APPENDIX O
FRAMEWORK OPERATIONS AND MAINTENANCE PLAN

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ACRONYMS

Applicant	TransWest Express LLC, also TransWest
ATV	all-terrain vehicle
BA	Biological Assessment
BE	Biological Evaluation
BLM	Bureau of Land Management
BO	Biological Opinion
EMM	Environmental Mitigation Measure
ERO	electric reliability organization
FEIS	Final Environmental Impact Statement
FERC	Federal Energy Regulatory Commission
NERC	North American Electric Reliability Corporation
NTP	Notice to Proceed
O&M Plan	Operations and Maintenance Plan, also Plan
O&M	Operations and Maintenance
Plan	Operations and Maintenance Plan, also O&M Plan
POD	Plan of Development
Project	TransWest Express Transmission Project, also TWE Project
ROD	Record of Decision
ROW	right-of-way
TransWest	TransWest Express LLC, also Applicant
TWE Project	TransWest Express Transmission Project, also Project
USFS	United States Forest Service
WECC	Western Electricity Coordination Council

O1.0 INTRODUCTION

This framework Operations and Maintenance Plan (O&M Plan or Plan) is proposed by TransWest Express LLC (TransWest or Applicant) for conducting routine, corrective, and emergency operation and maintenance (O&M) activities for the TransWest Express Transmission Project (TWE Project or Project). O&M activities are required to comply with North American Electric Reliability Corporation's (NERC) and Western Electric Coordinating Council (WECC) reliability and service requirements.

NERC is a not-for-profit international regulatory authority whose mission is to ensure the reliability of the bulk power system in North America. NERC develops and enforces Reliability Standards; annually assesses seasonal and long-term reliability; monitors the bulk power system through system awareness; and educates, trains, and certifies industry personnel. NERC's area of responsibility spans the continental United States, Canada, and the northern portion of Baja California, Mexico. NERC is the electric reliability organization (ERO) for North America, subject to oversight by the Federal Energy Regulatory Commission (FERC) and governmental authorities in Canada. NERC's jurisdiction includes users, owners, and operators of the bulk power system, which serves more than 334 million people.

The ERO's key programs, which impact more than 1,900 bulk power system owners and operators, are based on four pillars of continued success:

- Reliability – to address events and identifiable risks, thereby improving the reliability of the bulk power system.
- Assurance – to provide assurance to the public, industry, and government for the reliable performance of the bulk power system.
- Learning – to promote learning and continuous improvement of operations and adapt to lessons learned for improved bulk power system reliability.
- Risk-based Approach – to focus attention, resources, and actions on issues most important to bulk power system reliability.

In 2007, FERC approved agreements by which NERC delegates its authority to monitor and enforce compliance to eight Regional Entities. The members of the Regional Entities come from all segments of the electric industry: investor-owned utilities; federal power agencies; rural electric cooperatives; state, municipal and provincial utilities; independent power producers; power marketers; and end-use customers. WECC is the Regional Entity for the TWE Project operating area.

NERC and WECC develop and maintain reliability standards and ensure compliance and enforcement of these standards amongst all Bulk-Power System owners, operators, and users with NERC-approved Reliability Standards. The TWE Project will be part of the Bulk-Power System and TransWest as the owner and operator will need to comply with these standards. NERC and WECC have compliance and enforcement programs that include registration procedures, compliance audits, and a process to review and issue sanctions and ensure mitigation of any violations of the mandatory reliability standards.

O2.0 PLAN PURPOSE

This Plan is intended to ensure the following:

- Compliance with NERC and WECC reliability and service requirements;
- Compliance of O&M activities with applicable state and federal laws and policies;
- Consistency across and within federal jurisdictions;
- Access to the transmission line and ancillary facilities to implement the necessary O&M activities in a timely, cost effective and safe manner; and
- Impacts to the environment are avoided where practicable or are minimized.

This Plan provides an overview of methods to be implemented if the need for O&M activities is required under emergency conditions. This document discusses the existing support structure, chain of command, and emergency communication protocols to be used.

O3.0 PLAN UPDATES

This Plan will be updated for the Record of Decision (ROD) Plan of Development (POD) based on preliminary engineering and design for the selected Agency Preferred Alternative. Applicable wildlife timing and use restrictions affecting O&M activities will be completed for the transmission line segments and other facilities. This Plan will be updated for the Notice to Proceed (NTP) POD as necessary based on detailed final engineering and as agreed to by TransWest and the agencies.

O4.0 OPERATION AND MAINTENANCE

TransWest will perform a number of activities to keep transmission lines operational and in good repair. Most of these activities, such as routing patrols, inspections or scheduled maintenance are planned in advance. However, there will be an occasional need for emergency response in cases where public safety and property are threatened, to prevent imminent damage to the transmission line and ancillary facilities, or to restore service in the event of an outage.

Routine, corrective and emergency response activities will be conducted in accordance with this O&M Plan. TransWest will notify BLM Field Offices of routine and corrective maintenance activities; however, prior approval will not be necessary Exceptions where prior notification and approval are required are described in Section O5.0. Maintenance activities outside of the right-of-way (ROW), outside of established service and access roads or other Project related ancillary facilities, or that are not identified in this Plan will not be conducted until approved by the agencies. An exception to this would be when emergency action/maintenance is needed which requires some outside ROW work to be completed to ensure reliable power to customers.

Typical schedules and equipment used for the O&M activities are provided below. However, additional vehicles and equipment may be necessary depending on the terrain, site access and necessary maintenance work. Work may also be conducted outside of the typical schedule; schedule changes may occur as a result of weather, manpower, equipment availability, budgets and other factors.

Maintenance activities planned in advance will be conducted in accordance with the seasonal and spatial wildlife restrictions described in the Avian Protection Plan (Appendix B) and the Wildlife and Plant Conservation Measures Plan (Appendix X). Seasonal spatial restrictions may include sensitive big game ranges, known raptor and eagle nest buffers, and greater sage-grouse lek buffers. Operations

required during emergency repair situations will not be subject to identified seasonal avoidance areas and buffers.

O4.1 Routine (Preventative) Maintenance

Routine maintenance activities are ordinary maintenance tasks conducted on a regular basis to identify and repair any deficiencies. The work performed is typically repair or replacement of individual components (no new ground disturbance) performed by relatively small crews using a minimum of equipment. These activities do not damage vegetation or soil outside of the ROW, do not adversely impact sensitive resources, including special status species, waters of the U.S. and cultural resources, and do not require land manager approval. Personnel are generally present in any one area for less than one day.

The following are examples of routine maintenance activities:

- Semi-annual aerial patrols from a helicopter to inspect for structural and conductor defects, conductor clearance problems and hazardous trees.

- Routine ground patrols to inspect structural and conductor components. Such inspections generally require either an all-terrain vehicle (ATV) or pickup and possibly additional support vehicles traveling on access roads and may rely on either direct line-of-sight or binoculars. In some cases, the inspector may walk the ROW. Patrols are typically conducted in the spring and fall. Follow-up maintenance is scheduled depending on the severity of the problem, either as soon as possible or as part of routine scheduled maintenance.

- Climbing surveys may be necessary to inspect hardware or make repairs. Personnel generally access these structures by pickup, ATV or on foot.

- Structure or conductor maintenance typically occurs from a bucket truck (low reach), bucket truck (high reach), or man lifts. The maintenance vehicle may be located on or off a road, and no grading is typically necessary to create a safe work area.

- Cathodic protection surveys to check the integrity and functionality of the anodes and ground beds. These surveys typically require personnel to use an ATV or pickup and make brief stops.

- Routine cyclical vegetation clearing to trim or remove tall shrubs and trees to ensure adequate ground-to-conductor clearances. Vegetation clearing cycles vary from 3 to 10 years or as needed (depending upon the vegetation present). Personnel generally access the area by pickup, ATV or on foot; use chainsaws to clear the vegetation; and typically spend less than half a day in any one area. In some cases vegetation may be cleared using mechanical means.

- Removal of individual trees or snags (hazard trees) that pose a risk of falling onto conductors or structures and causing outages or fires. Personnel generally access hazard trees by truck, ATV or by foot from an access road and cut them with a chainsaw or similar tool. Any felled trees or snags are left in place as sources of large woody debris or as previously directed by the land management agency. Felled green trees are limbed to reduce fire hazard.

- Wood poles are periodically treated to retard rotting and structural degradation. Wood poles may be used for the ground electrode 34.5 kV lines on this Project. Personnel typically access structures by pickup, ATV or on foot; inspect and test (including the subsurface) the poles;

and then treat them by injecting preservatives into the poles if required. Wood pole inspections and treatments generally occur on a 10-year cycle.

- Routine road maintenance, such as blading (as needed) to improve road surface conditions and drainage, or removing minor physical barriers, such as rocks and debris. All initial road maintenance is performed by field crews which typically use ATVs, pickups, chainsaws and hand tools. Trees and brush are cut off at grade to minimize damage to vehicles. Slash, deadfall and boulders are placed at the edge of the road or down slope of the road bed, depending on site topography, to serve as a filtering windrow to minimize erosion and sedimentation. Smaller vegetation (e.g., grasses) is left in the road bed unless it is too tall, hinders access or could be construed as a fire hazard to O&M vehicles.

- Vegetation removal may be required on access roads to allow the necessary clearance for access and provide for worker safety. Field crews access the service roads by pickup or ATV and use chainsaws and hand tools to clear the vegetation. Where practicable and feasible, mechanical methods may be used.

- The relocation or removal of bird problem nests posing imminent fire or outage risk. The Avian Protection Plan in Appendix B provides information and agency coordination requirements regarding problem nests.

- Noxious weed control and vegetation management activities that include the use of herbicides. Herbicide use is based on agreements with the landowner or federal land management agency for the parcel in question and the chemicals used are agreed to in advance. The Noxious Weed Management Plan in Appendix N provides additional information concerning noxious weed management.

O4.2 Corrective Maintenance

Corrective maintenance activities are relatively large-scale efforts that occur infrequently, may result in more extensive vegetation clearing or earth movement and may include rehabilitation seeding and associated activities (e.g., measures to control noxious weeds). Personnel are generally present in any one location or area for a prolonged time, generally more than one day. The following are examples of corrective maintenance:

- Non-cyclical vegetation clearing to remove saplings or larger trees in the ROW.

- Structure or conductor maintenance in which earth must be removed.

- Road maintenance involving erosion control, water drainage installation or repair (such as culverts or rock crossings), road rehabilitation after major disturbances such as slumping or a storm event), or other road maintenance requiring heavy equipment (not including routing grading).

- Follow-up restoration activities, such as seeding, noxious weed control and erosion control.

- Conductor repair or replacement, which requires the use of several types of trucks and equipment and grading to create a safe work area to hang and pull the conductor into place.

O5.0 EMERGENCY SITUATIONS

Emergency situations are those conditions that may result in imminent or direct threats to public safety or threaten or impair TransWest's ability to provide reliable transmission service to its customers. Emergency situations may include:

- Failure of conductor splices.
- Damage to structures or conductors from wildfire, high winds, ice or other weather-related conditions.
- Line or system outages or fire hazards caused by trees falling onto conductors.
- Breaking or imminent failure of cross-arms or insulators, which could, or causes conductor failure.
- Damage to structures or conductors from vandalism.
- Serious personal injury.

In case of an emergency where life or substantial property is at risk or there is a potential or actual interruption in service, TransWest will promptly respond to the emergency and conduct any and all activities, including emergency repair requiring heavy equipment access to the structures or other ancillary facilities, needed to remedy the emergency and will implement feasible and practicable environmental mitigation measures (EMMs). The Emergency Preparedness and Response Plan in Appendix F outline the protocols and procedures for emergency situations.

O6.0 ACCESS ROAD MANAGEMENT

Transmission line access roads that are necessary for the operation and maintenance of transmission lines, structures or ancillary facilities, will be maintained by TransWest in a safe, useable condition, as directed by an authorized officer from the appropriate land management agency or private landowner. These roads are not part of the public backbone access network.

During routine operations, vehicular access will be needed to reach each structure for periodic inspections and maintenance and to areas of forest or tall shrubs to control vegetation in the ROW for safe operation. When practicable, TransWest plans to employ live-line maintenance techniques on the transmission line to minimize the requirement for outages. Live line maintenance and repair techniques require the utilization of high-reach bucket trucks and other trucks and equipment. Roads required as routine access roads for the operational life of the Project will be revegetated following construction but will not be recontoured; they would be maintained free of trees and shrubs for a minimum eight foot width. TransWest will coordinate with the local BLM FOs, USFS offices, counties and private landowners on a case-by-case basis regarding access requirements (including low water crossings) for operation and maintenance of the Project.

For non-routine maintenance requiring access by larger vehicles, the full width of the access road may be used. Roads would be repaired, as necessary, but would not be routinely graded. In order to preserve the ability to enter rapidly, the road structure (cuts and fills) would be left in place. In an emergency (i.e., in the event of a tower or conductor failure) full emergency access, including cranes and other heavy equipment, will be needed. Based on historical reliability of the structure types

proposed, it is anticipated that only a small fraction of the structure sites will require emergency access over the life of the Project.

Other roads making up the backbone access network may be used by TransWest during operations. However, these roads will not be maintained by TransWest except as noted. These include:

- Public roads, including state highways and county roads. These roads are for public use and the appropriate state or county entity maintains them.
- Open roads on federal land. The appropriate federal agency (Bureau of Land Management [BLM] or United States Forest Service [USFS]) maintains these roads, which are open to the public. These roads, including drainage features, cuts and fill slopes, would be repaired by TransWest if damaged during O&M activities but not maintained on a routine basis.
- Closed roads on federal land. These roads are still needed for administrative or emergency functions, but they have been closed to the public because of management policies to protect natural resources or reduce maintenance costs. If utilized during O&M activities, TransWest would assume some maintenance responsibilities proportionate to their use for O&M purposes.

TransWest would typically perform two types of road maintenance activities: 1) vegetation and debris clearing to maintain safe access; and 2) repairs using heavy equipment. Roads are inspected generally every three to six years and repairs are made as necessary. Typically, a small crew uses hand tools to cut small brush and trees (greater than 12 inches tall); remove dead-fall and debris; and repair and replace signs on access and service roads. Crews also prepare an inventory of road damage that will require ground disturbance (e.g., repair of a failed bank), and repair work is scheduled accordingly (typically the following year). Inspections and maintenance are typically conducted from spring through summer, when roads are clear of snow. TransWest would report these activities to the agencies as specified in the right-of-way grants or special use authorizations.

TransWest will implement the O&M environmental mitigation measures when maintaining roads and follow the seasonal restrictions by time and location for sensitive wildlife resources as described in the Wildlife and Plant Conservation Measures Plan (Appendix X). Applicable wildlife resources and seasonal restrictions will be determined based on the selected Agency Preferred Alternative and additional information provided by the Final Environmental Impact Statement (FEIS), Biological Opinion (BO), Biological Assessment (BA), Biological Evaluation (BE), and agency consultation. Location specific seasonal restrictions for the Project will be updated in the ROD POD and NTP POD.

O7.0 ENVIRONMENTAL MITIGATION MEASURES

O&M activities are planned to minimize impacts to the environment. EMMs will be implemented by TransWest during routine and corrective O&M activities and, to the extent possible, during emergency situations.

O7.1 Vegetation Management

A ROW Preparation and Vegetation Management Plan is located in Appendix R and includes O&M activities for vegetation within the ROW.

O7.2 Noxious Weed Control

Maintenance vehicles, ATVs and equipment have the potential to transport weed seeds from one area to another via dirt and debris that inadvertently collects on equipment. TransWest will implement the O&M environmental mitigation measures described in the Noxious Weed Management Plan (Appendix N).

O7.3 Restoration and Revegetation

The Reclamation Plan (Appendix Q) and Noxious Weed Management Plan (Appendix N) ensure appropriate reclamation and revegetation is implemented and to prevent accidental introduction or transport of noxious weeds along the ROW.

O7.4 Fire Protection

Fire regulations on federally managed lands are generally in effect between April 1 and October 31, and at other times with unusual weather conditions. O&M activities will follow the requirements and procedures specified by the appropriate federal or state agency when conducted on federal or state lands as well as those identified in the Fire Protection Plan (Appendix H).

TransWest is responsible for inspecting the transmission lines for fire hazards. When working during fire season, TransWest and/or their contractor(s) will carry the following suppression tools and equipment:

- All power-driven equipment shall be equipped with one fire extinguisher that is rated at a minimum as ABC-10 pound and one “D” handled or long handled round point shovel, size “O” or larger;
- Each motor patrol, truck and passenger-carrying vehicle shall be equipped with a double-bit axe or Pulaski, 3.5 pounds or larger; and
- Each internal combustion engine shall be equipped with a spark arrester that meets the federal land managing agency’s standards.

TransWest and the federal or state land manager will work cooperatively to evaluate request for Industrial Fire Precaution Level Waivers that would allow TransWest and/or their contractor(s) to continue working when certain fire restrictions are in place.

Continuous operation of the transmission lines is necessary for the supply of electric service to customers and to provide stability to the entire interconnected western U.S. transmission system. Therefore, the agencies will use their best efforts to avoid using fire suppression techniques that could take the lines out of service. TransWest will be notified of any and all fire suppression efforts or prescribed burns that could come into close proximity (two miles) with the transmission lines prior to initiating those efforts.

O7.5 Emergency Notification Procedures

If TransWest becomes aware of an emergency situation that is caused by a fire on or threatening federal or state land that could damage the transmission lines or their operation, they will notify the appropriate federal contact. Likewise, if the federal or state land manager becomes aware of an emergency situation that is caused by a fire on or threatening federal or state land and that could damage the transmission lines or their operation, it will notify TransWest.

O7.6 Protection Measures for Sensitive Environmental Resources

TransWest has taken a thorough, systemic approach in providing protection for sensitive environmental resources, including special status plants and wildlife, aquatic resources, and sensitive cultural resources. TransWest will implement the mitigation measures described in the protection plans listed below for protection of sensitive environmental resources during routine and corrective O&M activities.

- Appendix B – Avian Protection Plan
- Appendix D – Cultural Resources Protection and Management Plan
- Appendix N – Noxious Weed Management Plan
- Appendix P – Paleontological Resources Management and Mitigation Plan
- Appendix W – Water Resources Protection Plan
- Appendix X – Wildlife and Plant Conservation Measures Plan

If an emergency occurs and access is immediately needed, the appropriate federal agency will be notified as soon as possible. Depending on the urgency, the agency may not have responded until after the repair work has begun. Timing restrictions may not be adhered to, but the other measures listed above will be followed to the extent possible.

O8.0 O&M PLAN HISTORY

The O&M Plan is a living document and changes are anticipated over the life of the Project. This Plan and its updates will be distributed to the appropriate BLM and USFS field offices. Table O1 will be completed for the ROD POD based on the selected Agency Preferred Alternative.

In addition, the following items will become part of this section of the O&M Plan:

- List of road closures and gate locations.
- Maps containing known locations of sensitive plant and animal species mapped as “sensitive areas” without specifying the resource.
- Known locations of cultural features mapped as “sensitive areas” without specifying the resource.

TABLE O1 O&M CONTACT LIST

DEPARTMENT/ROLE	CONTACT NAME	TELEPHONE	CELL PHONE	EMAIL
		Wyoming BLM		
Rawlins Field Office				
		Colorado BLM		
Little Snake Field Office				
White River Field Office				

DEPARTMENT/ROLE	CONTACT NAME	TELEPHONE	CELL PHONE	EMAIL
		Utah BLM		
Vernal Field Office				
Price Field Office				
Salt Lake Field Office				
Richfield Field Office				
Fillmore Field Office				
Cedar City Field Office				
St. George Field Office				
		Nevada BLM		
Caliente Field Office				
Las Vegas Field Office				
		U.S. Forest Service		
Ashley National Forest				
Uinta National Forest				
Manti-La Sal National Forest				
Dixie National Forest				

O9.0 REFERENCES

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