

SCHEDULE RR – SCHEDULED AND EMERGENCY MAINTENANCE MANAGEMENT

1. Introduction

In connection with any Network Change, whether such change is requested by TELUS or a GPS Entity, made in accordance with Schedule N (if an Emergency Network Change) or otherwise, TELUS and each GPS Entity will follow the procedures for notifying, planning, communicating, tracking and implementing such change set out in this Schedule (the “**Network Maintenance Process**”). For greater certainty, the Network Maintenance Process is supplemental to the Change Process, which may require that a Network Change be implemented through a Change Order. In the event of any conflict or inconsistency between the Network Maintenance Process and the Change Process, the Change Process will prevail and govern.

2. Definitions

In this Schedule:

- (a) “**Change Window**” has the meaning given to it in section 6;
- (b) “**Emergency Network Change**” means an urgent Network Change that must be implemented with less than the applicable standard advance notification time required for a Scheduled Network Change (and not for general maintenance purposes), including a Network Change required to be implemented by TELUS to restore or resolve an Incident in accordance with Schedule N or a Network Change that needs to be implemented upon the occurrence of any TELUS Disaster or GPS Disaster;
- (c) “**GPS Localized Network Change**” means a Network Change with respect to a network, equipment, hardware, software or systems of a GPS Entity or that could impact the Services, but does not affect any other customers of TELUS (beyond the GPS Group).
- (d) “**Impact**” means a measure of the impact of a Network Change based on the criteria and scale set out in Exhibit RR-1;
- (e) “**Low Impact TELUS Core Network Change**” means any TELUS Core Network Change that TELUS determines has a low likelihood of causing a Service Interruption;
- (f) “**Network Change**” means a change (including maintenance and updates) to a network, equipment, hardware, software or systems of a GPS Entity or TELUS, including the Network and TELUS Equipment, that will or could have any impact on the Network or Services (including causing or resulting in an Incident) or on any hardware, software, systems or services implemented by GPS Entity, including any impact described in Exhibit RR-1;
- (g) “**Network Maintenance Process**” has the meaning given to it in section 1;

- (h) **“Risk”** means a measure of the likelihood of the Impact of a Network Change based on the criteria and scale set out in Exhibit RR-1;
- (i) **“Scheduled Network Change”** means a Network Change performed during a Change Window in accordance with this Schedule;
- (j) **“Service Interruption”** any outage or material degradation of a service (including the Services); and
- (k) **“TELUS Core Network Change”** means any Network Change with respect to a network, equipment, hardware, software or systems of TELUS that affects customers of TELUS beyond just one or more GPS Entities.

3. Network Changes Requiring Advance GPS Entity Approval

Notwithstanding any other provision of this Schedule RR, TELUS will only be permitted to implement a Scheduled Network Change that is a GPS Localized Network Change if TELUS obtains the prior approval of the GPS Entities that are entitled to notice of such change under section 4(a).

4. Notification of Scheduled Network Changes Implemented by TELUS

- (a) TELUS will provide written notice to each potentially affected GPS Entity of any Scheduled Network Change, other than a Low Impact TELUS Core Network Change, to be implemented by TELUS or any other Entity in the TELUS Group at least 10 Business Days prior to the implementation date for such change. The notice will include the following information:
 - (i) a description of the Network Change;
 - (ii) the implementation date and time for the Network Change;
 - (iii) the expected Service Interruption time to result from the Network Change;
 - (iv) the circuit number(s)/CLLI code(s), if applicable;
 - (v) the Site(s) affected;
 - (vi) the reasons for the Network Change;
 - (vii) a description and assessment of whether the Network Change will cause a Service to be unavailable in whole or in part; and
 - (viii) if the Network Change requires approval of the GPS Entity under Section 3, a request for approval of the Network Change.
- (b) Any such notice to be provided to a GPS Entity will be submitted by TELUS to a designated recipient of the GPS Entity specified by such GPS Entity in writing to TELUS.
- (c) Upon request of a GPS Entity (whether via email, telephone or otherwise), TELUS will, within four Business Days of such request:

- (i) provide further details with respect to a Network Change,
 - (ii) review any concerns of the GPS Entity regarding the Impact of a Network Change;
 - (iii) provide change completion information with respect to a Network Change; and
 - (iv) involve all necessary technical resources and Personnel (including the TELUS technical prime) in any such discussions.
- (d) A GPS Entity will respond to any request for approval of a Scheduled Network Change that is a GPS Localized Network Change within 5 Business Days of receipt of a notice with respect to such change given by TELUS in accordance with Section 4(a).
- (e) Upon request of the GPS Entity, whether via email, telephone or otherwise, TELUS will provide change completion information with respect to a Network Change that has been or is being implemented by TELUS or any other Entity in the TELUS Group.

5. Notification of Network Changes Implemented by a GPS Entity

- (a) A GPS Entity will provide written notice to TELUS of each Network Change such GPS Entity plans to implement that such GPS Entity determines will or may impact services provided by TELUS. When possible, such notice will be provided at least 10 Business Days prior to the scheduled implementation date for such change. The notice will include the following information:
- (i) a description of the Network Change;
 - (ii) the implementation date and time for the Network Change;
 - (iii) the expected Service Interruption time to result from the Network Change;
 - (iv) the circuit number(s)/CLLI code(s), if applicable;
 - (v) the TELUS service that will or may be impacted;
 - (vi) the Site(s) affected;
 - (vii) the reasons for the Network Change;
 - (viii) a description and assessment of the Impact of the Network Change; and
 - (ix) a description and assessment of the Risk of the Network Change if the GPS Entity determines the Risk is greater than low; and
 - (x) contact information for the individual primarily responsible for overseeing the implementation of the Network Change.

- (b) Any such notice to be provided to TELUS will be submitted by the applicable GPS Entity to a designated recipient of TELUS specified by TELUS via a mutually agreed upon documented notification method (e.g. e-mail or phone call).
- (c) Upon request of TELUS (whether via email, telephone or otherwise), a GPS Entity will provide change completion information with respect to a Network Change that has been or is being implemented by it.

6. Change Windows

- (a) TELUS or any other Entity in the TELUS Group will only be permitted to implement Scheduled Network Changes at the following times (each a “**Change Window**”):
 - (i) with respect to TELUS Core Network Changes only, subject to sections 6(b) and 7, on Sundays between 1:00 a.m. and 5:00 a.m. PT or when necessary, on Tuesdays between the hours of 5:00 a.m. and 7:00 a.m. PT;
 - (ii) subject to sections 6(b) and 7, between 11:00 pm and 7:00 am PT daily; and
 - (iii) at another time specified by TELUS or a GPS Entity and approved in writing by the GPS Entities potentially affected by the Network Change (including pursuant to a Change Order, Service Order or Service Change Order).
- (b) The Change Window for a particular day or week of the Term and for the entire GPS Group or certain GPS Entities may be modified by TELUS in accordance with the following process:
 - (i) If TELUS desires to make any such temporary modification to the Change Window, TELUS will provide advance notice of the requested modification to the one or more GPS Entities that would be potentially affected by the modification if made.
 - (ii) If such GPS Entities approve in writing such proposed modification to the Change Window, then the Change Window will be deemed amended as requested for the limited purposes permitted under this section 6(b).
 - (iii) If any such GPS Entities objects to such proposed change to the Change Window or does not approve the proposed change within 20 days of receipt of such notice, then TELUS and such GPS Entities will enter into good faith discussion to determine a revised Change Window that is mutually agreeable, acting reasonably. If such parties cannot agree on a revised Change Window, such Dispute will be deemed an Expedited Dispute and resolved in accordance with the Agreement.
- (c) If the applicable GPS Entities have designated a Change Window for when a Scheduled Network Change should be implemented pursuant to section 6(a)(iii),

then TELUS will use reasonable commercial efforts to implement such Network Change in such Change Window.

7. Network Change Restriction Periods

Subject to Section 8, if TELUS and a GPS Entity agree in writing that Network Changes affecting such GPS Entity will not be performed during a specific period, then notwithstanding any other provision of this Schedule, TELUS will not perform any Scheduled Network Change potentially affecting such GPS Entity within such period.

8. Emergency Network Changes

- (a) If TELUS or any other Entity in the TELUS Group needs to implement an Emergency Network Change, TELUS will notify each of the potentially affected GPS Entity as soon as possible and in advance of implementing the Emergency Network Change. Where possible, TELUS will provide any such notice before 1:00 pm, to allow the GPS Entity to make necessary internal communications in connection with such Emergency Network Change.
- (b) TELUS will use reasonable commercial efforts to negotiate with each of the potentially affected GPS Entities the expedited scheduling of a Emergency Network Change in advance of implementing the Emergency Network Change. If TELUS and the one or more applicable GPS Entities cannot agree on an expedited scheduled time for making an Emergency Network Change, such Dispute will be deemed an Expedited Dispute and resolved in accordance with the Agreement.
- (c) Notwithstanding Section 8(b), TELUS will not, nor will any other Entity in the TELUS Group, be entitled to commence implementing an Emergency Network Change that is not a TELUS Core Network Change if any of such GPS Entities notifies TELUS in advance to suspend the implementation of such Emergency Network Change, in which case:
 - (i) TELUS will be required to negotiate with each of the potentially affected GPS Entities the expedited scheduling of a Emergency Network Change in advance of implementing the Emergency Network Change and in the event that such Parties cannot agree on an expedited scheduled time for making an Emergency Network Change, such Dispute will be deemed an Expedited Dispute and resolved in accordance with the Agreement; and
 - (ii) TELUS will not, nor will any other Entity in the TELUS Group, implement the Emergency Network Change until such change has been scheduled with the agreement of the potentially affected GPS Entities or the scheduling of such change has been resolved as an Expedited Dispute in accordance with the Agreement.
- (d) Upon request of a GPS Entity, TELUS will immediately make available all necessary technical resources and Personnel who can answer all reasonable questions of the GPS Entity with respect to an Emergency Network Change.

EXHIBIT RR-1 - IMPACT AND RISK ASSESSMENT CRITERIA

The impact and risk of a Network Change will be described and assessed in accordance with the following criteria:

IMPACT

Description: Identifies the impact of a Network Change on the Network or Services or on any hardware, software, systems or services of a GPS Entity.

Assessment/Measurement: The impact of a Network Change will be assessed using the following scale:

- High: a Service Interruption with respect to a service will or may occur
- Medium: a portion of a service will or may be unavailable or GPS End Users will be materially inconvenienced
- Low: service will be available with minor inconvenience to GPS End Users (e.g. a service degradation that does not result in GPS End Users being inconvenienced)

RISK

Description: A measurement of the probability of the Network Change having an Impact. Risk will often reflect the degree to which a Network Change has been successfully tested within the environment.

Assessment/Measurement: The probability of the Network Change having an Impact will be assessed using following scale:

- Low: a Network Change whose probability for causing an Impact is extremely low (e.g. a routine change or one that has been thoroughly tested)
- Medium: a Network Change whose probability for causing an Impact is reasonably good (e.g. a common change with a high prior success rate or a change that has been well tested)
- High: a Network Change whose probability of causing an Impact is high or unknown (e.g. a Network Change in respect of which little or no testing has been completed).