</p> <p>The Composite Utility Plan references the Utility Base Plan, the Contract Design, and the proposed Utility Designs in the drawing. This allows the updates from the Utility Base Plan, Contract Design, and Utility Designs to be viewed in comparison with each other to ensure that all potential plan view conflicts are identified. Consultants are to follow the latest version of the Alberta Transportation Engineering Drafting Guidelines for Highway and Bridge Projects and ASCE 38-02 standards while preparing this plan. A sample deliverable is included in Appendix F.</p>
<p><b>Utility Adjustment Matrix</b> (Excel Template)</p>	<p>The Utility Adjustment Matrix is prepared to track and manage all of the required utility adjustments as determined in the Utility Conflict Matrix. A Utility Adjustment Matrix Template is included in Appendix F.</p>
<p><b>Utility Coordination Plan</b></p>	<p>A plan prepared by the Consultant with input from the affected utility companies and agencies that takes into consideration the required adjustments, the proposed timing of the adjustments, and the necessary construction practices, regulations, and standards. The Utility Coordination Plan outlines the sequence of events for the various utility adjustments. A sample deliverable is included in Appendix F.</p>
<p><b>Utility Assessment Outline</b> (Word Template)</p>	<p>Use the Utility Assessment Outline to collect the utility information and incorporate the collected information into the Functional Planning and Design Reports. A Utility Assessment Outline Template has been included in Appendix F.</p>
<p><b>Utility Coordination Letter Templates</b> (Word Templates)</p>	<p>A series of letter templates (for milestone communication), that outline what information to provide, by whom, to whom, and at what point in the utility coordination process. Samples of these letters appear in Appendix G.</p>

<p><b>Utility Coordination Checklist</b> (Word Document)</p>	<p>The Utility Coordination Checklist is a list of key tasks for utility coordination on Alberta Transportation projects. For each phase, the Consultant will check off steps as they are performed. Its purpose is to guide the Consultant through this new process, and to allow the AT Project Manager (PM) to verify that no crucial steps have been missed. This checklist does not capture all details of the process, just key tasks and milestones. The Utility Coordination Checklist is included in Appendix H.</p>
<p><b>Utility Base Plan Checklist</b> (Word Document)</p>	<p>The Utility Base Plan Checklist lists the minimum requirements of what needs to be included in the Utility Base Plan. The Checklist is included in Appendix H.</p>
<p><b>Meeting Agenda Templates and suggested agenda topics</b> (Word Template)</p>	<p>Generic Meeting Agenda templates are available in Appendix I. These are suggested meeting templates with agenda topics for each of the utility coordination process meetings. These are intended to provide a starting point; each agenda can be edited to suit the needs of the project.</p>
<p><b>AT Utility Map</b></p>	<p>The Utility Map is a central repository that contains the available utility infrastructure networks and utility contact information. Alberta Transportation provides the Consultant with Utility Information (maps of all the utilities within the project area and the contact information of associated utility owners) for the purpose of adding the information into the Utility Base Plan. It contains existing utility infrastructures within the project area.</p>
<p><b>Scope Checklist Template</b> (Word Template)</p>	<p>A Project Scoping Checklist template is a tool used for gathering information that will be used to create the Scope Document. This template is for AT internal use only</p>
<p><b>Scope Document Template</b> (Word Template)</p>	<p>The Scope Document template identifies work that is in scope and out of scope for the project. This template is for AT internal use only.</p>

**\* Confidentiality Alert**

When sharing either the Utility Conflict Matrix or the Utility Adjustment Matrix, the Consultant is responsible for **protecting the confidential information of each utility owner**. Ensure that any document sent, contains only the information pertinent to the

utility owner receiving it. To remove the information of other Utility Owners, filter the list in Excel, then save it as a PDF.



## 2.6 Consultant Deliverables

There are key deliverables that need to be created and kept up-to-date throughout the life of the project. Unless otherwise noted, the Consultant is responsible for these deliverables. Where a template is not provided, the Consultant is responsible for creating the deliverable.

The deliverables listed in Appendix F pertain directly to utility coordination. The list does not include deliverables that are already part of AT's normal project delivery process as documented in the Engineering Consulting Guidelines for Highway, Bridge and Water Projects - Volume 1 & 2.

Appendix F includes the following:

- SUE Selection Criteria Form (Form, Excel)
- Utility Base Plan (Sample Deliverable)
- Utility Conflict Matrix (Template, Excel)
- Composite Utility Plan (Sample Deliverable)
- Utility Adjustment Matrix (Template, Excel)
- Utility Coordination Plan (Sample Deliverable)
- Utility Assessment Outline (Template, word)
- Stakeholder Register and Communication Plan (Template)

## 3. Roles and Responsibilities

The key to successful utility coordination efforts is the establishment of a team approach to each project, with clearly defined processes and responsibilities. Each team member plays a role in completing their portion of the project. This Section outlines the key players on the team that have involvement with utility coordination, their roles, and their responsibilities.

### 3.1 Alberta Transportation

Alberta Transportation is responsible for initiating a project, outlining the scope of the project, setting up agreements with key parties, issuing utility permits, and facilitating the completion of the project. Key personnel from Alberta Transportation who may be involved in a project include:

- Project Sponsor (PS) - The Project Sponsor is the Department's senior manager responsible for the projects delivery. The PS supports the Project Manager and oversees the delivery of the project.
- Project Manager (AT PM) - Alberta Transportation's project lead is typically the Project Manager responsible for overall project delivery including utility coordination. The project manager liaises with the Technical Standards Branch to ensure utility adjustments are coordinated well in advance of construction, as well as during construction.
- Highway and Roadside Planning Engineer or Specialist - The Highway and Roadside Planning Engineer or Specialist in the Planning and Program Management Branch typically is the lead and coordinates utilities for Functional Planning and other studies as identified by the Department.
- Infrastructure Manager or Infrastructure Engineer – The Infrastructure Manager or Infrastructure Engineer is the lead and coordinates utilities for Project Scoping, Functional Planning Studies, Geometric Assessment Studies and other studies as identified by the Department.
- Development and Planning Technologist (DPT) – The Development and Planning Technologist ensures permits are issued for utilities that require adjustments and/or new installations.

The above outlines roles and responsibilities as they relate to utility coordination only. The complete description of each role and associated responsibilities are set out in detail in the Engineering Consulting Guidelines for Highway, Bridge and Water Projects - Volume 1 & 2.

## 3.1.1 Supporting Departments

### 3.1.1.1 Project Management Office

The PMO provides consistent tools, training and methodology to support AT's Project Managers with their delivery of projects. This responsibility includes all aspects of maintaining and keeping current, the Utility Coordination Process Manual.

### 3.1.1.2 Technical Standards Branch

Technical Standards Branch is responsible for utility policy development, associated guidelines and standards, and agreements. They are the subject matter experts to support Project Managers and Consultants with agreements, disputes, and legal concerns.

To ensure consistency across the province, any utility agreement with a cost to the department (100% AT or Cost Share with Utility Owner), needs to be reviewed by the Technical Standards Branch. The agreements would be executed by the regions in accordance with the Expenditure Officer Ministry Authority Directive (EOMAD).

Technical Standards Branch will retain a copy of the cost share agreements and historical data for future reference.

## 3.2 Consultant

The Consultant is the engineering consulting firm engaged by Alberta Transportation to undertake work for the Department. Consultants are retained to provide engineering services for functional planning (Planning Studies Consultant), Geometric Assessment for scoping projects (Scoping Consultant), design and tender package preparation, construction supervision, contract administration and post-construction services (Design Consultant) under a Design-Bid-Build (DBB) procurement model.

If a project is procured under an alternative delivery model, such as a Public Private Partnership (P3) or Design/Build (DB), the utility coordination process noted within this Manual will need to be modified to suit project specifics.

The Consultant works on behalf of Alberta Transportation and engages the Utility Owner early in the design process to coordinate utility adjustments, safeguard all utilities and ensure privacy for Utility Owner's information, etc.

The Consultant performs their engineering work in accordance with Alberta Transportation's standard procedures as set out in the Engineering Consulting Guidelines for Highway, Water and Bridge Projects (ECGHBWP) - Volume 1 & 2, Design and Construction Bulletins, General Specifications, the Consulting Contract and other relevant AT standards.

### 3.3 Contractor

The Contractor is responsible for constructing AT improvements, including utility coordination, as per the ECGHBWP - Volume 1, Construction Contract and Specifications.

The Contractor is responsible to coordinate and facilitate utility adjustments during construction which have not been completed prior to the construction contract award. The Contractor performs their work in accordance with the Construction Contract and Specifications.

### 3.4 Utility Owners

Utility Owners are responsible for providing records of their existing infrastructure, reviewing plans, participating in design and related meetings, submitting utility adjustment plans, cost estimates and schedules, and for coordinating their work with Alberta Transportation, it's Consultants, and Contractor(s).

The Utility Owner also stores utility agreements and permits for future reference.

The responsibilities of Utility Owners with respect to Alberta Transportation projects are outlined further in this manual.

# 4. Project Life Cycle and Process Map

## 4.1 Project Life Cycle

The Major Highway Project Cycle is about 5 to 7 years in length, beginning with program development through to construction. A diagram illustrating some of the key utility tasks in the Major Highway Project Cycle is included in Appendix L. These key utility tasks (not a complete list) are expected to occur throughout the project life cycle.

## 4.2 Process Maps

Diagrams illustrating the processes and tasks involved in coordinating utility adjustments throughout the project cycle, have been included in Appendix L. The following sections provide the detail around utility coordination during:

- Utility Coordination Process (level 1)
- Planning Phase (level 3)
  - Functional Planning Studies & Investment Planning
  - Scope Development & Consultant Procurement
- Design Phase (level 2)
- Design Phase (level 3)
  - Preliminary Design (part 1 & 2)
  - Detailed Design (part 1, 2 & 3)
- Tender Phase (level 3)
  - Utility Adjustment Prior to Tender & Tender Final
- Construction Phase (level 3)
  - Utility Adjustment During Construction & Utility Adjustment Completion

# 5. Planning

## 5.1 Planning Overview

Alberta Transportation undertakes various types of planning studies, such as Network/System, Conceptual, Functional and Operational studies. Functional Planning generally occurs 10-20 years in advance of construction and provides sufficient detail to determine a design direction. Conceptual planning and network studies generally occur well in advance of the Functional Planning.

### 5.1.1 Utility Early Engagement Strategy

The UCPM suggests early engagement with all affected Utility Owners. The optimum time being at the Functional Planning stage. It is beneficial to engage with Utility Owners during the Functional Planning process to identify utility infrastructure that will take many years to coordinate (such as the Canada Energy Regulator (CER)-regulated pipelines or the Alberta Utilities Commission (AUC)-regulated power transmission facilities).

To facilitate utility adjustment, the Utility Owners need to be notified well in advance. As a general guideline, the following timelines are suggested. It is generally understood that more notification is always better.

- Shallow utilities 1 (one year)
- Deep utilities 2 (two) to 3 (three) years e.g. the CER-regulated Group 2 pipelines, high pressure pipelines, the AUC-regulated transmission facilities, etc.
- Utilities with high complexity and high impact facilities require a minimum of 3 (three) years. These utilities include the CER-regulated Group 1 pipelines and some Alberta Energy Regulated (AER) pipelines.

The affected Utility Owners must be contacted early to confirm lead time requirements for each utility type.

Alberta Transportation shares the five-year program information with Utility Owners annually at the regional offices. These meetings are attended by Alberta Transportation staff and local utility representatives. Information may also be shared at any time via other means, (e.g. email). It is important to share as much information as possible about

the proposed projects with all affected Utility Owners in order to avoid delaying the project. This will enable the Utility Owner to fit the project into their planning cycles so that any potential adjustment or installation can be properly resourced, and to prepare preliminary adjustment plans for submission to their regulator (if applicable).

Likewise, the Utility Owners will share their plans with Alberta Transportation so conflicts in time and space can be determined well in advance. Additionally, many of these Utility Owners share information on their existing networks (in GIS format) that Alberta Transportation collects annually. This information is intended to facilitate early utility engagement and coordination throughout the project.

Utility information pertinent to a project will be included in the information provided to Consultants at the Project Initialization meeting (meeting between AT PM and Consultants). The Consultant initiates utility engagement immediately after the AT Project Initialization meeting.

## 5.2 Functional Planning

### 5.2.1 Functional Planning Overview

Functional planning can vary from 10-20 years in advance of construction. Functional planning is done during these timeframes to better manage and guide development in preparation for construction upgrades.

Functional Plans that are older than 10-15 years may no longer represent development accurately. Plans that do not represent current traffic needs may need to be updated. This is generally decided at an early scoping review.

There are two types of Functional Planning: Major and Minor.

#### **Functional Planning – Major**

The Major category involves work on projects that are complex in nature. This would include projects that involve one or more of the following elements:

- Urban/urban fringe freeways
- Systems interchanges
- Interchanges with potential traffic weaving due to inadequate spacing (locations where interchange spacing is <2 km from service interchange or <3 km from a systems interchange)

- Significant traffic demand from transportation forecast modeling
- Planning in a developed or constrained environment that may require deviation from best practices and guidelines

Examples of work in this category would include planning of the Edmonton and Calgary Ring Roads.

### **Functional Planning – Minor**

The Minor category involves work on planning projects that are less complicated. Approximately 80% of the functional planning work falls into this category. It can include studies such as standalone rural interchanges, operational reviews, access management studies, grade widening studies, four-laning studies, route studies, highway geometric improvement studies and intersection studies.

Examples of work in this category would include Highway 15 Functional Planning Study in Strathcona County (from Range Road 220 to Highway 830).

### **5.2.2 Milestones and Deliverables**

- Utility Impact Assessment section of the Functional Planning Report
- Utility Base Plan
- Letter 1A – Functional Planning Initiation
- Letter 1B – Functional Planning Completion

### **5.2.3 Tools**

Tools used in the functional planning process include:

- SUE Selection Criteria Form
- Utility Assessment Outline
- Utility Conflict Matrix
- AT Utility Map
- Utility Coordination Letters



## 5.2.4 The Functional Planning Process

The objective of this process is early engagement with Utility Owners to; identify existing utility infrastructure for potential conflicts and evaluate the impact of potential design alternatives.

For planning studies where construction timing is not known, a desktop assessment of existing or planned utilities in the study area is required. This will assist Consultants shortlisting potential alternatives and recommending an alternative, with minimum possible impacts to existing or future utilities. The level of detail assessing utility impacts, will depend on the type of planning study and timing of construction.

The project lead for Functional Planning studies could be a Highway and Roadside Planning Engineer/Specialist, or an Infrastructure Manager/Engineer.

<b>Functional Planning Process Steps (10 to 20 Years)</b>	
<b>Party</b>	<b>Process step</b>
<b>AT Functional Planning Study project lead</b>	<ol style="list-style-type: none"> <li>1. Receive Planning Priority List from Network and Highway Planning.</li> <li>2. Hire Consultant using the ToR process.</li> </ol>
<b>Planning Study Consultant</b>	<ol style="list-style-type: none"> <li>3. Initiate Functional Planning Process. See Section 2 – Planning, Engineering Consulting Guidelines for Highway, Bridge and Water Projects (ECGHBWP) - Volume 1.</li> <li>4. Conduct Data Collection.</li> <li>5. Identify stakeholders. Use the Stakeholder Register and Stakeholder Communication templates in Appendix F.</li> <li>6. Conduct Utility Search. See Section 6.1.8 – Utility Survey, ECGHBWP – Volume 1 and ASCE 38-02 Standard Guidelines.</li> <li>7. Contact the Infrastructure Engineer or Highway Planning Engineer to obtain Utility Information (maps of all the utilities within the project area and the contact information of associated utility owners).</li> <li>8. Prepare a Utility Base Plan (location of existing utilities).</li> <li>9. Develop alternatives for evaluation (Preliminary Plans). Utility information shall be taken into consideration while developing the alternatives.</li> <li>10. Send alternatives and Utility Base Plan to AT.</li> </ol>

<b>AT Functional Planning Study project lead</b>	11. Review alternatives and Utility Base Plan and provide input.
<b>Planning Study Consultant</b>	<p>12. If necessary, revise the alternatives and Utility Base Plan with feedback from AT.</p> <p>13. Send Utility <b>Letter 1A</b>: Functional Planning initiation to Utility Owner. Attachments: Preliminary Plans</p>
<b>Utility Owner</b>	<p>14. Confirm existing/future utility Infrastructure within the project area. Supply any additional information that could be helpful in preparing the Functional Planning study. Utility information in a GIS/CAD file is preferred.</p> <p>15. Send response to AT Consultant confirming existing/planned utility infrastructure and status (approximate location). Depending upon the utility type and project complexity, the Utility Owner provides this information within 2 to 4 weeks. The Consultant confirms the exact time frame with each Utility Owner.</p>
<b>Planning Study Consultant</b>	<p>16. Update the Utility Base Plan with information from Utility Owners.</p> <p>17. Complete the SUE Selection Criteria Form. The SUE Selection Criteria Form provides guidance determining the SUE Quality Level.</p> <p>18. Create Preliminary Utility Conflict Matrix. Appendix E provides a list of items to consider when evaluating potential utility conflicts.</p> <p>19. Evaluate alternatives and identify a recommended option for transportation infrastructure. The recommendation should take utility issues into consideration. The Consultant is required to contact the affected Utility Owners for input evaluating alternatives and recommended options. Ensure adequate time is allowed for Utility Owners to provide input (typically 2 to 4 weeks). However, the Consultant confirms the exact timeframe with each Utility Owner.</p> <p>a. Where necessary, obtain high-level utility cost estimates from Utility Owner.</p>

	<p>Upon request, the Utility Owner provides a Class 5 Cost Estimate (+100%,-50%) based on the American Association of Cost Engineers (AACE) International standards. This is equivalent to an Alberta Transportation "A" Estimate. The Cost Classification may vary from one utility type to another or one application to another. The Consultant contacts the Utility Owner and confirms specific requirements.</p> <p>For Alberta Transportation Cost Classifications, refer to the Engineering Consulting Guidelines for Highway, Bridge and Water Projects (ECGHBWP) - Volume 1, Section 1 – General.</p>
<b>AT Functional Planning Study project lead</b>	20. Review and finalize a recommended alignment option and confirm the SUE Quality Level.
<b>Planning Study Consultant</b>	<p>21. Use the Utility Assessment Outline to collect the applicable utility information and incorporate the collected information into the Functional Planning Report. The Utility Assessment Outline template has been prepared to guide the process of collecting the applicable utility information that needs to be included in the Functional Planning Report (Utility Impact Assessment section). You may choose whether to enter the utility information into the outline document or to add it directly to the Functional Planning Report, but you do need to follow the outline of contents to ensure no important information is missed.</p> <p>22. Send Functional Planning Report to AT.</p>
<b>AT Functional Planning Study project lead</b>	<p>23. Review final Functional Planning Report.</p> <p>24. If changes are needed, send back to Consultant.</p> <p>25. Once satisfied, obtain approval from Network &amp; Highway Planning (NHP). If Functional Planning Studies are undertaken by the Regional Infrastructure group, the report is to be approved by the Regional Infrastructure Manager or Regional Director.</p> <p>A PDF copy of the Functional Planning Report is saved in AT's Livelink system.</p> <p>26. Update AT's internal systems (i.e. Program Management Application (PMA) Delivery and AT Utility Map) with study recommendations.</p>

	<p>The Consultant is required to include the recommended options in GIS format on a CD with the final report. See Appendix K for the GIS requirements. The project lead will forward the CD to the PMO for incorporation into the Utility Map.</p> <p>27. Determine whether the project will advance within the next 5 years.</p> <p>28. Inform Consultant of status.</p> <p>29. If not advancing within 5 years, it is filed for a later date. The report will provide guidance to the regions and Network &amp; Highway Planning for future development.</p> <p>30. If advancing within 5 years, it moves to Capital Planning &amp; Programming. The regional infrastructure or bridge section will perform the scoping process.</p>
<p><b>Planning Study Consultant</b></p>	<p>31. Receive confirmation and Send Utility Letter 1B. Functional Planning Completion.</p> <p>Attachments:</p> <p>a. Functional Planning Report – Preferred Plan and relevant utility information.</p>

### 5.2.5. Notes

The Subsurface Utility Engineering (SUE) investigations conducted for projects may vary. The SUE Selection Criteria Form provides general guidance on conducting a SUE investigation.

Should a SUE investigation be deemed unnecessary (Partial or Full) and add no value to a project, the project lead has the authority to make a final decision based on the input from the Consultant and Utility Owner. The decisions may take into consideration factors such as project types (e.g. straight overlay projects may not require any SUE investigation), reliability of records, professional and field experience, consultation of Utility Owners, etc.

## 5.3 Scope Development

### 5.3.1 Scope Development Overview

In the Project Definition Phase is where the Scope Development is undertaken for projects within the three to five-year timeframe. These are projects for which construction is planned and are intended to proceed to the Design Phase.

The majority of the Province's construction projects in a given year are rehabilitation - type improvements that often do not require Functional Planning. In those instances, scoping is conducted in-house and existing utilities that may be affected are identified using the AT Utility Map. A Consultant may be retained to complete a Geometric Assessment, which will be used in the development of the project scope.

Where functional planning has been completed for a capital project, it will form the basis on which a project scope will be developed.

### 5.3.2 Milestones and Deliverables

- Scoping Checklist
- SUE Selection Criteria Form (for Geometric Assessment only)
- Scope Documents

### 5.3.3 Tools

Tools used in Scope Development include:

- Scoping Checklist Template
- SUE Selection Criteria Form
- AT Utility Map
- Scope Document Template

### 5.3.4 The Scope Development Process

The Infrastructure Engineer or Manager is typically the project lead for Scope Development, Geometric Assessments and Planning Studies in the region. Note that the Project Manager for Bridges complete Project Scoping as part of the Bridge Terms of Reference preparation.

Scope Development Process Steps	
Party	Process step
<b>AT Project Lead</b>	<ol style="list-style-type: none"> <li>1. Receive &amp; review 5-year Construction Program. The published Construction Program is for 3 years and includes 5 year capital projects, 3 year renewal (bridge construction and highway rehabilitation) and one year slide repairs. While the published program includes only 3 years worth of projects, the internal list of projects will consider 5+ years. Ideally, the project scope begins before they are on the published 3 year program. The published provincial construction program is available at the alberta.ca website.</li> <li>2. Create finalized regional list of 5 -year projects for Scoping.</li> <li>3. Initiate Scoping for Construction Projects.</li> <li>4. Engage Consultant through Request for Proposal (RFP) process to perform Geometric Assessment. See Section 5.2.1- Geometric Assessment, in the Engineering Consulting Guidelines for Highway, Bridge and Water Projects – Volume 1. <ul style="list-style-type: none"> <li>• Skip to step 7.</li> </ul> </li> </ol>
<b>AT Project Lead</b>	<p><b>or, if doing the work in-house,</b></p> <ol style="list-style-type: none"> <li>5. Complete the Scoping Checklist.</li> <li>6. Prepare the Scope Document. Include utility information in the Scope Document. This may list a summary table with existing utilities or a PDF copy from the AT Utility Map and any existing permits (if available).</li> </ol> <ul style="list-style-type: none"> <li>• Skip to step 15.</li> </ul>
<b>Scoping Consultant</b>	<p><b>Consultant work</b></p> <ol style="list-style-type: none"> <li>7. Perform Geometric Assessment. This work may start before a Scoping Checklist is created.</li> </ol>

	<ol style="list-style-type: none"> <li>8. Request Utility Information (maps of all the utilities within the project area and the contact information of associated utility owners) from AT Staff.</li> <li>9. Conduct Utility Search. See Section 6.1.8.1 – Utility Search, in the Engineering Consulting Guidelines for Highway, Bridges and Water Projects - Volume 1, and ASCE 38-02 Standard Guidelines.</li> <li>10. Create a Utility Location Plan (location of existing utilities). Include an itemized list of known utilities and locations in a tabular format and a PDF copy from the AT Utility Map.</li> <li>11. Complete the SUE Selection Criteria Form (Contact Utility Owner for information if necessary).</li> <li>12. Use the Utility Assessment Outline template to collect the applicable utility information and incorporate the collected information into the Geometric Assessment Report. The Utility Assessment Outline template has been prepared to guide the process of collecting the applicable utility information that needs to be included in the Geometric Assessment Report (Utility Assessment section). You may choose whether to enter the utility information into the Utility Assessment Outline document or to add it directly to the Geometric Assessment Report, but you do need to follow the outline to ensure no important information is missed.</li> <li>13. Send the completed Geometric Assessment Report to Alberta Transportation.</li> </ol>
<b>AT Project Lead</b>	<ol style="list-style-type: none"> <li>14. Review the report. If revisions are needed, send it back to the Consultant for revision.</li> <li>15. Finalize the Scope Document, including utility information.</li> <li>16. Digitally approve Scope Document and send to Project Sponsor.</li> </ol>

### **5.3.5 Notes**

Should AT's Infrastructure Engineer or Consultant need more utility information to complete project scoping, they may contact the Utility Owners for more detailed information.

The Subsurface Utility Engineering (SUE) investigations conducted for projects may vary. The SUE Selection Criteria Form provides general guidance on conducting a SUE investigation.

Should a SUE investigation be deemed unnecessary (Partial or Full) and add no value to a project, the project lead has the authority to make a final decision based on the input from the Consultant and Utility Owner. The decisions may take into consideration factors such as project type (e.g. straight overlay projects may not require any SUE investigation), reliability of records, professional and field experience, consultation of Utility Owners, etc.

## **5.4 Consultant Procurement**

### **5.4.1 Consultant Procurement Overview**

The Procure Consultant Phase leads to the procurement of the Consultant. In this Phase the Project Management Plan (PMP) is created, the Request for Proposal (RFP) process is completed and the Consultant is hired.

### **5.4.2 Milestones and Deliverables**

- Terms of Reference (ToR) – Schedule A
- Request for Proposal (RFP)
- Engineering Consultant Contact

### **5.4.3 The Consultant Procurement Process**

The Consultant Procurement process involves the Project Manager and Procurement Strategy and Planning section. Before beginning this process, a Scope Document will have been prepared and approved.



Consultant Procurement Process Steps	
Party	Process step
AT Project Manager	<ol style="list-style-type: none"> <li>1. Receive and review the Scope Document.</li> <li>2. Obtain the Terms of Reference (ToR) ID from PMA Delivery.</li> <li>3. Write the ToR, including utility information. The Scope Document and the ToR should take into consideration the size, scope, and magnitude of the utility impacts identified in the Functional Planning Report and/or the SUE Selection Criteria Form, and the ongoing utility coordination work (e.g. utility early engagement information) that will continue in the subsequent phases of the project. If this is not done, the Consultant hired for the Design Phase may not be aware of the long-term utility coordination work that has already occurred, and what further utility coordination may be needed.</li> <li>4. Send the completed ToR to the Procurement Strategy and Planning section, who will write up the Request for Proposal (RFP) to be used to procure the Consultant for the Design Phase.</li> </ol>

# 6. Design Phase

## 6.1 Design Overview

The Design Phase generates a Preliminary Design, Detailed Design, Utility Design, Tender and Construction Specifications. The objective is to design the project taking into consideration the effects on existing utilities based on the preliminary engineering and design and engage all affected Utility Owners so that they can complete the Utility Design and perform any needed adjustments prior to tendering.

To ensure that the Consultant has a complete understanding of the project scope and utility issues during the Design Phase, the Alberta Transportation Project Manager shall supply all available information (e.g. Functional Planning Studies, Geometric Assessment, Utility Early Engagement information, etc. if available) to the Consultant. The Consultant will supply all needed information to the Utility Owner(s) to enable them to complete their Utility Design (being careful to protect confidential information of each Utility Owner).

The Consultants involved in the Design Phase are collectively responsible for ensuring the utility coordination tasks are completed at the appropriate time in the Design Phase.

The Design Phase is divided into two parts, which are documented separately in this manual. They are:

- Preliminary Design (Preliminary Design and Preliminary Engineering may be used interchangeably)
- Detailed Design

## 6.2 Preliminary Design

### 6.2.1 Overview of Preliminary Design

The objective of Preliminary Design is to develop a Preliminary Design that addresses the project's needs. The Consultant will coordinate with the affected Utility Owners to achieve this objective.

## 6.2.2 Milestones and Deliverables

### Milestones

- Project Initialization Meeting
- Preliminary Design Initiation Meeting
- Preliminary Design – Utility Coordination Meeting
- Completion of Preliminary Design

### Deliverables

- Utility Base Plan
- Preliminary Utility Conflict Matrix
- SUE Selection Criteria Form
- Preliminary Design Report
- Letter 2 – Preliminary Design Initiation
- Letter 3 – Utility Base Plan Review
- Letter 4A and/or 4B – Utility Coordination Notification (with (A) or without (B) utility conflicts)
- Letter 5 – Preliminary Design Completion

## 6.2.3 Tools

- Utility Conflict Matrix
- SUE Selection Criteria Form
- Utility Coordination Letters (Appendix G)
- Meeting Agendas (Appendix I)

## 6.2.4 The Preliminary Design Process

The Preliminary Design process of an AT project begins once an Engineering Consultant has been hired for the project. A Scope Document (with supporting materials) will have been prepared and approved.

Preliminary Design requirements are set out in the Engineering Consulting Guidelines for Highway, Bridge and Water Projects (ECGHBWP) – Volume 1, Section 6, Preliminary Engineering. The Preliminary Design Process is divided into two parts:

Preliminary Design Process Steps – Part 1	
Party	Process step
AT PM	<ol style="list-style-type: none"> <li>1. Send necessary documents to Consultant. <ul style="list-style-type: none"> <li>• Functional Planning Report if available</li> <li>• See the ECGHBWP – Volume 1 for other required information</li> <li>• SUE Selection Criteria Form from the Planning Phase</li> <li>• Project Scope Document if available</li> <li>• Utility Early Engagement Information</li> <li>• Project Management Plan if available</li> </ul> </li> </ol>
Design Consultant	<ol style="list-style-type: none"> <li>2. Review AT documents including the SUE Selection Criteria Form and any other utility information.</li> <li>3. Schedule and then chair the Project Initialization Meeting with the AT PM. See Section 1.5.5 Project Initialization, the ECGHBWP – Volume 1. A generic Meeting Agenda (I.1- Project Initialization Meeting) is included Appendix I of this manual.</li> </ol>
AT PM	<ol style="list-style-type: none"> <li>4. Review Utility Early Engagement Strategy (UCPM – Section 5.1.1).</li> </ol>
Design Consultant	<ol style="list-style-type: none"> <li>5. Receive direction on utility engagement.</li> <li>6. Perform utility facilities investigation on existing and planned utilities within the project area (approximate location).</li> <li>7. Send <b>Letter 2</b>: Preliminary Design Initiation to all Utility Owners potentially affected by the construction project. Attachments:</li> </ol>

	<ul style="list-style-type: none"> <li>a. Functional Planning Report (if available)</li> <li>b. Utility Base Plan (if available)</li> </ul> <p>8. Schedule the Preliminary Design Initiation meeting. Invite all potentially affected Utility Owners (Meeting 1 with Utility Owners). A generic Meeting Agenda (I.2 - Preliminary Design Initiation Meeting) is included in Appendix I of this manual. Depending on the size of the project and the scope of the utility conflicts, it might not be possible to discuss all these topics in a single meeting. Additional meetings may be required to deal with specific challenges, the needs of the Utility Owners, and/or the complexity of the project.</p>
<b>Utility Owner</b>	<p>9. Provide information requested in Letter 2. Provide this information 1 (one) week prior to the meeting.</p>
<b>All</b>	<p>10. Attend Preliminary Design Initiation meeting. This meeting is conducted in conjunction with the project Preliminary Design/Engineering meeting. The purpose of this meeting is to clarify project scope, deliverables, milestones and potential utility impact. The Consultant contacts and confirms lead time requirements with each Utility Owner per Section 5.1.1 Utility Early Engagement Strategy of this manual.</p>
<b>Design Consultant</b>	<p>11. Request Utility Information (maps of all the utilities within the project area and the contact information of associated utility owners) from the AT PM. This information could be available early in the process as part of gathering information from AT PM.</p> <p>12. Complete Topographic Survey. A Hydrovac will likely be carried out to determine the precise horizontal and vertical location (depth of cover) of utilities by exposing the lines. AT standard utility agreements shall be used for utility infrastructure within the AT Right-of-Way.</p> <p>13. Create Draft Preliminary Design Report (AT project design). The Consultant considers utility information and attempts to design around utilities when possible.</p> <p>14. The Preliminary Design Criteria is found in Appendix C. This is not a complete list and is intended to guide the Utility Owner to design any utility adjustment that may be required.</p>

	<p>Create/update a Utility Base Plan showing the road and existing utility alignments incorporating input from Utility Owners.</p> <p>15. Send <b>Letter 3</b>: Utility Base Plan Review.</p> <p>Attachments:</p> <ol style="list-style-type: none"> <li>a. Topographic Survey</li> <li>b. Utility Base Plan</li> </ol> <p>Provide CAD drawings if requested by the Utility Owner.</p>
<b>Utility Owner</b>	<p>16. Review the Utility Base Plan and provide feedback to the Consultant.</p> <p>Depending upon the utility type and project complexity, the Utility Owner provides this information within 2 to 4 weeks. The Consultant confirms the exact timeframe with the Utility Owner.</p>
<b>Design Consultant</b>	<p>17. Continue to engage with Utility Owners until satisfied that all necessary utility information has been obtained.</p> <p>18. Update the Utility Base Plan and send to the Utility Owner.</p> <p>19. Create Preliminary Utility Conflict Matrix. This matrix is to be kept updated throughout the project.</p> <p>Appendix E provides a list of items to consider when evaluating potential utility conflicts.</p> <p><b>End of part 1 – Preliminary Design.</b></p>

Preliminary Design Process Steps – Part 2	
Party	Process step
<b>Design Consultant</b>	<p>20. Create/update the SUE Selection Criteria Form that includes all potentially affected Utility Owners in the project area.</p> <ul style="list-style-type: none"> <li>• This shall be done in accordance with ASCE 38-02 Standard Guidelines.</li> <li>• Determine the SUE Quality Level to be employed.</li> <li>• Should a SUE investigation be deemed unnecessary (Partial or Full) and add no value to the project, the project lead (Project Manager/Sponsor) has the authority to make a final decision based on the input from the Consultant and Utility Owner. The decisions may take into consideration factors such as project types (e.g. straight overlay projects may not require any SUE investigation), reliability of records,</li> </ul>

	<p>professional and field experience, consultation of Utility Owners, etc.</p> <p>21. Update Draft Preliminary Design Report with Utility Information. 22. Send the Draft Preliminary Design Report to the AT PM.</p>
<b>AT PM</b>	<p>23. Review the Draft Preliminary Design Report (including utility information). Review and provide feedback to the Consultant. Confirm the SUE Quality Level to be employed.</p>
<b>Design Consultant</b>	<p>24. Notify Utility Owners of conflicts (or lack thereof).</p> <p>a. Send <b>Letter 4A</b> (Utility Coordination Notification – Utility Conflict) to Utility Owners who have conflicts with the project, including an invitation to the Utility Coordination Meeting. The Consultant schedules a utility coordination meeting with all affected Utility Owners (AT PM optional). The draft Preliminary Design drawings and the initial Utility Conflict Matrix should be sent to the Utility Owners a minimum of four (4) weeks prior to the meeting for their review and preparation for the meeting. Attachments:</p> <ul style="list-style-type: none"> <li>• Utility Conflict Matrix</li> <li>• Draft Preliminary Design Report (AT project design)</li> </ul> <p>b. Send <b>Letter 4B</b> (Utility Coordination Notification - No Utility Conflict) to Utility Owners who have no conflicts. This is the end of the process with respect to these Utility Owners. Attachments:</p> <ul style="list-style-type: none"> <li>• Utility Conflict Matrix</li> <li>• Draft Preliminary Design Report (AT project design)</li> </ul> <p>When sharing either the Utility Conflict Matrix or the Utility Adjustment Matrix, <i>the Consultant is responsible to protect the confidential information of each utility owner</i>. Ensure that the document you send contains information pertinent only to the Utility Owner that will receive it. To remove the information of other Utility Owners, filter the list in Excel, then save it as a PDF.</p>
<b>Utility Owners</b>	<p>25. Review Letter 4A and attachments. Prepare feedback on the Preliminary Design options including a high level cost estimate.</p>

	<p>Following the Preliminary Design Initiation Meeting and the submission of information from the Utility Owners, the Consultant may request preliminary cost estimates when there is critical infrastructure within the limits of the project area. Upon request by the Consultant, the Utility Owner provides a Class 5 (+100%, -50%) or Class 4 (+50%, -30%) Cost Estimate based on the American Association of Cost Engineers (AACE) International standards. This is equivalent to an Alberta Transportation "A" or "B" Estimate.</p> <p>Typically the Utility Design begins once the 60% Detailed Design milestone is met. Depending upon the progress of the AT project design and if the Utility Design commences earlier (i.e. after the Preliminary Design), the Consultant may request an AACE International Class 3 Cost Estimate (+30%, -20%) equivalent to Alberta Transportation 'B' Estimate.</p> <p>The Utility Owner typically requires a minimum of 4 to 8 weeks to provide cost estimates upon a formal request. The Consultant confirms the Cost Classification and timeframe with the Utility Owner at the Preliminary Design Initiation meeting.</p>
<p><b>Consultant &amp; Utility Owners (AT PM optional)</b></p>	<p>26. Attend Preliminary Design Utility Coordination Meeting (Meeting 2 with Utility Owners). A generic Meeting Agenda (I.3 - Preliminary Design Utility Coordination Meeting) is included in Appendix I of this manual.</p> <p>Depending on the size of the project and the scope of the utility conflict(s), it might not be possible to discuss all these topics in a single meeting. Additional meetings may be required to deal with specific challenges, the needs of the Utility Owners, and/or the complexity of the project.</p> <p>Among the agenda items, the funding for utility pre-engineering work is discussed.</p>
<p><b>Design Consultant</b></p>	<p>27. Update the Utility Base Plan and the Utility Conflict Matrix based on information received at the meeting.</p> <p>It may be necessary to perform additional consultation with specific Utility Owners about various options under consideration, including re-design options to avoid adjustments or to lessen the costs of adjustments, especially if utility adjustment or removal could seriously affect construction scheduling. For example, some Utility Owners may require several years to relocate high-tension electrical towers, electrical</p>



	<p>transmission lines, and/or pipelines prior to the start of the construction.</p> <p>28. Once all conflicts and options have been identified, send these documents to the AT PM:</p> <ul style="list-style-type: none"> <li>• Preliminary Design Report (AT project design) with design options</li> <li>• Utility Base Plan</li> <li>• Utility Conflict Matrix</li> </ul>
<b>AT PM</b>	<p>29. Review the documentation and select an option. The AT PM reviews the utility issues with the Consultant and they jointly identify the best options available to mitigate any conflicts which will result in the adjustment of affected utility infrastructure of Utility Owners.</p> <p>30. Notify the Consultant in writing of the option selected and direction on the Pre-Engineering Funding.</p>
<b>Design Consultant</b>	<p>31. Update and finalize the Preliminary Design Report based on AT PM's direction.</p> <p>32. Send <b>Letter 5</b> (Preliminary Design Completion) to the Utility Owner advising of the selected option. Indicate whether the project is proceeding on schedule, or if it is delayed. Attachments:</p> <ul style="list-style-type: none"> <li>a. Utility Conflict Matrix</li> <li>b. Utility Base Plan</li> </ul> <p>When sharing either the Utility Conflict Matrix or the Utility Adjustment Matrix, <i>the Consultant is responsible to protect the confidential information of each utility owner</i>. Ensure that the document you send contains information pertinent only to the utility owner that will receive it. To remove the information of other Utility Owners, filter the list in Excel, then save it as a PDF.</p>
<b>Utility Owner</b>	<p>33. Receive notification of the preferred option.</p>

### 6.2.5 Notes

Individual meetings to discuss the implications of any utility infrastructure within the project's area can be requested by any Utility Owner or the Consultant.

## 6.3 Detailed Design

### 6.3.1 Overview of Detailed Design

The purpose of this phase is to complete the Detailed Design of the project, including Utility Design. Utility Agreements, land, permits, and necessary regulatory approvals are obtained by the end of the phase.

### 6.3.2 Milestones and Deliverables

#### Milestones

- Utility Design Initiation Meeting
- Completion of Detailed Design
- Utility Agreements Executed
- Roadside Development Permits Issued
- Tender Package Prepared

#### Deliverables (Consultant, unless otherwise noted)

- Letter 6 – Detailed Design Initiation Notification
- Letter 7 – Utility Design Initiation Meeting
- Utility Design (including Utility Adjustment Schedule and cost estimate)
- Letter 8 – Notice to Prepare for Utility Adjustment
- Final Detailed Design
- Utility Adjustment Matrix
- Utility Coordination Plan
- Signed Utility Agreements
- Letter 9 – Notice of Utility Agreements
- Letter 10 – Notice of Permit Approval (AT PM)
- Roadside Development Permits
- Draft Tender Package

### 6.3.3 Tools

- Utility Coordination Letters (Appendix F)
- Meeting Agendas (Appendix I)

### 6.3.4 The Detailed Design Process

The Design Phase continues from the Preliminary Design process into the Detailed Design process. At this point, a Preliminary Design Report will have been completed.

The Detailed Design is divided into three parts: Detailed Design Initiation, Utility Design and Utility Agreements.

Detailed Design Process Steps – Part 1: Detailed Design Initiation	
Party	Process step
<p>If the project is proceeding on schedule, start at step 5.                      If there was a delay between Preliminary Design and Detailed Design, start at step 1.</p>	
<p><b>Design Consultant (only if there was a delay)</b></p>	<ol style="list-style-type: none"> <li>1. Review the Preliminary Design Report (AT project design).</li> <li>2. Update SUE Selection Criteria Form if required.</li> <li>3. Update Utility Conflict Matrix.</li> <li>4. Send <b>Letter 6</b> to notify affected Utility Owner that Detailed Design is about to proceed.                              This early engagement may allow the Utility Owner to begin their design work.                              Attachments:                             <ul style="list-style-type: none"> <li>• Preliminary Design Report (AT project design)</li> <li>• Utility Conflict Matrix</li> </ul> </li> </ol> <p>When sharing either the Utility Conflict matrix or the Utility Adjustment matrix, <i>the Consultant is responsible to protect the confidential information of each utility owner.</i></p> <p>Ensure that the document you send contains information pertinent only to the Utility Owner that will receive it. To remove the information of other Utility Owners, filter the list in Excel, then save it as a PDF.</p>
<p><b>Design Consultant</b></p>	<ol style="list-style-type: none"> <li>5. Create Composite Utility Plan.</li> <li>6. Complete Detailed Design to 60% milestone.                              The 60% Design is the key milestone in having the Utility Owners begin their Utility Design. The 60% Design Criteria is found in Appendix D of this manual. Similar to the Preliminary Design criteria, these are not hard and fast conditions and are intended</li> </ol>

	<p>to assist Utility Owners in designing utility adjustments that may be required.</p> <p>7. Depending upon the utility type (i.e. Pipeline, Electrical, Telecommunication, Water and Sewage) and the requirements of the Utility Owner, the Utility Design may commence during the Preliminary Design. The Consultant confirms with the Utility Owner during the Preliminary Design meetings. Send <b>Letter 7</b> (Utility Design Initiation) to schedule the Utility Design Initiation meeting with all affected Utility Owners.</p> <p>Attachments:</p> <ul style="list-style-type: none"> <li>• 60% Design Plans</li> <li>• Composite Utility Plan</li> <li>• Utility Conflict Matrix</li> </ul> <p>Send at least 4 weeks before the meeting to allow the Utility Owner time to review the package.</p> <p>The Consultant accommodates a field visit prior to the commencement of Utility Adjustment Design if requested by the Utility Owner to determine the type of utility design. As an example, conducting a field visit to help a telecom design decision such as Avoidance, Smart Hub and/or Temp design. The Consultant will discuss with the AT PM prior to the field visit.</p> <p>When sharing either the Utility Conflict Matrix or the Utility Adjustment Matrix, <i>the Consultant is responsible to protect the confidential information of each utility owner.</i> Ensure that the document you send contains information pertinent only to the Utility Owner that will receive it. To remove the information of other Utility Owners, filter the list in Excel, then save it as a PDF.</p>
<b>Utility Owner</b>	8. Review the information provided with Letter 7.
<b>All</b>	<p>9. Attend the Utility Design Initiation Meeting (Meeting 3 with Utility Owners).</p> <p>A generic Meeting Agenda (I.4 - Utility Design Initiation Meeting) is included in Appendix I of this manual.</p> <p>Depending on the size of the project and the scope of the utility conflicts, it might not be possible to discuss all these topics in a single meeting. Additional meetings may be required to deal with specific challenges, the needs of the Utility Owners, and/or the complexity of the project.</p>

<b>Detailed Design Process Steps – Part 2: Utility Design</b>	
<b>Party</b>	<b>Process step</b>
Depending upon the utility type and requirements, the Utility Design may commence earlier.	
<b>Utility Owner</b>	<ol style="list-style-type: none"> <li>10. Prepare Initial Utility Design including Utility adjustment costs, and the Land/Easement.</li> <li>11. Depending upon the progress of the utility design, the Consultant may request a Class 3 (+30%, -20%) or Class 2 (+20%, -15%) Cost Estimate based on the American Association of Cost Engineers (AACE) International standards. This is equivalent to Alberta Transportation 'C' or 'D' Estimate. The Consultant contacts the Utility Owner and confirms specific requirements from the previous meetings.</li> <li>12. For details on Land/Easement, refer to Section 8.7.3 - Utility Easements and Clearing, the ECGHBWP - Volume 1.</li> <li>13. Send Initial Utility Design, Utility Adjustment Schedule, and Utility Cost Estimate to Consultant.</li> </ol>
<b>Design Consultant</b>	<ol style="list-style-type: none"> <li>14. Review Utility Design, Utility Adjustment Schedule, and Utility Adjustment Cost Estimate</li> <li>15. If not acceptable, return to the Utility Owner for revision. Additional time to evaluate redesigns and revised cost estimates should be considered in the overall project schedule. The Consultant shall contact the Utility Owner for specific timelines. Any scope change (i.e. cost, schedule) must follow the Departments standard process.</li> <li>16. Once all items are acceptable, send the Utility Design, Utility Adjustment Schedule and the Utility Cost Estimate to the AT PM for review and acceptance.</li> </ol>
<b>AT PM</b>	<p><b>Review Design</b></p> <ol style="list-style-type: none"> <li>17. Review Utility Design, Utility Adjustment Schedule</li> <li>18. Send a copy of the Utility Design to the Development Planning Technologist (Plan View, Profile, Cross Sections, etc.).</li> </ol>

	<p>The proposed utility adjustment and design must meet AT Permit Application and Installation Procedures (e.g. depth of cover, no bends within the control zone, etc.) and protect the future highway expansion. If there are any concerns with the design, solicit input from the DPT.</p> <p>If published standards and guidelines are not met and design exceptions are needed, the DPT may coordinate the design exception process, which may include vetting the design exception through Technical Standards Branch.</p>
<b>AT DPT</b>	19. Review initial Utility Design and advise the AT PM if there are any concerns.
<b>AT PM</b>	<p>20. If design is not acceptable, send back to Consultant for revision.</p> <p>21. Once acceptable, notify Consultant of acceptance.</p> <p><b>Review Cost</b></p> <p>22. Review the Utility Cost Estimate.</p> <p>23. If there are any concerns with the costs, send back to Consultant for revision.</p> <p>24. If necessary, solicit input from Technical Standards Branch.</p> <p>25. Once acceptable, notify Consultant of acceptance.</p>
<b>Design Consultant</b>	<p>26. Negotiate cost apportionments for utility agreement (if it is a cost share), see Part 3 – Utility Agreements of this manual. The Letter Agreement 2 (Construction Costs for Utility Adjustment) is executed as the design work progresses or when complete to reimburse the utility adjustment construction (if it is a cost share).</p>
<b>Design Consultant</b>	<p>27. Create Preliminary Utility Adjustment Matrix and Utility Coordination Plan.</p> <p>28. Send <b>Letter 8</b> (Notice to Prepare for Utility Adjustment). For Utility Adjustment pre-work (brushing and clearing) requirements, refer to Section 8.7.3 - Utility Easements Clearing, in the Engineering Consulting Guidelines for Highway, Bridge and Water Project (ECGHBWP) – Volume 1 and Article 1.2.15.4.2.2 – Additional Clearing for Power Line, in the General Specifications.</p> <p>Attachments:</p> <ul style="list-style-type: none"> <li>• Composite Utility Plan</li> <li>• Utility Design</li> </ul>

	<ul style="list-style-type: none"> <li>• Utility Adjustment Matrix</li> <li>• Utility Coordination Plan</li> </ul> <p>When sharing either the Utility Conflict Matrix or the Utility Adjustment Matrix, <i>the Consultant is responsible to protect the confidential information of each utility owner</i>. Ensure that the document you send contains information pertinent only to the Utility Owner that will receive it. To remove the information of other Utility Owners, filter the list in Excel, then save it as a PDF.</p>
<b>Utility Owner</b>	<p>29. Review attachments to <b>Letter 8</b>.</p> <p>30. Coordinate with other Utility Owners to address any conflicts e.g. utility adjustment schedule, etc. AT PM/Design Consultant may need to facilitate conflicts between multiple utilities when it impacts the project.</p> <p>31. Notify the Consultant once conflicts have been resolved.</p> <p>32. Obtain any necessary permits or regulatory approvals from other authorities.</p>
<b>Design Consultant</b>	<p>33. Update the Utility Adjustment Matrix (UAM) and Utility Coordination Plan (UCP).</p> <p>34. Complete the Draft Detailed Design, and update UAM and UCP as required.</p> <p>35. Start work on the Draft Tender Document, following the PMA Delivery process.</p> <p>36. Finalize the Detailed Design.</p> <p>37. Finalize the Tender Document and prepare the Tender Package.</p> <p>38. Hold the Tender Package until ready to proceed to tender.</p>
<b>AT PM</b>	<p>39. Forward a copy of <b>Letter 8</b> to DPT for info only.</p>
<b>AT DPT</b>	<p>40. Review <b>Letter 8</b>. (For information only). AT PM will advise when to proceed with permits.</p>

### Detailed Design Process Steps – Part 3: Utility Agreements

Party	Process steps
<p>The requirements of Utility Agreements are identified at the beginning of the design process. Utility Agreements are prepared as the Utility Design progresses and the cost apportionment information becomes available.</p>	
<p><b>Design Consultant</b></p>	<ol style="list-style-type: none"> <li>1. Prepare draft Utility Agreements including Crossing Agreements and cost apportionment. AT standard utility agreements shall be used for utility infrastructure within the AT Right-of-Way.               <ol style="list-style-type: none"> <li>a. If a standard agreement is being used, prepare the draft agreement and forward to the AT PM along with the completed Detailed Design, UAM, and UCP. Proceed to step 2. Standard Utility Agreements are found in the Engineering Consulting Guidelines for Highway, Bridge and Water Projects (ECGHBWP) – Volume 1, Appendix H.</li> <li><b>or</b></li> <li>If not using a standard agreement, negotiate a utility agreement with the Utility Owner in consultation with the AT PM.</li> <li>b. During negotiations, the AT PM will determine whether consultation with Technical Standards Branch, and Justice and Risk Management is necessary.</li> </ol> </li> </ol>
<p><b>Utility Owner</b></p>	<ol style="list-style-type: none"> <li>c. Participate in negotiation until an agreement is reached.</li> <li>d. Send Utility Adjustment Schedule to Consultant.</li> </ol>
<p><b>Design Consultant</b></p>	<ol style="list-style-type: none"> <li>e. Update Utility Adjustment Matrix and Utility Coordination Plan.</li> <li>f. Send the draft agreement to the AT PM along with the completed Detailed Design, UAM, and UCP.</li> </ol>
<p><b>AT PM</b></p>	<ol style="list-style-type: none"> <li>2. Review the Completed Design, Utility Agreements, UAM and UCP.</li> <li>3. If not acceptable, send back to Consultant to revise the design and/or agreement.</li> <li>4. Once accepted, notify the Consultant.</li> </ol>



<p><b>Design Consultant</b></p>	<p>5. Finalize Utility Agreements including cost apportionment, Detailed Design, UAM and UCP. Before finalizing the Letter Agreement 2 (Construction Costs for Utility Agreement), the Consultant ensures the following:</p> <ul style="list-style-type: none"> <li>• The SUE Quality Level investigation has been completed (recommended Quality Level B at a minimum, Quality Level A is desired).</li> <li>• The Utility Cost Estimate is completed (recommended Class 3 based on the American Association of Cost Engineers (AACE) International - equivalent to Alberta Transportation 'C' Estimate).</li> </ul> <p>6. Send <b>Letter 9</b> (Notice of Utility Agreements) Attachments:</p> <ul style="list-style-type: none"> <li>• Utility Adjustment Matrix</li> <li>• Utility Agreements</li> <li>• Final Detailed Design</li> <li>• Utility Coordination Plan</li> </ul> <p>When sharing either the Utility Conflict Matrix or the Utility Adjustment Matrix, <i>the Consultant is responsible to protect the confidential information of each utility owner.</i> Ensure that the document you send contains information pertinent only to the Utility Owner that will receive it. To remove the information of other Utility Owners, filter the list in Excel, then save it as a PDF.</p>
<p><b>Utility Owner</b></p>	<p>7. Sign agreements and return to Consultant.</p>
<p><b>Design Consultant</b></p>	<p>8. Forward signed agreements to the AT PM.</p>
<p><b>AT PM</b></p>	<p>9. Acquire appropriate signatures, following Expenditure Officer Ministry Authority Directive (EOMAD). 10. Forward executed agreements to the Consultant. 11. Issue <b>Letter 10</b> (Notice of Permit Approval) to notify DPT to issue permits. Attach Utility Agreements.</p>
<p><b>Design Consultant</b></p>	<p>12. Forward executed agreements to Utility Owner.</p>

## 7. Utility Adjustment Prior to Tender

### 7.1 Overview of Utility Adjustment Prior to Tender

The purpose of this process is to perform utility adjustments before issuing the Tender.

Prior to beginning the adjustment, the utility design must be complete and accepted, utility agreements in place, all applicable permits and regulatory approvals obtained, and any other necessary pre-work (e.g. land, easement, etc.) completed.

It is crucial that AT be aware of any delay prior to award of the Tender, because any Outstanding Utility Adjustment must be included in the Tender. If there is a delay which prevents completion on schedule, the Utility Owner must immediately inform the Consultant, who must immediately inform Alberta Transportation and a decision will be made to either proceed with the Tender or hold the Tender to minimize the impact to construction.

#### 7.1.1 Milestones and Deliverables

##### Milestones

- Utility Adjustments Completed

##### Deliverables

- Utility Adjustments
- Updated Utility Coordination Plan (if there are any delays)

#### 7.1.2 Tools

- None

### 7.1.3 The Utility Adjustment Process

The following must be in place before the Utility Owner begins their adjustment:

- Final Detailed Design
- Utility Design with no objection by AT
- Utility Agreements (signed by all parties)
- Roadside Development Permits
- Any other required permits or regulatory approvals
- Any other necessary pre-work (e.g. land acquisition, easement, etc.)

Utility Adjustment Prior to Tender Process Steps	
Party	Process step
<b>Utility Owner</b>	1. Start Utility Adjustments in accordance with the Utility Coordination Plan.
<b>Utility Owner</b>	<b>Upon Completion: (If there is a delay, go to step 6.)</b> 2. Once the adjustment is finished, send Notice of Completion of Utility Adjustments to the Consultant. Provide Record Drawings.
<b>Design Consultant</b>	3. Review Record Drawings and forward to AT PM. 4. Send Tender package to AT PM. 5. Move to Completion process (Section 9-Utility Adjustment Completion).
<b>Utility Owner (only for delays)</b>	<b>If there is a delay:</b> 6. Send Consultant Notice of Utility Adjustment Delay and provide the list of outstanding utilities that will not be completed prior to tender with an estimated completion schedule.
<b>Design Consultant (only for delays)</b>	7. Update the Utility Coordination Plan with all outstanding utilities and distribute to all affected Utility Owners and AT PM.
<b>AT PM (only for delays)</b>	8. Determine if there is an easy solution to accommodate delay and meet with the Utility Owner to discuss potential corrective actions to meet schedule. 9. If necessary, include Technical Standards Branch. 10. Attend and chair resolution meeting.

<b>Utility Owner</b>	11. If adjustments can be completed before tendering, proceed with adjustments.
<b>AT PM</b>	12. If adjustments cannot be completed before tendering, ensure outstanding utilities are included in the Tender (See Tender Phase).

# 8. Tender Phase

## 8.1 Overview of Tender Phase

The purpose of the Tender Phase is to issue a Tender Document which, if required, will include outstanding utility work that will need to be addressed during construction.

If there are any utility adjustments that cannot be completed prior to tendering (e.g. power pole adjustment upon completion of the final grading), the outstanding utility work must be added to the Tender. In this case, the utility adjustment is completed by the Utility Owners and the Contractor coordinates the work.

All permits and agreements related to outstanding utility work should be obtained and included with the Tender.

### 8.1.1 Milestones and Deliverables

#### Milestones

- Decision whether to proceed with tender
- Tender updated with outstanding utility information
- Tender advertised
- Contract awarded

#### Deliverables

- Final updated Tender Package

### 8.1.2 Tools

- None

### 8.1.3 The Tender Process

Before the beginning this process, the AT PM must have received the Tender Package from the Consultant, and must be aware of the status of all utility adjustments.

#### Tender Process Steps

Party	Process step
<b>AT PM</b>	<p><b>Decide whether to proceed with the Tender:</b></p> <p>Before deciding to proceed with the Tender, the AT PM must have information on the status of all utility adjustments.</p> <ol style="list-style-type: none"> <li>1. Receive Tender Package from Consultant.</li> <li>2. Review risk of utility delays and decide whether to proceed with the tender.</li> </ol> <p>Note: Depending upon the risk associated with utilities in the Tender, the applicable Regional Director makes the final decision whether the Tender is released or not. The decision to proceed with tendering is the same for outstanding Environmental, Road ROW and Permitting issues.</p>
<b>Design Consultant</b>	<p><b>Proceed with the Tender:</b></p> <ol style="list-style-type: none"> <li>3. Ensure the Tender Package includes all outstanding utility information to potential proponents (Contractors). The Utility Owner provides the list of outstanding utilities, including a potential schedule (tentative), that need to be completed during the construction, to the Consultant. The Consultant incorporates the information into the Tender Document. The Consultant shall ensure relevant information is provided to the Utility Owner to complete their design work as needed (e.g. AT project design plans and tender schedule, depth of lines, safety clearance, land, geotechnical information, etc.) and to establish a potential schedule agreed to by both parties so the utility adjustment work can be completed without any delay.</li> </ol>
<b>AT PM</b>	<ol style="list-style-type: none"> <li>4. Follow PMA Delivery tender process.</li> <li>5. Construction contract awarded.</li> <li>6. Notify Consultant of selected Contractor.</li> </ol>

The following items should be available to the potential Contractors:

- Relevant utility agreements.
- Any utility coordination work that deals with utility protection instead of utility adjustment.
- The latest version of the Utility Adjustment Matrix for adjustments planned for the Construction Phase.
- Utility Coordination Plan.
- Special provisions as necessary.

# 9. Utility Adjustment During Construction

## 9.1 Overview of Utility Adjustment During Construction

The purpose of these activities is to complete utility adjustments without delaying the construction schedule. The Contractor is responsible for overall utility coordination during construction. The Consultant provides support to the Contractor in coordinating utility adjustments during construction.

### 9.1.1 Milestones and Deliverables

#### Milestones

- Pre-Construction Meeting
- Completed Utility Adjustments

#### Deliverables

- Notice of Completion of Utility Adjustments
- Record Drawings

### 9.1.2 Tools

- None

### 9.1.3 The Utility Adjustment Process

At this point the Contractor will have been hired. This process only applies to projects where there are unfinished utility adjustments that will be completed during construction.

Utility Adjustment During Construction Process Steps	
Party	Process step
<b>Contractor</b>	1. Proceed as per contract terms.
<b>Design Consultant</b>	2. Organize Pre-Construction Meeting in accordance with the Engineering Consulting Guidelines for Highway, Bridge and Water Projects, Volume 2, Section 2.2.4 Pre-Construction Meeting (Meeting 4 with Utility Owners) A generic Meeting Agenda (I.5 - Pre-Construction Meeting) is included in Appendix I of this manual. The Consultant shall supply Issued For Tender Drawings (relevant to utility) to the Utility Owner prior to or at the meeting.
<b>All</b>	3. Attend Pre-Construction Meeting. (Contractor, AT PM, Consultant, Utility Owners).
<b>Design Consultant</b>	4. Update the Utility Adjustment Matrix and Utility Coordination Plan if necessary. 5. Notify the AT PM of updates to Utility Adjustment Matrix and Utility Coordination Plan.
<b>Contractor</b>	6. Coordinate all utility adjustments including scheduling as per Contract and General Specifications.
<b>Utility Owner</b>	7. Perform utility adjustment. 8. Once the adjustment is finished, send Notice of Completion of Utility Adjustments to the Consultant. Provide Record Drawings.
<b>Contractor</b>	9. If there are any delays with utility adjustment, organize a meeting with the Utility Owner, Consultant and AT Project Manager.



	AT Project Manager/Sponsor leads the meeting and addresses issues. Escalate issues to AT Senior Management or Utility Partnering Steering Committee if necessary.
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#### **9.1.4 Notes**

The Consultant shall provide a schedule to the affected Utility Owner once the successful Contractor's schedule is received. At this stage, a letter should be sent by the Consultant to the Contractor with a copy to the Utility Owners indicating that the Contractor is responsible for all utility coordination henceforth.

The Contractor shall keep the Consultant updated on utility coordination progress during the construction. It's the responsibility of the Consultant to keep the Utility Adjustment Matrix and Utility Coordination Plan up to date as necessary.

# 10. Utility Adjustment Completion

## 10.1 Utility Adjustment Completion Overview

The purpose of this process is to update inventory, obtain utility Record Drawings, process final payments, and complete any utility adjustments that need to occur after construction.

### 10.1.1 Milestones and Deliverables

#### Milestones

- Inspection of utility adjustment work
- Acceptance of Record Drawings
- Invoice payment

#### Deliverables

- Revised Record Drawings (if necessary)
- Final Invoice

### 10.1.2 Tools

- None

### 10.1.3 The Completion Process

Prior to beginning this process, the Utility Owner has completed the adjustment and provided Record Drawings and a Notice of Completion of Utility Adjustments to the Consultant.

Utility Adjustment Completion Process Steps	
Party	Process step
<b>Design Consultant</b>	1. Perform inspection on completed utility adjustment such as restoration, seeding, etc. according to Alberta Transportation construction specifications and utility installation process documents.

	2. Notify Utility Owner of inspection deficiencies or compliance to agreement.
<b>Utility Owner</b>	3. Forward final invoice to Consultant.
<b>Design Consultant</b>	4. Review final invoice and Record Drawings. 5. If Record Drawings are not acceptable, return to Utility Owner for revision. Record Drawings shall comply with the CSA-S250-11 Standards. 6. Once acceptable, forward Record Drawings and recommendation to pay final invoice to AT PM.
<b>AT PM</b>	7. Forward Record Drawings to DPT. 8. Process final invoice.

## 10.2 Record Drawings

All Utility Owners must prepare and submit Record Drawings to the Consultant in a time frame and format that is in accordance with permits between Alberta Transportation and each individual Utility Owner. Most Utility Owners prepare Record Drawings using the CSA S250 -11 Mapping of Underground Utility Infrastructures developed by the Canadian Standards Association and other internal standards.

The Consultant reviews and ensures the Record Drawings meet the requirements as specified in the agreements between Alberta Transportation and the individual Utility Owner. Any discrepancies with Record Drawings must be resolved between the Consultant and the Utility Owner before acceptance of the drawings. Acceptable Record Drawings must be received by the Consultant prior to payment of the final invoice. Section 11 – AT Utility Map (below) outlines the detailed GIS Data Requirements.

## 10.3 Utility Adjustment Post Construction

For some projects, utility adjustment needs to occur after the project's Construction Phase has been completed. The Consultant notifies the Utility Owner when the construction is complete and the site is available for their utility adjustment to commence.

The Utility Owner shall notify the Consultant once their adjustment is completed by sending a Notice of Completion of Utility Adjustments and Record Drawings.

# 11. AT Utility Map

Alberta Transportation (AT) hosts Utility Early Engagement Sessions annually and shares the five-year Construction Program information with Utility Owners. In return, each Utility Owner provides utility infrastructure networks in GIS format (existing and planned) to AT. The Utility Owners also provide utility contact information (one individual) annually.

AT is developing a Utility Map that incorporates the utility infrastructure networks and utility contact information. The goal is to build this map using a complete utility network for each utility in the Province as recommended by the Task Force Committees.

AT collects the utility infrastructure networks (GIS format) annually using a Utility Data Sharing Confidentiality Agreement. The agreement template has been developed by the Government of Alberta Justice in consultation with Utility Owners and their legal departments. This agreement template is generally accepted and signed by many Utility Owners with the exception of some minor changes. In the beginning, the Utility Owners provided their infrastructure networks based on AT projects. Now, most of the Utility Owners are providing their entire utility network to AT.

AT uses the NAD 1983 10TM AEP Resource projection and prefers the files in a geodatabase format. The Utility Data Sharing Confidentiality Agreement template, including the GIS Data Requirements, is appended in Appendix K.

The utility mapping information will help AT/AT's Consultant to identify existing utility infrastructure in the project area for potential conflicts and engage Utility Owners early in the process to resolving issues. This early engagement will allow Utility Owners to fit the project into their planning cycles and undertake planning and engineering work to support the utility adjustment in advance of AT project construction.

To protect confidentiality requirements, the utility mapping data will only be used by authorized AT staff and the specific projects' Consultant.

**Discloser:**

The Utility Map has been compiled with information received from Utility Owners, utility regulators and associations. This utility information is received annually. The Province makes no representations or warranties as to accuracy, adequacy, completeness and or suitability for the purpose except as expressly agreed in writing and shall not be liable for

any loss or damage arising from the use of any Confidential Information howsoever caused. Individual distributors must be contacted for actual locations of their infrastructure. This mapping information does not replace any existing practices and the one-call service provider (Alberta One-Call, DigShaw) must be contacted to locate buried infrastructure before a ground disturbance takes place.

## Appendix A: Glossary

Term	Acronym	Definition
<b>Base Plan</b>		A plan depicting the existing conditions of utility infrastructure (surface and subsurface) within the project limits.
<b>Alberta</b>	AB	
<b>Alberta Environment and Parks</b>	AEP	A department of the Government of Alberta that, among other responsibilities, regulates environmental conservation and protection.
<b>Alberta Energy Regulator</b>	AER	A corporation of the Government of Alberta that regulates pipelines in Alberta within the provincial government's jurisdiction.
<b>American Society of Civil Engineers</b>	ASCE	Develop and support civil engineer leaders, promote professionalism and the profession and advocate infrastructure and environmental stewardship.
<b>American Society of Civil Engineers, Section 38-02</b>	ASCE 38-02	Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data, a credible system for classifying the quality of utility location information that is placed in design plans.
<b>Alberta Utilities Commission</b>	AUC	The Alberta Utilities Commission regulates investor-owned electric, gas and water utilities, some municipally-owned electric utilities, and regulated retailers of electricity and natural gas.
<b>Canadian Standards Association</b>	CSA	The Canadian Standards Association, operating as the CSA Group, oversees the development and administration of CSA Standards referenced in the Manual. See also CSA S250-11 and CSA Z247-15.
	CSA S250-11	The CSA S250-11 Standard for the Mapping of Underground Utilities, published in 2011. Consultants will arrange their own copy.
	CSA Z247-15	The CSA Z247-15 Standard for the Damage Prevention for the Protection of Underground Infrastructure, published in 2015.
<b>Composite Utility Plan</b>	CUP	A plan and profile view drawing prepared by the Consultant that overlays the proposed project design

		with all existing and proposed utility infrastructure (aboveground and underground) within the project limits.
<b>Canadian Energy Regulator</b>	CER	<p>The Canadian Energy Regulator regulates:</p> <ul style="list-style-type: none"> <li>the construction, operation, and abandonment of pipelines that cross international borders or provincial boundaries, as well as the related pipeline tolls and tariffs</li> <li>the construction and operation of international power lines and designated inter-provincial power lines</li> <li>imports of natural gas and exports of crude oil, natural gas liquids, natural gas, refined petroleum products, and electricity</li> <li>oil and gas exploration and production activities in specified areas that are not regulated under joint federal/provincial accords</li> </ul> <p>The CER regulated Group 1 Pipeline Owners of high pressure transmission natural gas /oil lines impacting large networks are founded on its unique need for compliance with extensive federal regulatory requirements and subject to undeniably greater magnitude, greater public impact, greater cost and greater schedule to complete pipeline adjustment. See the latest website for pipeline companies regulated by the CER (both Group 1 and Group 2), a link is included below:</p> <p><a href="https://www.cer-rec.gc.ca/bts/whwr/cmpnsrgltdbnb-eng.html">https://www.cer-rec.gc.ca/bts/whwr/cmpnsrgltdbnb-eng.html</a></p>
<b>Design-Build</b>	DB	Design-Build is a method to deliver a project in which the owner contracts the design and construction services in a single entity.
<b>Design-Bid-Build</b>	DBB	Design-Bid-Build is the traditional method of project delivery in which the owner contracts the design and construction services separately.
<b>Development and Planning Technologist</b>	DPT	The Development and Planning Technologist is responsible for and manages permitting within the AT road Right-of-Way.



<b>Engineering Consulting Guidelines for Highway, Bridge and Water Projects - Volume 1, Design and Tender</b>	ECGHBWP – Volume 1	This document provides guidelines for the provision of engineering services for the pre-tender period of provincial highway, bridge and water construction projects.
<b>Engineering Consulting Guidelines for Highway, Bridge and Water Projects - Volume 2, Construction Contract Administration</b>	ECGHBWP- Volume 2	This document provides guidelines covering the post-tender period.
<b>Engineering Drafting Guidelines for Highway and Bridge Projects</b>	EDGHBP	This manual provides uniform standards and procedures to use when preparing various drawings for Alberta Transportation.
<b>Expenditure Officer Ministry Authority Directive</b>	EOMAD	Formerly called the Expenditure Officer Authority Guidelines (EOAG), the Expenditure Officer Ministry Authority Directive was first introduced in December, 2015. This directive indicates the authorities granted to Expenditure Officers for specific expenditures.
<b>Geographic Information System</b>	GIS	
<b>Highway Geometric Design Guide</b>	HGDG	The Highway Geometric Design Guide is prepared by the Technical Standards Branch. This guide establishes uniform geometric design standards and procedures to carry out the highway design functions for Alberta Transportation.
<b>Letter Agreements</b>		Engineering Consulting Guidelines for Highway, Bridge and Water Projects - Volume 1, Design and Tender, and specifically Appendix H and Design Bulletin #79/13 provide Utility Adjustment Agreement samples.
<b>Mark-Up Drawings</b>		Drawings prepared by professional engineers and issued for review. The plan is reviewed and marked up by the reviewer.
<b>Public Private Partnership</b>	P3	Public-private partnerships are partnerships between governments and the private sector to build public infrastructure.
<b>Project Manager</b>	AT PM	Project Manager (also referred to as Project Administrator), an Alberta Transportation staff

		member that leads the team that is responsible for achieving the project's objectives. They are the first point of contact for any issues or discrepancies and take all actions possible to ensure projects are delivered successfully.
<b>Project Management Plan</b>	PMP	The Project Management Plan is a planning document that defines and details how the project will be implemented, monitored, controlled, and closed. It is an aggregate of all of the individual plans developed to guide, focus and direct the project. It includes all of the applicable subsidiary management plans (e.g. Communication, Risk, Schedule and Cost Management Plans) and baselines (i.e. Scope, Schedule and Cost baselines). Contact the Project Management Office (PMO) for this.
<b>Project Sponsor</b>	PS	A Project Sponsor is an Alberta Transportation staff member that sponsors a specific project. Typically this is the Construction Manager or the Bridge Manager within the region, and whom the PM reports to.
<b>Quality Assurance</b>	QA	A program for the systematic monitoring and evaluation of the various aspects of a project, service, or facility to ensure standards of quality are being met.
<b>Quality Control</b>	QC	The activity of inspecting utility restoration work during construction and/or post-construction.
<b>Quality Level</b>	QL	Quality Level, as it applies to the SUE process for ASCE 38-02 Standard Guidelines.
<b>Record Drawings</b>		Drawings that represent the completed constructed project (also referred to as As-Constructed Drawings/Details). Record Drawings shall be authenticated by the Field Review Engineer indicating that the constructed product substantially complies with the Design Drawings and all appropriate Contract Plans and Specifications.
<b>Request for Proposal</b>	RFP	A formal document that includes a cover letter defining the preparation of the proposal, the basic insurance requirements expected of the Consultant and has the Terms of Reference attached to it.

		A Request for Proposal system seeks the best value through open competition or the competition of shortlisted proponents, and most importantly, it is a system which provides for both objective and justifiable reasons for its choices.
<b>Right-of-Way</b>	ROW	The spaces above and below the highways, roads, road allowances, or other public places within the project area that are owned by or under the direction, control and management of Her Majesty The Queen, in right of the Province of Alberta, but excluding land for which a Certificate of Title is registered in the name of Her Majesty the Queen in the Land Titles Office.
<b>Road Geometrics</b>		Engineering concerned with the positioning of physical roadway elements according to standards and constraints.
<b>Subsurface Utility Engineering</b>	SUE	A specialty practice of civil engineering (as defined in ASCE 38-02 Standard Guidelines) that investigates and depicts existing underground utilities through the collection and analysis of records, visual, geophysical, and/or exposure methods and assigns achieved utility quality levels to Utility Segments based upon the integration of all the analyzed data with professional judgment at a defined point in time. The practice of Subsurface Utility Engineering leads to a Certified Utility Investigation Deliverable.
<b>Transportation Association of Canada</b>	TAC	The Transportation Association of Canada is a non-profit, national technical association that focuses on road and highway infrastructure and urban transportation.
<b>Terms of Reference</b>	ToR	The Terms of Reference is a document outlining the description of the assignment, the scope of the work, schedules and expected deliverables.
<b>Technical Standards</b>	TS	The AT Technical Standards Branch is responsible for technical services, setting standards and reviewing construction projects.
<b>Traffic Accommodation in Work Zones Manual</b>		This document provides information and minimum standards for the provision of traffic accommodation

		through work zones on highways and bridges in Alberta.
<b>Utility Adjustment</b>		Utility adjustment includes relocation of a utility from one location to another and /or an adjustment at the same location (e.g. lowering) including protection.
<b>Utility Adjustment Matrix</b>	UAM	The Utility Adjustment Matrix is prepared to track and manage all of the required utility adjustments as identified in the Utility Conflict Matrix.
<b>Utility Conflict Matrix</b>	UCM	The Utility Conflict Matrix identifies a list of all existing utility infrastructure, within the project limits, that may be in conflict with the proposed scope of work.
<b>Utility Coordination Plan</b>	UCP	A plan prepared by AT's Consultant with input from the affected Utility Owners and agencies that takes into consideration the required adjustments, the proposed timing of the adjustments, and the necessary construction practices, regulations, and standards.
<b>Utility (Utility Facility)</b>		A line, facility or system for producing, transmitting, or distributing, communications, cable television, power, electricity, light, heat, gas, oil, crude products, water, steam, waste, storm-water not connected with highway drainage, or any other similar commodity.
<b>Utility Owner</b>	UO	The term Utility Owner is the utility company or agency inclusive of any wholly owned or controlled subsidiary.  Note: The CER regulated Group 1 high pressure natural gas pipelines, has a lengthier, more impactful process than many other utilities.
<b>Utility Segments</b>		A linear utility feature represented by a series of connected points; portions of the linear utility feature shown on composite utility plans that represent regular lengths of that linear feature (every 5 metres or every 50 metres), as determined by the AT PM and the Consultant, or portions of the linear utility feature being depicted with different SUE Quality Level (e.g. a QL-D line depicted differently than a QL-B line).

# Appendix B: SUE Quality Levels

Excerpt from ASCE 38-02 Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data.

## 5.0 UTILITY QUALITY LEVEL ATTRIBUTES

### 5.1 Quality Level D

Typical tasks by the engineer leading to Utility Quality Level D are:

5.1.1 Conduct utility records research to assist in identifying Utility Owners that may have facilities on or be affected by the project. Sources of information may include, but are not limited to (project and scope dependent):

- One-call notification center
- Records from the Department
- Records from Municipality or County office
- Landowner
- Internet or computer database search
- Visual site inspection
- Utility Owners

5.1.2 Collect applicable Utility Owner records. Applicable records may include:

- Previous construction plans in area
- Conduit maps
- Direct-buried cable records
- Distribution maps
- Transmission maps
- Service records
- Record Drawings
- Field notes
- County, City, Utility Owner or other geographic information system databases; Circuit diagrams
- Oral histories

### 5.1.3 Review records for:

- Indications of additional available records
- Duplicate information and credibility of such duplicate information; Need for clarifications by the Utility Owners

5.1.4 Develop utility composite drawing or equivalent. The engineer should also make professional judgments regarding the validity and location of topographic features on records versus current topographic features (when available) and conflicting references of utilities. The engineer should indicate quality levels; utility type and/or ownership; date of depiction; accuracy of depicted appurtenances (Quality Level C vs. Quality Level D); end points of any utility data; active, abandoned, or out of-service status; size; condition; number of jointly buried cables; and encasement.

## **5.2 Quality Level C**

Typical tasks by the engineer leading to Utility Quality Level C are:

5.2.1 Perform tasks as described for Quality Level D. Quality Level C and D tasks do not necessarily need to be performed in any prescriptive order.

5.2.2 Identify surface features on the topographic plan and ground surface that are surface appurtenances of existing subsurface utilities.

5.2.3 Survey such features if the features have not already been surveyed by a registered professional. If previously surveyed, check survey accuracy and completeness for applicability with the existing project.

5.2.4 Correlate any applicable utility records to these surveyed features, taking into account the geometries and indications on the records of these surface features.

5.2.5 Determine when utility records and surveyed features do not agree and resolve discrepancies. This may be accomplished by depiction of a utility line at Quality Level D, effectively bypassing or disregarding (but still depicting) a surveyed structure of unknown origin. Additional resolution may result from consultation with Utility Owners.

### 5.3 Quality Level B

Typical tasks by the engineer leading to Utility Quality Level B are:

5.3.1 Perform tasks as described for Quality Level C. Quality Level C and B tasks do not necessarily need to be performed in any prescriptive order. It may be more cost effective to perform some Quality Level B tasks before and/or in conjunction with Quality Level C or D tasks.

5.3.2 Select an appropriate suite of surface geophysical methods (see the Appendix in the ASCE 38-02 Standard Guidelines for discussions of methods, relative merits, and relative costs) to search for utilities within the project limits or to perform a utility trace for a particular utility system.

5.3.3 Apply appropriate surface geophysics to search for utilities within the project limits, or trace a particular utility system if the scope of investigation is limited.

5.3.4 Interpret the surface geophysics. Depending on the methods, this may be performed in the field or in the office.

5.3.5 Mark the indications of utilities on the ground surface for subsequent survey. Local Utility Owners, agencies, and/or one-call statutes may dictate, or suggest, the markings' colors, sizes, and/or other labeling. Care should be taken to differentiate markings placed on the ground for design purposes from those placed on the ground for damage prevention purposes. (Note: If a particular surface geophysical method allows for field data collection or storage for future computer downloading and evaluation, and if a utility search technique that allows for comprehensive area coverage is used, and if a survey grid or line is laid out that allows for future correlations of surface geophysical data to points depicted on a map, then ground markings may be unnecessary.)

5.3.6 Survey all markings that indicate the presence of a subsurface utility. This survey should be to the accuracy and precision dictated by the project's survey control.

5.3.7 Depict all designated utilities. These utility depictions may follow the general guideline as presented in Section 6.0 of the ASCE 38-02 Standard Guidelines. Depiction is usually accomplished via computer-aided design and drafting or manual plotting methods onto plan sheets, into geographic information system databases, or onto other appropriate documents. Quality Level B data should be reproducible by surface geophysics at any point of their depiction.

5.3.8 Correlate the designated utilities' depictions with utility records and/or surveyed appurtenances to identify utilities that may exist but were not able to be designated.

5.3.9 Resolve differences between designated utilities, utility of records and surveyed appurtenances. This may take the form of additional surface geophysical searches or depiction of designated or non-designated utilities at a lower Quality Level. It may take the form of an upgrade at appropriate points to Quality Level A information. Situations require judgement that a designated utility and a utility of record are actually identical, even if not interpreted as geographically coincident.

5.3.10 Recommend to the Utility Owner additional measures to resolve differences if they still exist. Such recommendations may include additional or different surface geophysical methods, exploratory excavation, or an upgrade to Quality Level A data.

## **5.4 Quality Level A**

Typical tasks by the engineer leading to Utility Quality Level A are:

5.4.1 Perform tasks as described for Quality Level B at the appropriate project location. Quality Level B, C, and D tasks do not necessarily need to be performed in any prescriptive order.

5.4.2 Select an appropriate method of gathering data that will achieve the accuracy and precision required by the project. These accuracies are typically set to 15mm vertical and to applicable horizontal survey and mapping accuracy as defined by the Utility Owner. Exposure and survey of the utility at each specific location where Quality Level A data are obtained are necessary.

5.4.3 Excavate test holes exposing the utility to be measured in such a manner that protects the integrity of the utility to be measured. Exposure is typically performed via minimally intrusive excavation. In some cases, data gathering during utility construction may eliminate the need for excavation of the utility, as it is already exposed.

5.4.4 Comply with applicable utility damage prevention laws, permits, and specifications, and coordinate with utility and other inspectors, as required.

5.4.5 Determine (a) the horizontal and vertical location of the top and/or bottom of the utility referenced to the project survey datum; (b) the elevation of the existing grade over the utility at a test hole referenced to the project survey datum; (c) the outside diameter of the utility and configuration of non-encased, multi-conduit systems; (d) the utility structure material composition, when reasonably ascertainable; (e) the benchmarks and/or project survey datum used to determine elevations; (f) the paving thickness and



type, where applicable; (g) the general soil type and site conditions; and (h) such other pertinent information as is reasonably ascertainable from each test hole site.

5.4.6 Resolve differences between depicted Quality Level A data and other Quality Levels. This may take the form of additional surface geophysical searches or a depiction of adjacent or nearby data points at a lower Quality Level. It may require that utilities already depicted at Quality Level B, C, or D should be re-depicted to coincide with the more accurate Quality Level A data. It may take the form of additional upgrades at appropriate points to Quality Level A information.

# Appendix C: Preliminary Design Criteria

The following is the level of design required to be completed to meet Preliminary Design criteria for the purposes of this Manual:

**Note: This is not a comprehensive list**

- Utility Base Plan survey completed including property lines, easements, etc.
- SUE Selection Criteria Form in accordance with ASCE 38-02 Standard Guidelines
- A Composite Utility Plan in accordance with ASCE 38-02 Standard Guidelines including the appropriate Quality Levels for each facility
- Required Right-of-Way widths and constraints identified
- Plan and profile views of existing storm sewers, water mains, and new construction
- Road geometrics / bridge plans
- Excessive horizontal alignment and vertical grade changes identified
- Road/bridge cross-sections
- Retaining walls identified
- Utility Conflict Matrix
- SUE QL-A (test pit) locations identified
- Existing culvert(s) condition survey
- Railway crossings identified
- Environmental constraints identified
- Land requirements identified
- Utility cost estimate
- Utility Agreements identified
- Initial constructability review
- Tree inventory in all areas and tree preservation plan in urban areas

# Appendix D: 60% Design Criteria

For the purpose of this manual, the following level of design is required to be completed to meet 60% Design criteria:

**Note: This is not a comprehensive list**

- Utility Base plan survey completed including property lines, easements, etc.
- SUE Selection Criteria Form in accordance with ASCE 38-02 Standard Guidelines
- A Composite Utility Plan in accordance with ASCE 38-02 Standard Guidelines including the appropriate Quality Levels for each facility
- Required Right-of-Way widths and constraints finalized
- Plan and profile views of existing and proposed storm sewers, water mains, and new construction
- Road geometrics / bridge plans finalized
- Horizontal alignment and vertical grades of all elements finalized within Right-of-Way
- New developments access locations and servicing finalized
- Road/bridge cross sections finalized
- Retaining walls designed
- Utility Conflict Matrix updated
- Further SUE QL-A (test pit) locations identified
- Proposed auxiliary structures (i.e. culverts, guardrails, cable barriers) designed
- Railway crossings designed
- Environmental constraints confirmed
- Land requirements confirmed
- Temporary and proposed illumination and traffic signals designed
- Utility cost estimate (high level)
- Constructability review completed
- Tree inventory in all areas and tree preservation plan in urban areas completed

# Appendix E: Utility Conflict Evaluation / Analysis – Items to Consider

This is offered as a guideline to consider when completing the utility conflict evaluation.

Roadway design and construction features to consider when evaluating potential utility conflicts may include the following. Other project-specific conditions may be beyond what is listed here.

- Grade changes
  - Grade cuts for roads and ditches conflicting with subsurface utilities, utility poles and appurtenances
  - Grade raises causing possible issues with load and/or access to subsurface utilities and clearance issues with aerial utilities
- Pavement depth including subgrade, subgrade treatment, and underdrains
- Widening- existing longitudinal and transverse subsurface utilities including lengths of encasements under pavement
- Drainage structures
- Clear Zone/Safety Requirements, temporary and permanent
- Adverse soil conditions
- Site environmental considerations
- Right-of-Way needs
- Benching
- Signal, lighting and sign foundations and aerial clearances
- Noise walls- foundations and aerial clearances
- Utilities on or near bridges and structures
- Access Changes- Roadway access management and utility maintenance access including manhole/vault placement
- Guard rail and end treatments, high tension cable barriers
- Channel clearing and placement of riprap
- Landscaping, root depth, tree heights, etc.
- Traffic control: Temporary runaround, temporary pavement, signals, etc.
- Constructability: Consider existing and proposed locations-horizontal and vertical, installation phasing, trench depths/widths. Radial clearances from power lines, shielding, service requirements
- Reduced cover and/or protection during construction

- Pile driving, vibration impacts and mitigation
- Beam setting, aerial clearances, installation and any other permanent markers

# Appendix F: Templates, Forms and Sample Deliverables

- SUE Selection Criteria Form (Form)
- Utility Base Plan (Sample Deliverable)
- Utility Conflict Matrix (Template)
- Composite Utility Plan (Sample Deliverable)
- Utility Adjustment Matrix (Template)
- Utility Coordination Plan (Sample Deliverable)
- Utility Assessment Outline (Template)
- Stakeholder Register and Stakeholder Communication (Templates)

# Appendix G: Utility Coordination Letters

## List of Utility Coordination Letters

Letter #	Name of Letter	Purpose	Sent by	Sent to
1A	Functional Planning Initiation	Assess utility impact evaluating design alternatives and selecting a preferred option including approximate utility cost with input from the affected Utility Owners.	Planning Phase Consultant	Affected Utility Owners
1B	Functional Planning Completion	Notify completion of Functional Planning studies, attach report (include relevant utility plans).	Planning Phase Consultant	Affected Utility Owners
2	Preliminary Design Initiation	Establish utility contact(s), assess utility impact selecting a design option, undertake preliminary design of the option including detailed utility costs with input from the affected Utility Owners. Conduct a meeting with Utility Owners ( <b>Meeting 1</b> ).	Design Phase Consultant	Affected Utility Owners
3	Utility Base Plan Review	Forward the Utility Base Plan for review by the Utility Owners.	Design Phase Consultant	Affected Utility Owners
4A	Utility Coordination Notification – Utility Conflict	Schedule a meeting with Utility Owners ( <b>Meeting 2</b> ) to discuss potential utility conflicts and design options.	Design Phase Consultant	Affected Utility Owners
4B	Utility Coordination Notification – No Utility Conflict	Notify Utility Owners that, based on the information provided, there are no utility conflicts with their utility infrastructure in the project area.	Design Phase Consultant	Affected Utility Owners
5	Preliminary Design Completion	Notify completion of Preliminary Design, attach report (include relevant utility plans).	Design Phase Consultant	Affected Utility Owners
6	Detailed Design Initiation Notification	Notify initiation of the Detailed Design.	Design Phase Consultant	Affected Utility Owners

<b>7</b>	Utility Design Initiation	Forward 60% design plans, schedule a meeting for design review ( <b>Meeting 3</b> ).	Design Phase Consultant	Affected Utility Owners
<b>8</b>	Notice to Prepare for Utility Adjustment	Notify no objection to Utility Design. Utility Owners obtain necessary permits and coordinate others for utility adjustment.	Design Phase Consultant	Affected Utility Owners
<b>9</b>	Notice of Utility Agreements	Utility Owners sign and forward copy for AT signature. Forward executed copy to the Utility Owners.	Design Phase Consultant	Affected Utility Owners
<b>10</b>	Notice of Permit Approval	AT PM requests the DPT to issue permit. DPT issues permit, CC AT PM and Consultant.	AT PM	DPT

**Instructions for Letter 1A through to Letter 10:**

- Replace **red text** with the appropriate information.
- Edit **purple text** as necessary or delete if the information is not available.



# Appendix H: Checklists

1. Utility Coordination Checklist
2. Utility Base Plan

# Appendix I: Meeting Agendas

This content will be copied and pasted into a meeting agenda template.

I.1- Project Initialization Meeting

I.2 - Preliminary Design Initiation Meeting (Meeting 1 with Utility Owner, Letter 2)

I.3 - Preliminary Design Utility Coordination Meeting (Meeting 2 with Utility Owner, Letter 4A)

I.4 - Utility Design Initiation Meeting (Meeting 3 with Utility Owner, Letter 7)

I.5 - Pre-Construction Meeting (Meeting 4)

## I.1- Project Initialization Meeting

### Meeting objective

A meeting between AT and the Consultant to layout a framework for the project including potential utility issues.

### Agenda items

In addition to the Engineering Consulting Guidelines for Highway, Bridge and Water Projects (ECGHBWP) – Volume 1, Appendix B – Typical Agenda for Consultant Initialization Meeting, consider these agenda items if suitable for the project.

- Scope of Utility Work.
- The following documents/ Information if available
  - Functional Planning Study
  - Existing Permits/Agreements
  - AT Utility Map (maps of all the utilities within the project area and the contact information of associated utility owners)
  - Utility Early Engagement Strategy information if available.
  - Utility Contacts
  - Lessons Learned (relevant to Utility)
- Applicable Standards, Guidelines, Manuals and Specifications.
- Permit application and installation procedures found here  
<https://www.alberta.ca/permits-for-utility-line-installation-by-a-provincial-highway.aspx>
- Any other relevant information.

## I.2 - Preliminary Design Initiation Meeting (Meeting 1 with Utility Owner, Letter 2)

### Meeting objective

This meeting is to kick off the design initiation by the Consultant. The purpose of this meeting is to clarify the project scope, deliverables, milestones and potential utility impact and mitigation as a result of project improvements.

### Agenda items

Edit these agenda items to suit the project. Please note this is not a complete list.

- AT project scope and schedule.
- Utility scope and known utility information.
- Potential conflicts and design alternatives that may avoid or minimize conflicts.
- The SUE investigation and hydrovac requirements.
- Locate requests and expected timelines for locates to be done.
- Constraints that may impact the schedule including required timelines
  
- Utility agreements, funding for Pre-Engineering work, Cost Estimates, etc.
- Permits and regulatory approvals
- Environmental approvals
- ROW and easement requirements
- Utility Design – Discuss with the Utility Owner when they can begin their utility design. Some indication of when the design will commence, when the Preliminary Design Criteria is met and some indication of when the 60% Design Criteria is met.
- Utility Adjustment schedule
- Lead time
- Response to and from
- Others
  
- Utility installation tolerances, Standards and Guidelines to be followed, etc.
  
- Note among other AT standards, the utility design must meet the Permit application and installation procedures to protect any future highway plans. The standards can be found in the AT website, see the Link below.  
<https://www.alberta.ca/permits-for-utility-line-installation-by-a-provincial-highway.aspx>
  
- Potential for utility adjustment partnering e.g. joint trenches, using a common contractor, etc.

- Utility coordination/communication plan.
- Anticipated schedule for upcoming utility coordination meetings.
- Other items necessary.

## I.3 - Preliminary Design Utility Coordination Meeting (Meeting 2 with Utility Owner, Letter 4A)

### Meeting objective

The purpose of this meeting to review the project preliminary design report and utility impact and to consider options, avoidance and mitigation measures. The meeting also discusses the requirements and information needed by the Utility Owners to complete utility design and adjustment.

### Agenda items

Edit these agenda items to suit the project. Please note this is not a complete list.

- Project scope and potential utility conflicts.
- Conceptual utility adjustment alignments / scope, design alternatives, avoidance and mitigations.
- Planned abandonment.
- The SUE investigation (daylight/test hole) requirements.
- Locates and timing.
- Determine and agree upon any additional investigation required e.g. test holes,
- Proceed with any utility design that may be possible at this time.
- Status of the following.
  - Utility agreements, funding for Pre-Engineering work, Cost Estimates, etc.
  - Permits and regulatory approvals
  - Environmental approvals
  - ROW and easement requirements
  - Utility adjustment schedule
  - Others
- Utility installation tolerances, Standards and Guidelines to be followed, etc.
  - Note among other AT standards, the utility design must meet the Permit application and installation procedures to protect any future highway plans. The standards can be found in the AT website, see the Link below.  
<https://www.alberta.ca/permits-for-utility-line-installation-by-a-provincial-highway.aspx>
- Potential for utility adjustment partnering e.g. joint trenches, using a common contractor, etc.

- Anticipated schedule for upcoming utility coordination meetings.
- Other items necessary.

## I.4 - Utility Design Initiation Meeting (Meeting 3 with Utility Owner, Letter 7)

### Meeting objective

The purpose of this meeting to review the 60% design report and the requirements for the Utility Owners to complete the utility design and utility adjustment.

Note: Depending upon the utility type and the requirements by the Utility Owners, the utility design may commence during the preliminary design. This was discussed at Meeting 1 with the Utility Owner.

### Agenda items

Edit these agenda items to suit the project. Please note this is not a complete list.

- 60% Design Drawings including the Composite Utility Plans illustrating the latest detailed design, existing utilities, and completed test hole locations.
- Cross-sections illustrating existing and proposed utilities at crossing locations.
- Agreed upon installation tolerances.
  
- Note among other AT standards, the utility design must meet the Permit application and installation procedures to protect any future highway plans.
  
- The updated Utility Conflict Matrix.
- AT estimated tender and construction date.
- Any outstanding items that may affect utility adjustment.

Upon completion of the utility adjustment design, the Utility Owner provides the following information to the Consultant:

- Detailed utility design drawings complete with plan, profile and cross-section information as required.
- Potential utility adjustment schedule. The following details may need to be discussed.
  - The order of adjustments (i.e. which utility goes first?)
  - When the first utility adjustment work can begin (i.e. are there any incomplete construction dependencies)
  - How long is it anticipated to complete each adjustment
  - If more than one adjustment can occur at the same time within the project limits
  - If adjustment timelines need to be phased within the project limits



- What adjustments are not constructible prior to commencement of the project's construction (i.e. grading needs to be completed to allow the adjustment)
- If there are any temporary measures or structures required by the Utility Owners and/or Alberta Transportation
- Any other information required by the Consultant.

## I.5 - Pre-Construction Meeting (Meeting 4)

### Meeting objective

The purpose of this meeting is to discuss utility adjustment and coordination during AT's project construction. The Consultant invites affected Utility Owners to the project Pre-Construction meeting. The meeting is chaired by the Consultant.

### Agenda items

In addition to the meeting agenda in the Engineering Consulting Guidelines, Volume 2, section, Appendix A.09-Typical Pre-Construction Meeting Agenda, edit these agenda items to suit the project. Please note this is not a complete list.

- Project tender drawings (relevant to utility)
- Utility design drawings complete with plan, profile and cross-section information as required;
- The updated Utility Adjustment Matrix;
- The updated Utility Coordination Plan; and
- Utility adjustment completion schedule. The following details may need to be discussed.
  - The order of adjustments (i.e. which utility goes first?)
  - When the first utility adjustment work can begin (i.e. are there any incomplete construction dependencies?)
  - How long is it anticipated to complete each adjustment
  - If more than one adjustment can occur at the same time within the project limits
  - If adjustment timelines need to be phased within the project limits
  - What adjustments are not constructible prior to commencement of the project's construction (i.e. grading needs to be completed to allow the adjustment)
  - If there are any temporary measures or structures required by the Utility Owners and/or Alberta Transportation
- Communication plan and issue resolution.
- Any other items that may affect the utility adjustment schedule.

# Appendix J: Authorities

All work must be done in accordance with federal, provincial and local laws and regulations, therefore it is vital that all parties are familiar with and understand the laws and regulations that govern the project. Depending on funding mechanisms for certain projects, different levels of government or other authorities may be involved.

Some frequently applicable laws and regulations are listed below. These are provided as examples, but this is not an exhaustive list.

## **Federal Laws And Regulations**

Federal laws and regulations are applicable across the country and are typically in the upper hierarchy of applicable laws and regulations. An example of federal bodies involved in utility approvals would be the Canadian Radio-television and Telecommunications Commission, the Canadian Energy Regulator, and Innovation, Science and Economic Development Canada, among others.

## **Provincial Laws And Regulations**

Provincial laws and regulations in Alberta are applicable. Examples are the Highways Development and Protection Act and regulations, the Pipeline Act and regulation, the Traffic Safety Act, the Surface Rights Act – and many more.

## **Industry Standards**

Utility Owners, through legal requirements and standard design practices, are required to meet specific technical standards in the design and construction of their infrastructure as it applies to their respective industry or sector. Examples of these standards and codes include CSA's Z662 Oil and Gas Pipelines series of standards, the Canadian Electrical Code, and other pertinent codes and standards. It is important to note that these industry standards and codes must be followed and cannot be deviated from.

Based upon risk and maintenance assessments, many Utility Owners have developed their own internal standards, which may demand higher standards than those specified within legislated codes and technical standards. As internal corporate standards are a reflection of the operational requirements and risk tolerance of a Utility Owner, they must be considered in the design of any utility

conflict mitigation. It should not be expected that a Utility Owner will reduce their design standards and practices solely to reduce the cost of a particular conflict mitigation measure.

Likewise, the Province has design standards that their Consultants and Contractors must meet.

Standards for locate markings, signage, and other ancillary items must be met as well.

It is important to understand the order of precedence as well as the applicability of these laws, regulations, codes, and standards. Refer to the Engineering Consulting Guidelines for Highway, Bridge and Water Projects (ECGHBWP) – Volume 1, Section 1.1- Introduction, for the hierarchy of documents.

### **Other Authorities**

Other authorities may be involved with the utility coordination aspects of the projects such as Alberta Environment and Parks (the “AEP”), provincial and local environmental authorities, utility regulatory authorities (i.e. the Alberta Utility Commission (the “AUC”)), and non-utility Right-of-Way agencies (i.e. railway companies).

These authorities typically regulate certain aspects or certain parties. They provide valuable input to ensure the projects are being completed in accordance with relevant laws, rules and regulations.

Other authorities in the province include, but are not limited to, the following:

- Alberta Energy Regulator (the “AER”)
- Various First Nations and Métis communities
- Numerous municipalities (cities, towns, villages, hamlets, municipal districts, improvement districts)
- Alberta Infrastructure (in the Edmonton and Calgary Transportation Utility Corridor)

# Appendix K: Utility Data Sharing Confidentiality Agreement Template and GIS Data Requirements

This appendix provides documents related to Data sharing.

- Data Sharing Confidentiality Agreement (template)
- Schedule “A”: GIS Data Requirements

# Appendix L: Project Life Cycle and Process Maps

This appendix provides a list of Utility Coordination Process Maps.

- Utility Coordination Process (level 1)
- Planning Phase (level 3)
  - Functional Planning Studies & Investment Planning
  - Scope Development & Consultant Procurement
- Design Phase (level 2)
- Design Phase (level 3)
  - Preliminary Design (part 1 & 2)
  - Detailed Design (part 1, 2 & 3)
- Tender Phase (level 3)
  - Utility Adjustment Prior to Tender & Tender Final
- Construction Phase (level 3)
  - Utility Adjustment During Construction & Utility Adjustment Completion

# Appendix M: Supporting Reference Documents

1. Minnesota Department of Transportation Utilities Manual 2009
2. American Society of Civil Engineers ASCE 38-02 Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data
3. Canadian Standards Association CSA S250-11 Mapping of underground utility infrastructure
4. TAC - Guideline for the Accommodation of Utilities within Freeway Rights-of-Way (2011)
5. TAC - Guideline for Underground Utility Installations Crossing Highway Rights-of-Way (2013)
6. TAC – Guidelines for the Coordination of Utility Relocations (2016)