



VEHICLE ACTIVATED TRAFFIC CALMING SIGNS (VATCS)

SOLE SOURCE SUPPLIER CONSULTATION
DOCUMENT
FOR
CITY OF INNOVATION

ISSUE 1.0

0.1 Title

0.2 Table of Contents

0.1 Title..... 1

0.2 Table of Contents 2

0.3 Amendment Table..... 3

0.4 Distribution..... 4

1. Introduction 5

2. Unique VATCS Technical Approach Criteria 6

 2.1 Display Format and Philosophy 6

 2.2 Unique Independent Long term/large scale test data 10

3. Executive Summary 11

Appendix A 15

 A1 TRL548 Independent Report..... 15

0.3 Amendment Table

The amendment record should be completed when an amendment is incorporated into this document.

Issue	Date	Change Description	Author
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0.4 Distribution

Copy Number	Issued To	Position/Location
01	Dorman Varitext	Master Register
02	Traffic Technologist	City of Innovation

The most current issue of this document shall be distributed to those listed in the above table.

1. Introduction

This document has been produced to assist the City of Innovation in identifying the unique benefits of the VATCS product to support the business case to sole source the procurement of the technology for deployment in the Cities Traffic Calming program.

The City recognizes the challenge of addressing the dangers and costs of excessive motorist speed within the community to attaining a safe environment for all.

The document provides consultation on the:

- Unique VATCS technical approach criteria
- Unique Independent Long term/large scale test data

2. Unique VATCS Technical Approach Criteria

The following section provides details of the key unique technical features of the VATCS product that differentiates its performance from that of any other radar speed feedback sign available on the North American market at present.

2.1 Display Format and Philosophy

The FHWA MUTCD was produced as a guideline to allow Cities across the nation to attain a minimum standard of uniformity and consistency for road traffic devices.

The basis of the Dorman Varitext VATCS design is built on this founding statement like no other speed radar board on the market today.

The VATCS utilises the all ready established, recognized and nationwide understood regulatory and/or warning diagrams from the FHWA MUTCD to create its clear and consistent traffic calming message.

This message format approach is unique to the VATCS and is hazard specific, reasoned and educational.

See diagrams overleaf for examples

Posted Speed Limit VATCS



Dynamic Advance Hazard/Curve Warning VATCS



A	B	C	D	E	F	G	H	J	K	L	M
400	10	15	135	129	193	17	64	44	33	51	56
500	10	15	137	181	200	19	112	55.5	44	60	57
750	13	20	243	189	245	19	145	65	68	67	100
1000	15	25	304	234	306	242.5	180	71	73	103	125
1200	20	30	425	328	425	337.5	250	93	102	102	175

N	P	Q	R	S	T	U	V
155	40	37	100E	25	44	50 D	10
206	50	52	126 E	37	52	75 D	12
240	50	60	150 E	38	75	100 D	16
304	60	73	175 E	48	87.5	125 D	20
405	70	125	225 E	75	125	150 D	30

*See page 6-2 for symbol design.
**Optical position numbers.

WARNING SIGN COLORS:
LEGEND - BLACK
BACKGROUND - YELLOW (RETROREFLECTIVE)

TTC SIGN COLORS:
LEGEND - BLACK
BACKGROUND - ORANGE (RETROREFLECTIVE)



Letter Style

The letter style of the VATCS message is in exact accordance with MUTCD alphabet font. This is unique to the VATCS, whereas other radar speed signs utilise everyday seven segment or 7 x 5 dot matrix fonts which are used in anything from watch displays to advertising boards.

The letter style is unique to the MUTCD and VATCS and more importantly uniquely identifiable to the targeted audience, the road user.

Colour

The colour of the display is an exact inversion of the colours in the MUTCD, again allowing clear correlation for the driver between the VATCS message and that of a fixed regulatory sign. All other radar speed signs use amber as the main display colour.

Character Size

The VATCS message size/dimensions are in exact accordance with MUTCD hence visibility and readability are uniquely automatically correct for chosen road posted speed limit.

2.2 Unique Independent Long term/large scale test data

A Unique fact that allows VATCS to stand apart from the competition in North America is the independent large scale field evaluation tests that were conducted by the Transport Research Laboratory over a 3 to 5 year period and published in 2002.

It has been independently proven on a large scale field test that the VATCS message and approach does not diminish in its speed management effect after 5 years of operation, which again is unique and something that no other speed radar display on the market can offer.

The VATCS were independently field tested on a large scale involving 60 signs over 3 to 5 year period and have been shown to maintain the following speed management results

A 4MPH reduction of average speed in speed limit zones

A 7MPH reduction of average speed in advance of specific hazards

A 1/3 reduction in expected accidents recorded over the 3 year period

VATCS technology was first introduced to North America by Dorman Varitext in the Spring of 2006, the technology has all ready replaced/superseded the dated radar speed feedback sign SFD technology in the early 2000's in the United Kingdom.

TRL548 Independent large scale field evaluation of VATCS

The TRL 548 report is internationally recognized as the only large scale evaluation of the deployment of vehicle activated displays in traffic calming applications and sets the VATCS technology apart from other inferior display solutions.

A copy of the TRL548 report is appended as a separate PDF document in Appendix A of this document.

Dorman Varitext now also have numerous case studies from North America which show the same initial first year results as the TRL548 report which further supports the translation of this unique approach. The case studies can be viewed at our website using the following link.

http://www.dormanvaritext.com/north_america/research.html

3. Executive Summary

This consultation report concludes that the VATCS technology offers a Unique and superior long term deterrent over the standard radar speed feedback display to excessive road speed above the posted speed limit within the community.

This is supported both by the only long term large scale independent field evaluation, client case studies and the fact that the UK DOT who have one of the top 3 safest road networks in the world today have incorporated the VATCS technology into its MUTCD with policy for deployment.

It is also evident that progressive proponents of traffic calming within both Canada and the USA are all ready switching from SFD to VATCS in recognition of the long term excessive speed management benefits.

The following is a summary relating to the VATCS technology history and development to date.

VATCS... technology derives its existence from the following philosophy

‘It is globally accepted and recognized that to address rising accident rates, a consistent strategy for managing vehicular speeds on all roads is required.

Driver responsibility, given reasonable help, underlies all good road safety policy.’

VATCS are electronic LED road side signs which are directly targeted and proven to have an effect on lowering driver vehicle speeds.

Signing with VATCS is a means of providing a simple effective message relating to conditions on the highway (presence of hazards, hidden intersections or speed requirements) to specific drivers.

The signs use warning or regulatory diagrams from the MUTCD which are inverted and translated into pixilated LED technology, the diagrams are enhanced by either having the wording 'Slow Down' beneath or having flashing amber led lanterns in each corner or both.

The signs are importantly hazard specific and are targeted at only the motorist exceeding the threshold speed which is a key to their success. The sign will remain blank until a vehicle approaches (distance 350 feet) exceeding the pre-set speed threshold. The sign will then illuminate for a 3 to 4 second configurable period warning the driver to Slow Down.

History of VATCS

Early work on VATCS started in the early 1980s, automatic signs were trialed providing drivers with information relating to either excessive speed or being too close to lead vehicle. The signs were initially constructed using a combination of Neon and fluorescent back lit display methods and activated using inductive loops or infra red technology.

The latest generation of VATCS, combine High Intensity LED display technology with microwave radar speed detection technology. LEDs are selected on optical grading of uniformity, color and brightness with auto luminosity control and microwave detection has been developed to provide an accurate uniform reading of vehicle speeds to a tolerance of +/- 1Mph

In 2002 The Transport Research Laboratory TRL on behalf of the Road Safety Division of UK Department for Transport published 'TRL548', a large scale evaluation study on the VATCS technology. The study was conducted over 3 year period on 60 No signs and provided the following strong independent endorsement of the product.

A 4MPH reduction of average speed in speed limit zones

A 7MPH reduction of average speed in advance of specific hazards

A 1/3 reduction in expected accidents recorded over the 3 year period

The unparalleled study led to the VATCS being incorporated within the Traffic Signs regulations and Directions manual with guidelines for best practice. VATCS are now common place tools being deployed by UK road safety strategists in their challenge to meet world leading targets for reducing speed related road fatalities by 2010.

Following TRL548 the UK department of transport accountable to the UK government introduced a new road safety strategy, by 2010 the *World Leading* targets they want to achieve compared to the average for 1994-98 are;

40% reduction in the number of people killed or seriously injured in road accidents

50% reduction in the number of children killed or seriously injured

10% reduction in the slight casualty rate, expressed as the number of people slightly injured per 100 million vehicle miles

In 2003, 3508 people were killed in road accidents and, 33,707 were seriously injured. This is 22% below baseline - almost half way to the 40% target set for 2010. 171 children were killed in road accidents and, 3,929 were seriously injured. This is 40% below baseline - over three quarters of the way to the 50% target.

In 2002 The UK produced a new Traffic Signs Regulations Manual. (TSRGD 2002) the equivalent of the MUTCD. VATCS were incorporated into the TSRGD in 2003 and advisory leaflets were also produced on best practice and deployment for Hazards, Intersections, Speed Zones, Schools and Worker Zones.

In summarizing there is a well established relationship between vehicle speeds and road accidents. The ideal safety measures in planning road safety schemes are solutions which;

are of low cost with low maintenance requirements

are self enforcing with high compliance

have no long term diminution in effect, making them less effective

VATCS correspond closely to these requirements, and following trials a significant number have been installed in the UK (5000+) by Dorman Varitext and numerous sites have now been installed in North America since the set up of the North American division in Spring 2006. Public opinion research to determine effectiveness have to date also provided a strong endorsement for the technology.

Conclusions from our own experience and independent studies are;

Clearly drivers can be influenced to reduce speed when specifically targeted

VATCS appear to be very effective in reducing number of drivers who exceed speed limit and who contribute disproportionately to the accident risk, without the need for enforcement like safety cameras

VATCS can be operated at thresholds well below normal police enforcement levels

There is no evidence that over time, drivers become less responsive to the signs, even over the three year TRL case study

Operating costs are low and deployment is straightforward

Dorman Varitext Brief History ...

During 2005 Dorman Varitext conducted a 6 month marketing research study into ascertaining the current traffic calming Sign technology techniques being deployed within the North American traffic calming sector and the overall market opportunity available for translating the proven VATCS solution.

In Spring 2006 Dorman Varitext head quarters were established in Kingston, Ontario.

Significant steps have been taken since the set up, the highlights of which have been the confirmation of MUTCD compliance by the FHWA, securing of orders for installations in over 14 states and 2 provinces and the first North American case study confirming effectiveness and providing a strong endorsement for the technology.

Interest levels have been unprecedented and the future looks very bright for the new technology market entrant. We thank you for taking the time to read this report and hope that we can be of service to you and your colleagues in the future.

Appendix A

A1 TRL548 Independent Report