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SYSTEM/PROJECT/PRODUCT : GAPS

Gap Acceptance for Pelicans under SCOOT Implementation

(GAPS)

Guide Lines

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(i) Issue State

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1. Introduction

This document provides guide lines for the implementation of GAPS. It will identify the features, set-up and network considerations necessary to implement GAPS.

GAPS solution provided by STCL addresses the need expressed by the UTC user group to enable pelican crossings to gap to the pedestrian stage while under SCOOT control.

The specification of a pelican controller does not allow for a special bit (GO), therefore GAPS uses only the current pelican settings, control/reply bits and street equipment.

1.1 Definitions

For definitions refer to the Glossary of Terms. Items not listed in the Glossary of Terms shall be defined where they occur in the document.

2. Outline

- The pelican can be switched from GAPS to normal SCOOT operation at any time

- Once per cycle (twice if double cycling), SCOOT will inhibit the Pelican from moving to the pedestrian stage. The position in the cycle of this inhibit will be optimised by SCOOT (offset).

- Immediately after the inhibit stage the Pelican will move to the pedestrian stage if a demand exists, this is the FORCE period and ensures the pedestrian stage operates at least once per cycle (twice if double cycling).

- For the remainder of the cycle the pelican will introduce the pedestrian stage only if a demand exists for the Pedestrian stage and there are no extensions on the traffic phases.

- If the traffic extensions are continuous and the demand is not serviced for (n) seconds (configured in the Pelican) the pedestrian stage will be serviced regardless of the inhibit. This ensures pedestrians are not kept waiting under heavy traffic flows.

3. Pelican Settings

The pelican crossing must have VA detection hardware installed and operational. In the event of removing the PV (vehicle green hold bit) bit it is normal for pelican crossings to enter VA mode after a definable (5 sec default) period. **Please check this setting.**

It has been noted that the set-up of the detection becomes more important under GAPS and care must be taken to check operation/positioning of micro wave detectors.

4. SCOOT set-up

4.1 Plan Line

This is the main alteration from normal operation; in GAPS the plan line is in effect inverted.

Example:

SCOOT PLAN

@{ P * 0 } 1 , { V* 0 , P * n } 2

n = Not GX (user configurable time, where Not GX = maximum time for vehicle green confirm non-apperence)

Stage 1 Is the vehicle stage where gap acceptance is possible

Stage 2 Starts with a pedestrian inhibit this is the pelican NOT GX defined in the UTC system database. The PV bit is then removed and the pelican enters the FORCE period. Once the FORCE period has expired the pelican will respond for the remainder of the cycle as if under VA operation.

It is suggested that users create plan lines for GAPS using previously unused translation plans.

Please note that plan compliance checking is not appropriate with GAPS and the check should be disabled using PPRP as in the example plan line above.

4.2 SCOOT data

The following alteration to the SCOOT data must be made.

SCOOT stage 1 length = Acceptable min green to vehicles

SCOOT stage 2 length = NOT GX + 3 (Min and Max)

Model Feedback must be inhibited (MFBI = YES). This ensures SCOOT optimises the position of the inhibit and is not confused by the pelican gap accepting.

It is recommended that the calculation of the start lag (SLAG) and end lag (ELAG) follow the instructions below.

Measure the time from **leaving** amber (traffic) to the first vehicle to move = L.

SLAG = L - 3 - (Area SLAG)

ELAG = NOT GX - 2

4.3 Offset Implications

The customer must now decide which offsets are the most important to achieve in the mini region surrounding the pelican.

For links approaching the pelican, the desired offset may be obvious and it is recommended that this value is entered as the default offset (DFOF) and an offset biasing (BIAS) of 126 is applied to the link.

If the pelican is situated between two other nodes, it is most likely you will want SCOOT to find the optimum time for the pedestrian stage. However SCOOT will attempt to find the solution to minimise stops and delays for the mini region. This may not be ideal as the traffic will be broken up by the gap acceptance of the pelicans on the approach to surrounding nodes. Therefore it may be best to inhibit the offset optimisation on the links leaving the pelican node.

The above situations are only examples. This aspect of the set-up is site specific and may vary by time of day. Therefore the appropriate amount of time must be spent on this area of the set-up.

4.4 Single / Double Cycle

As the pelican can now gap accept under low flow conditions there is no problem with single cycling pelicans. In the event of traffic build up leading to increased cycle times in the region, double cycling may still be employed.

4.5 Reversion to Normal operation

To revert to normal operation it is necessary to change the parameters below. To ensure that all the parameters are changed it may be advisable to enter the commands into a CAST.

1. CHAN TPLN N***** n — Where translation plan (TPLN) n is a normal pelican SCOOT plan.

2. Change the SLAG.

3. Change the ELAG to 0

4. Consider offset implications.

The SLAG will change to (GAPS SLAG) - Not GX

5. Example Calculations for SLAG, ELAG and SCOOT Stage Lengths

Before Situation

Not GX 21 SLAG -2

GX 12 ELAG 0

SCOOT MIN stage 1 = 10

SCOOT MIN stage 2 = 11

After Situation For GAPS L= 12

Not GX 21

GX 7

SCOOT MIN stage 1 = 7

SCOOT MIN stage 2 = 21 + 3 = 24

SLAG = 12 - 3 - 2 = 7

ELAG = 21 - 2 = 19

Normal Mode Under GAPS

SLAG = 7 - 21 = - 14

ELAG = 0

with SCOOT MIN for stage 1 returning to 10 and stage 2 returning to 11 sec.