Appendix A. Supplementary Material on RSSD Algorithm

Algorithm 1 RSSD Algorithm

Input
V, D, p, τ, ψ
Output
R: $R_i \in R : \forall t(r_i) \leq \tau \land c(r_i) \leq \psi$

  1: $tcr \leftarrow \textbf{tCompliant}(V, D, \tau)$
  2: bool $noncompliance \leftarrow$ true
  3: **while** $noncompliance$ **do**
  4:     $ctcR, pr \leftarrow \textbf{cCompliant}(tcr, D, \psi)$
  5:     $R \leftarrow R \cup ctcR$
  6:     **if** $t(pr) > \tau$ **then**
  7:        $mtcR \leftarrow \textbf{tCompliant}(pr, D, \tau)$
  8:        $tcR \leftarrow tcr \cup mtcR$
  9:     **elif** $c(pr) > \psi$ **then**
10:        $mtcR \leftarrow \textbf{tCompliant}(pr, D, \tau)$
11:     **else**
12:        $noncompliance \leftarrow false$
13:        $R \leftarrow R \cup pr$
14:     **end if**
15: **end while**

Algorithm 2 tCompliant

Input
V, D, p, τ
Output
tcR: $R_i \in R : \forall t(r_i) \leq \tau$

  1: $r_1, r_2 \leftarrow \textbf{SpatialPartition}(V, D, p)$
  2: $tcR \leftarrow tcR \cup r_1, r_2$
  3: **while** $t(r_i) > \tau \forall r_i \in tcR$ **do**
  4:     $tcR \leftarrow tcR \; r_i$
  5:     $r_a, r_b \leftarrow SpatialPartition(r_i, D, p)$
  6:     $tcR \leftarrow tcR \cup \{r_a, r_b\}$
  7: **end while**

Algorithm 3 SpatialPartition

Input

V, D, p

Output

tcR: $R_i \in R : \forall t(r_i) \leq \tau$

1:   $r_a, r_b \leftarrow \{V \setminus p\}.maxVs(D)$
2:   **while** $|r_a| + |r_b| \neq n - |p|$ **do**
3:      **if** $t(r_a) \leq t(r_b)$ **then**
4:         $r_a \leftarrow r_a \cup v_i$, where $v_i \leftarrow \{r_a^{-1}, r_a^0\}.minV(D, V \setminus \{p, r_a, r_b\})$
5:      **else**
6:         $r_b \leftarrow r_b \cup v_i$, where $v_i \leftarrow \{r_b^{-1}, r_b^0\}.minV(D, V \setminus \{p, r_b, r_a\})$
7:      **end if**
8:      $r_a \leftarrow r_a \cup p_x$ where $p_x \leftarrow \{r_a^{-1}, r_a^0\}.minV(D, p)$
9:      $r_b \leftarrow r_b \cup p_x$ where $p_x \leftarrow \{r_b^{-1}, r_b^0\}.minV(D, p)$
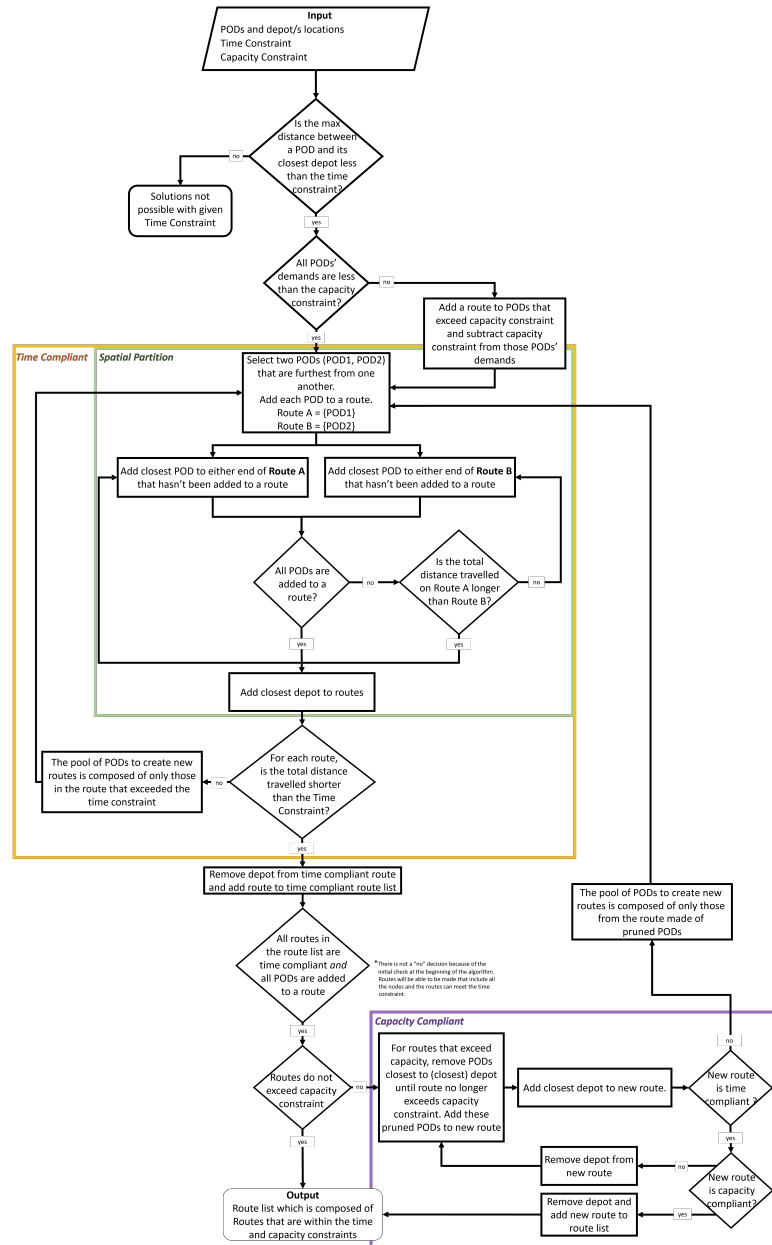10: **end while**
11: return r_a, r_b

Algorithm 4 cCompliant

Input

$tcR, p, D\psi$

Output

$ctcR$: $R_i \in R : \forall t(r_i) \leq \tau \wedge c(r_i) \leq \psi$

pr: New route composed of pruned notes

1:   **while** tcr **do**
2:      **for** r_i **in** tcR **do**
3:         **while** $c(r_i) > \psi \forall r_i \in tcR$ **do**
4:            $pr \leftarrow pr \cup v_i$, where $v_i \leftarrow p.minv(D, r_i)$
5:            $r_i \leftarrow r_i \setminus v_i$
6:         **end while**
7:         $ctcR \leftarrow ctcR \cup r_i$
8:         $tcR \leftarrow tcR \setminus r_i$
9:      **end for**
10: **end while**
11: return $ctcR, pr$

Figure A1 – The same flow chart as Figure 2 about the work flow of RSSD, but instead uses text explanations instead of mathematical notation.