

U.S. Department of Transportation  
Federal Highway Administration  
Any State Division  
4000 North Central Avenue, Suite 1500  
Capitol City, Any State 00000-0000

888-555-1212

November 13, 2008

In Reply Refer To: HOP-AS 833

HAL9000 Series P Tape

Mr. H.I. Way  
Assistant State Engineer (061R)  
Any State Department of Transportation  
205 South 17th Avenue  
Capitol City, Any State 00000-0000

Dear Mr. Way:

We have reviewed the Any State Department of Transportation (ASDOT) request and clarification letters regarding the finding in the public interest request for HAL9000 Series P Tape dated February 27, 2008 and August 29, 2008. The engineering and economic analyses and the detailed discussion of the specific applications of the tape provide a detailed basis and better understanding of the rationale being used by ASDOT and meets the core requirements set forth in 23 CFR 635.411.

The HAL9000 Series P Tape is approved for use on Federal-aid projects for a five-year period effective from the date of this letter. As identified in your request this tape may be used on the longer lasting concrete or rubberized asphalt surfaces (due to the minimal maintenance treatments that may impact the striping) for the following items:

- Freeway-to-freeway interchange striping,
- Freeway skip line striping,
- HOV lane symbols, and
- Freeway gore striping.

The analysis provided in your request clearly show a benefit of this product based on life cycle cost. As such, the use of this product on new or reconstruction projects is appropriate and should maximize its life cycle benefits. Any projects that are temporary or short term in duration should be evaluated on their own merits for the use of this tape.

Additionally, we are making this public interest finding with the stipulation that ASDOT continue to monitor the tape applications to ensure that Any State has received the full economic advantage provided by this product. This monitoring may include, but is not

limited to, the tracking of quality issues, restriping due to changes in traffic patterns, and pavement flushing.

For future usage beyond the five years or expansion of the use of HAL9000 Series P Tape, ASDOT will need to request approval in accordance with the core requirements set forth in 23 CFR 635.411.

We understand and are pleased to know that ASDOT is committed to continuous monitoring and evaluation of the market for high durability permanent striping tape. We would appreciate receiving copies of these evaluations to stay informed on your experiences and to facilitate any future discussions in this area.

If you have any further questions or concerns Jane Doe, our Safety Programs Manager, will be happy to discuss them with you. Please feel free to call her at (888) 555-1212.

Sincerely,

Zebediah Smith  
Division Administrator

cc: JDoe, FFederal, JJones

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Any State Department of Transportation  
Intermodal Transportation Division  
206 South Seventeenth Avenue  
Capitol City, Any State 00000

February 27, 2008

Mr. Zebediah Smith  
Any State Division Administrator  
Federal Highway Administration  
One Any State Center  
400 East Van Buren Street, Suite 410  
Capitol City, Any State 00000

Re: Renewal of the Public Interest Finding For HAL9000 Series P Tape

Dear Mr. Smith:

Your approval is requested to renew the Public Interest Finding of May 27, 2003 for the exclusive use of HAL9000 Series P Tape for future projects where ASDOT intends to use a high durability highly retro-reflective tape product. We suggest that this approval be for a period of five years, to coordinate with the maximum time frame for contracts awarded through our State procurement process. Since the prior approval we have diligently pursued testing other products and our findings are that no other product similar to this on the market lasts more than two years (See Attachment). Our commitment is to continue to test new products when they are made available and will

add those options to our specification if and when they prove to be as durable as the HAL9000 material.

We are proposing to continue the use of this product on freeway to freeway interchanges, for lane line skip stripes, for gore area striping, and for HOV lane symbols on projects that have either a concrete or rubberized asphalt surface. All other pavement markings lines (main line edge lines, HOV lane lines, on/off ramp edge lines, ramp lane lines, and arrows.) will continue to be either hot applied thermoplastic, epoxy, or paint.

The original installation of the HAL9000 Series P tape has lasted for over nine years in both the tunnel and on the I-10 Westbound to I-47 Southbound Ramp. During the last five years we have used it on all of the rubberized asphalt projects, and the tape continues to be brighter at night than brand new thermoplastic. It has proven to be very durable in our current applications. Our testing indicates that this material continues to be more retroreflective than any other tape product on the market. This product has a six year published warranty, compared to a one year published warranty for any other competitive tape.

With our maintenance budgets' being limited more and more, the use this product has reduced the striping maintenance in the above described applications. This should result in an overall cost savings to the public. It has reduced the exposure to our maintenance forces and minimized the inconvenience to the motoring public when we have to close ramps and/or lanes to maintain the striping. With the enhanced visibility and durability, we believe this product results in safer, more visible roadway markings for the motorist.

The HAL9000 Series P Tape is more expensive than 90 mil thermoplastic pavement marking material. However, the HAL9000 Series P Tape does provide unique features and performance characteristics that should help mitigate the frequent maintenance of existing striping in areas with high traffic volumes. Market research indicates that HAL9000 has no competition in this product category.

Quantitative analysis and field use shows that HAL9000 Series P Tape has special visibility enhancing features that should enable drivers opportunities to see better at night. These features include high durability with the only published six year warranty, and the high retroreflectivity levels with initial installation and throughout the life of the product. All of these features should decrease the need for maintenance and decreases the exposure to the maintenance workers and the traveling public to maintenance activities and road closures.

Once again I want to ensure you that ASDOT is committed to the testing of any new high durability highly retroreflective tape product when made available and with favorable results they will be added to the approved list for use.

Pursuant to your approval, we will continue to include this product in future projects. If you have any questions, comments or concerns please do not hesitate to contact me.

Sincerely,

Mr. H.I. Way, P.E.  
Assistant State Engineer

c: Joe Roman, Contracts and Specifications

### Test Results of High Durability Highly Retro-reflective Tape Products

Since July of 2004 the Any State Department of Transportation (ASDOT) has used the area of Interstate 10 between 7th Avenue and 7th Street as a test deck for different high durability high retro-reflective products. This area of I-10 was selected for the test area because of high traffic volumes, weaving movements and the frequent closures for maintenance activities, which allows for retro-reflective data collection.

The products tested include Company X; XXX-400, Company Y; YYY-900, Company Z; ZZZ-43 and two different HAL9000 products – Series P and Series P1. The Delta LTL-X Retro Meter was used to randomly test each product for retro-reflective during each planned maintenance road closure. The results are outlined in the table below:

Product	XXX-400			YYY 90			ZZZ 43			HAL9000 P			HAL9000 P1		
	High	Median	Low	High	Median	Low	High	Median	Low	High	Median	Low	High	Median	Low
Jul-04	724	590	501	886	706	442	664	551	420	755	614	437	873	809	627
Nov-04	853	539	331	321	264	126	390	334	277	781	600	419	862	702	576
Mar-05	409	332	201	228	195	167	444	304	174	938	836	718	768	649	489
Jun-05	329	223	82	148	114	40	274	191	113	781	600	419	862	702	576
Dec-05	288	171	104	133	96	48	240	143	59	606	459	163	543	471	274
Apr-06	256	163	46	129	102	41	250	141	55	630	493	276	584	512	311
Jul-06	409	118	55	110	68	23	147	90	29	531	361	149	475	380	146
Oct-06	197	83	43	104	79	48	142	99	36	485	324	102	419	335	159

The results of the retro-reflective readings indicate that the average millicandels readings for most of the products fell below the 100 millicandel level after only approximately 27 months of use and have been replaced.