

## APPENDIX D

### PORTABLE CHANGEABLE MESSAGE SIGN (PCMS) DISPLAYS

A Portable Changeable Message Sign (PCMS) is a valuable resource which provides a direct link to the traveling public regarding information that could affect traffic flow. Ultimately, the success of the PCMS depends upon the motorists' belief in information being displayed. Improper sign usage or incorrect information will erode motorist confidence and reduce the sign's effectiveness.

This Appendix is intended to create uniformity in standardizing<sup>1</sup> PCMS messages for temporary traffic control as shown in Table D1<sup>1</sup> across the Commonwealth. The basic message content of the PCMS includes the "what" (situation the motorist will encounter), "where" it is located, and an "action" the motorist should take. Messages on a PCMS should consist of no more than two phases (screen displays), and a phase should consist of no more than three lines of text. There are some standardized messages that require three phases which may be used on one PCMS or an additional PCMS may be used as directed by the Engineer.<sup>1</sup>

Standardized PCMS messages have been developed for the temporary traffic control applications in Chapter 6H. When a PCMS is used the messages must be adjusted to cover the situation as it exists on the roadway. For example, TTC-18 is a multi-lane closure operation which closes two left lanes out of three lanes. The PCMS messages for TTC-18 would be 2 LT LANE, CLOSED, AHEAD and MOVE, INTO, RT LANE but when the work zone requires the two right lanes to be closed the message would be 2 RT LANE, CLOSED, AHEAD and MOVE, INTO, LT LANE.<sup>1</sup>

On long-term projects the PCMS should be used to advise motorists of the initial change in traffic pattern, such as shoulder closures, revised lane usage, lane shifts, etc. The initial message should only be displayed for 2 weeks to retain its effectiveness. After that time, the static temporary traffic control signs will warn, advise and direct the road users for the duration of the work operation. The PCMS may display daily standardized messages based on the temporary traffic control application being used that affect the mainline traffic. Non-standardized PCMS messages used for mainline and intersecting roadways should be approved by the Regional Traffic Operations Manager (RTOM), by authority of a public agency or official having jurisdiction.<sup>1</sup>

The PCMS messages shall be programmed by project personnel, or by VDOT personnel or jurisdiction personnel.

PCMS information shall be followed as shown in Section 6F.68. The VDOT Operations and Security Division and Traffic Engineering<sup>1</sup> shall make any updates, exceptions, or revisions to this guidance. The current VDOT Operations and Security Division guidance on Changeable Message Signs (CMS) usage can be accessed at: [http://www.virginiadot.org/business/resources/LocDes/OD\\_IIM-13-03.pdf](http://www.virginiadot.org/business/resources/LocDes/OD_IIM-13-03.pdf).<sup>1</sup>

Acceptable PCMS messages for advance notice of road closure or road work are as shown in Table D-2. Unacceptable PCMS messages are as shown in Table D-3.<sup>1</sup> Acceptable abbreviations shall be used and unacceptable messages shall be avoided as shown in Tables D-4<sup>1</sup> through D-6<sup>1</sup>.

### **Alternate Routes and Traffic Detours Messages**

Alternate Routes - PCMS messages may be used when a complete road closure is **not** required however, it is desirable to detour traffic to alternative routes. This process should be used only under the following circumstances:

- Where the CMS operator has current and continuously updated knowledge of the traffic conditions on the alternative route.
- Where the alternate route will result in a significant savings in time for the detoured motorists.

Detours- PCMS messages should be used when a complete road closure is required. Traffic detours to specific routes shall only be warranted if positive route guidance is provided to motorists along the alternate route in the form of:

- A properly marked detour or guide signs to the major destination.
- Law enforcement or traffic control personnel are positioned at critical locations along the detour route to control and guide traffic.

**Table D-1, Portable Changeable Messages for Temporary Traffic Control Applications<sup>1</sup>**

TTC Number	PHASE 1	PHASE 2	PHASE 3 or Additional PCMS may be used
Example	Line 1 / Line 2 / Line 3	Line 1 / Line 2 / Line 3	Line 1 / Line 2 / Line 3
TTC-1	RIGHT / SHOULDER / WORK		
TTC-2	FLAGGER / AHEAD	PREPARE / TO / STOP	
TTC-3	SLOW / MOVING / WORK	RIGHT / SHOULDER / CLOSED	
TTC-4	RIGHT / SHOULDER / CLOSED		
TTC-5	RIGHT / SHOULDER / CLOSED	RIGHT / LANE / NARROWS	
TTC-6	RIGHT / SHOULDER / CLOSED		
	*RIGHT / SHOULDER / CLOSED	TRUCKS / USE / RT LANE	
TTC-7	LANE(S) / SHIFT / RIGHT	RIGHT / SHOULDER / CLOSED	
	*LANE(S) / SHIFT / RIGHT	TRUCKS / USE / RT LANE	
TTC-8	BOTH / SHOULDER / CLOSED	RIGHT / PULL OFF / AHEAD	
	*BOTH / SHOULDER / CLOSED	TRUCKS / USE / RT LANE	
TTC-9	SLOW / MOVING / WORK	PREPARE / TO / STOP	
TTC-10	LT LANE / CLOSED / AHEAD	SLOW / MOVING / WORK	
TTC-11	RT LANE / CLOSED / AHEAD	SLOW / MOVING / WORK	
TTC-12	2 RT LANE / CLOSED / AHEAD	SLOW / MOVING / WORK	
TTC-13	RT LANE / CLOSED / AHEAD	SLOW / MOVING / WORK	
TTC-14	SLOW / MOVING / WORK	DO / NOT / PASS	
	*SLOW / MOVING / WORK	PREPARE / TO / STOP	DO / NOT / PASS
TTC-15	LEFT / LANE / CLOSED	MERGE / INTO / RT LANE	
	*HEAVY / TRAFFIC / AHEAD	EXPECT / DELAYS	
	*HEAVY / TRAFFIC / AHEAD	PREPARE / TO / STOP	
TTC-16	RIGHT / LANE / CLOSED	MERGE / INTO / LT LANE	
	*RT LANE / CLOSED / MM123	MERGE / INTO / LT LANE	
	*HEAVY / TRAFFIC / AHEAD	EXPECT / DELAYS	
	*HEAVY / TRAFFIC / AHEAD	PREPARE / TO / STOP	
TTC-17	LEFT / LANE / CLOSED	MERGE / INTO / RT LANE	
	*LT LANE / CLOSED / MM123	MERGE / INTO / RT LANE	
	*HEAVY / TRAFFIC / AHEAD	EXPECT / DELAYS	
	*HEAVY / TRAFFIC / AHEAD	PREPARE / TO / STOP	
TTC-18	2 LEFT / LANES / CLOSED	MERGE / INTO / RT LANE	
	*2LT LANE / CLOSED / MM 123	MERGE / INTO / RT LANE	
	*HEAVY / TRAFFIC / AHEAD	EXPECT / DELAYS	
	*HEAVY / TRAFFIC / AHEAD	PREPARE / TO / STOP	
TTC-19	LEFT / LANE / CLOSED	MERGE / INTO / RT LANE	
	*LT LANE / CLOSED / MM 123	MERGE / INTO / RT LANE	
	*HEAVY / TRAFFIC / AHEAD	EXPECT / DELAYS	
	*HEAVY / TRAFFIC / AHEAD	PREPARE / TO / STOP	

\* Optional PCMS messages or additional PCMS(s) based on field conditions and work zone signage.

**Table D-1, Portable Changeable Messages for Temporary Traffic Control Applications<sup>1</sup>**

<b>TTC Number</b>	<b>PHASE 1</b>	<b>PHASE 2</b>	<b>PHASE 3 or Additional PCMS may be used</b>
Example	Line 1 / Line 2 / Line 3	Line 1 / Line 2 / Line 3	Line 1 / Line 2 / Line 3
TTC-20	RIGHT / LANE / CLOSED	MERGE / INTO / LT LANE	
	*RT LANE / CLOSED / MM 123	MERGE / INTO / LT LANE	
	*HEAVY / TRAFFIC / AHEAD	EXPECT / DELAYS	
	*HEAVY / TRAFFIC / AHEAD	PREPARE / TO / STOP	
TTC-21	CENTER / LANE / CLOSED	NO / LEFT / TURNS	
	*HEAVY / TRAFFIC / AHEAD	EXPECT / DELAYS	
	*HEAVY / TRAFFIC / AHEAD	PREPARE / TO / STOP	
TTC-22	LANE / SHIFT / LEFT	NO / LEFT / TURNS	
	CENTER / LANE / CLOSED	NO / LEFT / TURNS	
	*HEAVY / TRAFFIC / AHEAD	EXPECT / DELAYS	
	*HEAVY / TRAFFIC / AHEAD	PREPARE / TO / STOP	
TTC-23	FLAGGER / AHEAD	PREPARE / TO / STOP	
TTC-24	FLAGGER / AHEAD	PREPARE / TO / STOP	
	*FLAGGER / NEXT / 2 MILES	PREPARE / TO / STOP	
TTC-25	SIGNAL / AHEAD	PREPARE / TO / STOP	
TTC-26	LEFT / LANE / CLOSED	MERGE / INTO / RT LANE	
	*HEAVY / TRAFFIC / AHEAD	EXPECT / DELAYS	
	*HEAVY / TRAFFIC / AHEAD	PREPARE / TO / STOP	
TTC-27	LEFT / LANE / CLOSED	MERGE / INTO / RT LANE	
	*HEAVY / TRAFFIC / AHEAD	EXPECT / DELAYS	
	*HEAVY / TRAFFIC / AHEAD	PREPARE / TO / STOP	
TTC-28	FLAGGER / AHEAD	PREPARE / TO / STOP	
TTC-29	LT TURN / LANE / CLOSED		
	*LT TURN / LANE / CLOSED	NO LEFT / TURN / AHEAD	
TTC-30	FLAGGER / AHEAD	PREPARE / TO / STOP	
TTC-31	LEFT / LANE / CLOSED	MERGE / INTO / RT LANE	
	*HEAVY / TRAFFIC / AHEAD	EXPECT / DELAYS	
	*HEAVY / TRAFFIC / AHEAD	PREPARE / TO / STOP	
TTC-32	RIGHT / LANE / CLOSED	MERGE / INTO / LT LANE	
	*HEAVY / TRAFFIC / AHEAD	EXPECT / DELAYS	
	*HEAVY / TRAFFIC / AHEAD	PREPARE / TO / STOP	
TTC-33	RIGHT / LANE / CLOSED	MERGE / INTO / LT LANE	FLAGGER / PREPARE / TO STOP
	FLAGGER / AHEAD	PREPARE / TO / STOP	
	*HEAVY / TRAFFIC / AHEAD	EXPECT / DELAYS	
	*HEAVY / TRAFFIC / AHEAD	PREPARE / TO / STOP	
TTC-34	?? ST / CLOSED	FOLLOW / DETOUR	
	*?? ST / CLOSED	NO / THUR / TRAFFIC	
TTC-35	ROAD / NARROWS	MERGE / LEFT	
TTC-36	ROAD / WORK / AHEAD	YIELD / TO / PED	

\* Optional PCMS messages or additional PCMS(s) based on field conditions and work zone signage.

**Table D-1, Portable Changeable Messages for Temporary Traffic Control Applications<sup>1</sup>**

TTC Number	PHASE 1	PHASE 2	PHASE 3 or Additional PCMS may be used
Example	Line 1 / Line 2 / Line 3	Line 1 / Line 2 / Line 3	Line 1 / Line 2 / Line 3
TTC-37	RIGHT / LANE / CLOSED	MERGE / INTO / LT LANE	EXIT(S) / OPEN
	*RIGHT / LANE / CLOSED	MERGE / INTO / LT LANE	EXIT ### / OPEN
	*RIGHT / LANE / CLOSED	MERGE / INTO / LT LANE	EXIT ### / CLOSED
TTC-38	RAMP / NARROWS	?? FT / LANE	
TTC-39	RIGHT / LANE / CLOSED	MERGE / INTO / LT LANE	
	TRAFFIC / ENTERING / ON RIGHT		
	RAMP / TRAFFIC / YIELDS	BE / PREPARED / TO STOP	
TTC-40	LANE(S) / SHIFTS / AHEAD		
	*LANE(S) / SHIFTS / AHEAD	STAY / IN / LANE	
TTC-41	RIGHT / LANE / CLOSED	MERGE / INTO / LT LANE	
	*HEAVY / TRAFFIC / AHEAD	EXPECT / DELAYS	
	*HEAVY / TRAFFIC / AHEAD	PREPARE / TO / STOP	
TTC-42	LEFT / LANE / CLOSED	MERGE / INTO / RT LANE	
	*HEAVY / TRAFFIC / AHEAD	EXPECT / DELAYS	
	*HEAVY / TRAFFIC / AHEAD	PREPARE / TO / STOP	
TTC-43	LANE / SHIFTS / AHEAD		
TTC-44	RIGHT / LANE / CLOSED	MERGE / INTO / LT LANE	LANE(S) / SHIFTS / AHEAD
	*HEAVY / TRAFFIC / AHEAD	EXPECT / DELAYS	
	*HEAVY / TRAFFIC / AHEAD	PREPARE / TO / STOP	
	LEFT / LANE / CLOSED	MERGE / INTO / RT LANE	
	*HEAVY / TRAFFIC / AHEAD	EXPECT / DELAYS	
	*HEAVY / TRAFFIC / AHEAD	PREPARE / TO / STOP	
TTC-45	DETOUR / AHEAD / RD CLOSED	ALL VEH / MUST / EXIT	
	2LT LANE / CLOSED / MERGE RT	ALL VEH / EXIT RT	
	*HEAVY / TRAFFIC / AHEAD	EXPECT / DELAYS	
	*HEAVY / TRAFFIC / AHEAD	PREPARE / TO / STOP	
TTC-46	I-95 / NORTH / CLOSED	FOLLOW / DETOUR	
	*HEAVY / TRAFFIC / AHEAD	EXPECT / DELAYS	
	*HEAVY / TRAFFIC / AHEAD	PREPARE / TO / STOP	
TTC-47	I-95 / CLOSED / AT EX123	FOLLOW / DETOUR	
	*HEAVY / TRAFFIC / AHEAD	EXPECT / DELAYS	
	*HEAVY / TRAFFIC / AHEAD	PREPARE / TO / STOP	
TTC-48	RT 50 / CLOSED / X MILES	LOCAL / TRAFFIC / ONLY	
	RT 50 WB / CLOSED / X MILES	FOLLOW DETOUR	
TTC-49	SURVEY / CREW / AHEAD		
	*FLAGGER / AHEAD	PREPARE / TO / STOP	
TTC-50	FLAGGER / AHEAD	PREPARE / TO / STOP	
	*HEAVY / TRAFFIC / AHEAD	PREPARE / TO / STOP	

\* Optional PCMS messages or additional PCMS(s) based on field conditions and work zone signage.

**Table D-1, Portable Changeable Messages for Temporary Traffic Control Applications<sup>1</sup>**

TTC Number	PHASE 1	PHASE 2	PHASE 3 or Additional PCMS may be used
Example	Line 1 / Line 2 / Line 3	Line 1 / Line 2 / Line 3	Line 1 / Line 2 / Line 3
TTC-51	SIGNAL / AHEAD	PREPARE / TO / STOP	
	FLAGGER / AHEAD	PREPARE / TO / STOP	
TTC-52	-	-	
TTC-53	-	-	
TTC-54	FLAGGER / AHEAD	PREPARE / TO / STOP	
TTC-55	-	-	
TTC-56	FLAGGER / AHEAD	PREPARE / TO / STOP	
TTC-57	LF LANE / GROOVED / PAVEMENT	UNEVEN / LANES / NEXT XMI	
	*LF LANE / GROOVED / PAVEMENT	UNEVEN / LANES / AHEAD	
TTC-58	BUMP / GROOVED / PAVEMENT	ROUGH RD / UNMARKED PAVEMENT	
TTC-59	BUMP / UNEVEN / LANES	DO / NOT / PASS	
TTC-60	-	-	
TTC-61	-	-	
TTC-62	SLOW / MOVING / VEHICLE	LF LANE / CLOSED / MERGE RT	
TTC-63	SLOW / MOVING / VEHICLE	TRUCKS / ENTERING / RIGHT	
TTC-64	LOOSE / GRAVEL	DO / NOT / PASS	
TTC-65	FLAGGER / AHEAD	PREPARE / TO / STOP	
TTC-66	SLOWED / WORK / VEHICLES	DO / NOT / PASS	LANES / BLOCKED
TTC-67	FLAGGER / AHEAD	PREPARE / TO / STOP	NO / LEFT / TURN
	FLAGGER / AHEAD	PREPARE / TO / STOP	NO / RIGHT / TURN

\* Optional PCMS messages or additional PCMS(s) based on field conditions and work zone signage.

**Display of Future Roadwork<sup>1</sup>**

Traffic-related information that provides advance notification of future roadwork requiring lane closures may be displayed, but shall be replaced by current information whenever applicable. Advance notification should not be given more than six (6) days prior to the roadwork unless approved by the RTOM. Every effort should be made to display the days of the week (e.g., **TUES-FRI**), however there may be a special situation that requires calendar dates.<sup>1</sup>

**Table D-2, Portable Changeable Messages for Advance Closures or Road Work<sup>1</sup>**

?? ST / CLOSED / 7/1-8/31
RT 50 / CLOSED / MON-FRI
EXIT 123 / CLOSED / JUL14-18
RD WORK / CLOSED / MON-FRI
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**Table D-3, Unacceptable Portable Changeable Messages<sup>1</sup>**

BEAWARE, BEWARE
BE ALERT (any form or combination of BE ALERT messages)
CARE (any form or combination of CARE messages)
USE CARE
CAUTION (any form or combination of CAUTION messages)
USE CAUTION
NOTICE (messages)
WARNING, WARN (any form or combination of WARN messages)
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**Abbreviations Used on Traffic Control Devices<sup>1</sup>**

When the word messages shown in Table D-4 need to be abbreviated on a portable changeable message sign, the abbreviations shown in Table D-4 shall be used. Unless indicated by an asterisk, these abbreviations shall only be used on portable changeable message signs.<sup>1</sup>

When the word messages shown in Table D-5 need to be abbreviated in connection with traffic control devices, the abbreviations shown in Table D-5 shall be used.<sup>1</sup>

The abbreviations for the words listed in Table D-5 that also show a prompt word should not be used on a portable changeable message sign unless the prompt word shown in Table D-5 either precedes or follows the abbreviation, as applicable.<sup>1</sup>

The abbreviations shown in Table D-6 shall not be used in connection with traffic control devices because of their potential to be misinterpreted by road users.<sup>1</sup>

If multiple abbreviations are permitted in Table D-4 or D-5, the same abbreviation should be used throughout a single jurisdiction.<sup>1</sup>

Except as otherwise provided in Table D-4 or D-5 or unless necessary to avoid confusion, periods, commas, apostrophes, question marks, ampersands, and other punctuation marks or characters that are not letters or numerals should not be used in any abbreviation.<sup>1</sup>

When using abbreviations avoid two consecutive abbreviation if possible; do not use three or more consecutive abbreviations; all abbreviations should be displayed without a period and avoid abbreviating destination; or road names if possible.<sup>1</sup>

**Table D-4,<sup>1</sup> Abbreviations That Shall be Used Only on Portable Changeable Messages Signs**

<b>Work Message</b>	<b>Standard Abbreviation</b>	<b>Prompt Word That Should Precede the Abbreviation</b>	<b>Prompt Word That Should Follow the Abbreviation</b>
Access	ACCS	—	Road
Ahead	AHD	Fog	—
Blocked	BLKD	Lane	—
Bridge	BR*	(Name)	—
Cannot	CANT	—	—
Center	CNTR	—	LANE
Chemical	CHEM	—	SPILL
Condition	COND	Traffic	—
Congestion	CONG	Traffic	—
Construction	CONST	—	Ahead
Crossing	XING	—	—
Do Not	DONT	—	—
Downtown	DWNTN	—	Traffic
Eastbound	E-BND	—	—
Emergency	EMER	—	—
Entrance, Enter	ENT	—	—
Exit	EX	Next	—
Express	EXP	—	Lane
Frontage	FRNTG	—	Road
Hazardous	HAZ	—	Driving
Highway-Rail Grade Crossing	RR XING	—	—
Interstate	I-*	—	Number
It Is	ITS	—	—
Lane	LN	[Roadway Name]*, Right, Left Center	—
Left	LFT	—	—
Local	LOC	—	Traffic
Maintenance	MAINT	—	—
Major	MAJ	—	Accident
Minor	MNR	—	Accident
Normal	NORM	—	—
Northbound	N-BND	—	—
Oversized	OVRSZ	—	Load
Parking	PKING	—	—
Pavement	PVMT	Wet	—
Prepare	PREP	—	To Stop
Quality	QLTY	Air	—
Right	RT	Keep, Next	—
Roadwork	RDWK	—	Ahead, [Distance]

\* This abbreviation shall not be used for any application other than the name of a roadway.

\*\* A space and no dash shall be placed between the abbreviation and the number of the route.





**Table D-5<sup>1</sup>, Acceptable Abbreviations**

<b>Word Message</b>	<b>Standard Abbreviation</b>		<b>Word Message</b>	<b>Standard Abbreviation</b>
Afternoon / Evening	PM		Maximum	MAX
Alternate	ALT		Mile(s)	MI
AM Radio	AM		Miles Per Hour	MPH
Avenue	AVE, AV		Minimum	MIN
Bicycle	BIKE		Minute(s)	MIN
Boulevard	BLVD		Monday	MON
Bridge	BR*		Morning / Late Night	AM
CB Radio	CB		Mount	MT
Center (as part of a place name)	CTR		Mountain	MTN
Circle	CIR*		National	NATL
Civil Defense	CD		North	N
Compressed Natural Gas	CNG		Parkway	PKWY*
Court	CT*		Pedestrian	PED
Crossing (other than highway-rail)	X-ING		Place	PL*
Drive	DR*		Pounds	LBS
East	E		Road	RD*
Electric Vehicle	EV		Saint	ST
Expressway	EXPWY*		Saturday	SAT
Feet	FT		South	S
FM Radio	FM		Street	ST*
Freeway	FRWY, FWY*		Sunday	SUN
Friday	FRI		Telephone	PHONE
Hazardous Material	HAZMAT		Temporary	TEMP
High Occupancy Vehicle	HOV		Terrace	TER*
Highway	HWY*		Thursday	THURS
Hospital	HOSP		Thruway	THWY*
Hour(s)	HR, HRS		Tons of Weight	T
Information	INFO		Trail	TR*
Inherently Low Emission Vehicle	KLEV		Tuesday	TUES
International	INTL		Turnpike	TPK*
Interstate	I-**		Two-Way Intersection	2-WAY
Junction / Intersection	JCT		US Numbered Route	US
Lane	LN		Wednesday	WED
Liquid Propane Gas	LP-GAS		West	W

\*This abbreviation shall not be used for any application other than the name of a roadway.



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