Product Type: ASC/3 Controller

Reference: AN2081
Date: July 20, 2007

Selection of Functions by Coordination or TOD

Purpose:

To describe the selection of functions which are common to the ASC/3 coordination patterns and time of day action plans.

Introduction:

There are functions that could be selected either by coordination pattern or by time of day. This application note recommends whether the function should be selected by coordination pattern or TOD action plan. This application note is divided into three sections: functions that can be selected by coordination pattern; functions that should be selected by action plan; and functions that are unique to coordination pattern and action plan are listed.

Application:

Coordination Pattern Functions:

This section lists the functions that can be selected by coordination pattern. Also listed are the reasons why they would be selected by coordination pattern rather than by time of day. One general reason is to “link” the function to coordination to ensure it is selected during traffic responsive operation or manual override from the system.

Coordination Options MM 3-1:

- Maximum Select – This programming feature allows selection of an alternate maximum time (Max 1, Max 2 or Max 3) during coordinated operation. A longer or shorter maximum time might be desired to accommodate the phase split times of the coordination pattern cycle length in effect. (Also see Inhibit Maximum Termination under unique functions.)

Coordination Pattern Data MM 3-2:

- Sequences – This programming feature allows selection of a different sequence by a coordination pattern. This could be used to select lead/lag left turn operation depending on the coordination pattern selected by the system (ASC/2M master or ***icons***) or by local time of day.
- Action plan – A coordination plan would select an action plan when there are unique action plan functions desired during that coordination pattern. This coordination action plan does not override the TOD action plan.
    - E.g. if action plan #1 is selected from TOD and action plan is set to 2 in the running coord pattern. Action plan 1 is still in effect. The commands specified in the coordination action plan 2 are selectively enabled.
    - An action plan selected by coordination plan is implemented as follows:
        - Pattern and system override options are ignored.
        - If another action plan (manual or TOD) is in-effect,
            - Options with "X" or "." selections are ORed with those from the other action plan.
            - Logic statement, flash, red rest, dimming, detector log options are ignored.
            - The options: sequence, timing plan, detector plan and diagnostic plan will be used only if the corresponding option in the other action plan is set to 0
    - Some examples of coordination action plans would be:

  - Selection of a different detector plan to change the functionality of a detector.
  - Enable or disable logic processes to be able to test a condition and set or clear an output when a coordination pattern is in effect.
- Timing plans - If different timing is desired for a coordination pattern, then select timing plan within the coordination pattern. An example would be to select a timing plan with a longer Walk time when using a coordination pattern with a longer cycle length and with phase splits that will accommodate the longer Walk time.
- Special function – Special functions may be turned on or off depending upon the coordination plan in effect. One example would be to turn on the “no left turn” sign described under split pattern data to follow.

Split Pattern Data MM 3-3:

- Phase mode (Min, max, ped, max and ped recall and omit) – Selection of these different phase modes by coordination pattern/split plan allows changing the operation of the intersection. An example would be omit a left turn during the PM peak pattern. (There should be a “no left turn” sign displayed to the driver when the phase is omitted.)

Action Plans Functions MM 5-4:

This section lists the functions that can be selected by TOD action plan. Also listed are examples of why the function would be selected by time of day. One general reason to use the action plan is to ensure the function remains in effect regardless of the coordination pattern in effect or free operation.

Each of the functions listed below could be enabled during free operation.

- Sequences – These sequence changes are not due to pattern changes, but are selected on a time of day basis. The sequence remains in effect regardless of the coordination pattern in effect or free operation.
- Timing plans - If different timing is desired during a certain time of day, then select the timing plan using action plans. An example would be to lengthen the Walk and Pedestrian Clearance times while the children are going to or from school.
- Omit phases – This function would be used if a phase will be skipped on a time of day basis. An example would be to omit a left turn from 4 pm until 6 pm. (There should be a “no left turn” sign displayed to the driver when the phase is omitted.)
- Recalls – Pedestrian, Minimum vehicle, or Maximum vehicle – These recalls would be turned on and off on a time of day basis and would not be dependant on the coordination pattern in effect.
- Special Function – The special function outputs can be turned on or off on a time of day basis. One example would be to turn on the “no left turn” sign described under omit phases.
- Max 2, Max 3 – This is used when a different maximum time would be selected on a time of day basis. One example would be for a manufacturing plant exit to provide more maximum time following a shift change.

Unique functions

This section lists the functions that are unique to coordination patterns or TOD action plans.

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Coordination Options Only MM 3-1 (these functions are not selected by the action plans):

- Force Off Added Initial Green - Allows the coordinator to terminate the phase green when added initial is timing.
- Ped recall - Allows the programmed pedestrian recall to recycle the pedestrian movement when the Coordinator Pattern has Actuated Walk programmed.
- Inhibit Maximum Termination – Inhibit maximum termination allows the phase to terminate by gapping out or by forcing off, but not by maximum termination while this coordination pattern is in effect

Action Plan Only MM 5-4 (these functions are not selected by the coordination patterns):

- Coordination pattern or free or flash – This function allows selection of a pattern or free (pattern 254) or flash (pattern 255).
- Override pattern selected by the system – This function can be used to allow the ASC/3 to ignore the pattern selection from the ASC/2M master or from ***icons*** and select its own pattern.
- Detector plans – This function allows reassigning detector functionality. This could be used for detector switching certain times of day but not others.
- Enable detector data logging – Detector logging can be enabled or disabled on a time of day basis. This feature makes efficient use of controller logging memory by only storing data when it is necessary.
- Red rest – Causing Red Rest mode can be selected on a time of day basis.
- Detector diagnostic plans – Different times of day the flow of traffic may have to be measured differently for a failed detector. The number of cars at three in the afternoon is normally different from the number of cars at three in the morning.
- Pedestrian detector diagnostic plans – Different times of day pedestrian pushbutton activity would have to be measured differently for a failed pushbutton. The number of pedestrian actuations at three in the afternoon is normally different from the number of pedestrian actuations at three in the morning.
- Enable dimming – Dimming can be enabled or disabled on a time of day basis.
- Walk 2 - An alternate walk time can be enabled or disabled on a time of day basis.
- Vehicle extension 2 - An alternate vehicle extension time can be enabled or disabled on a time of day basis.
- Inhibit Conditional Service – Conditional service can be enabled on a time of day basis.
- Auxiliary functions on or off – These outputs can be turned on or off on a time of day basis. One of these outputs could be used to turn on or off a message sign.
- Enable or disable logic processes. Each of the logic processes can be enabled or disabled on a time of day basis.