Appendix 9
QUESTIONS FOR ASAP TOUR FOR MEDIAN Crossover
CRASH COUNTERMEASURES

Scoping

When is placement of a median barrier considered?
   New Construction?   Yes
   Reconstruction?     Yes
   Resurfacing/Restoration/Rehabilitation (3R)?
   Response to crash history? (Project initiated to address safety concern) Yes
   Systemwide policy to implement barrier?       Political?
   Other?

Warrants

How does the agency decide when a median barrier is warranted?
   Cross section, traffic, alignment, etc?
   Crash history?   Yes
   Across the board policy?
   Case-by-case?   Yes

How does the agency decide when a high tension cable median barrier should be used, rather than some other system [e.g., cost, deflection, median width, maintenance, design vehicle, terrain, aesthetics, snow plowing, soil conditions, other]?

   • Cost
   • Deflection
   • Median Width
   • Maintenance
   • Aesthetics
QUESTIONS FOR ASAP TOUR FOR MEDIAN CROSSOVER
CRASH COUNTERMEASURES

Design

What is the status of high tension cable barrier in your Agency? We are evaluating the
different kinds.

What high tension cable median barrier systems do you allow? Brifen, Safence, Cass
(under evaluation)

What are the differences that affect your choice of systems?

What is the maximum typical slope on which you place the barrier? 6:1

What guidelines do you use for coordination of the barrier and median slopes?

What location(s) do you use for placement of the barrier, along shoulder, near center of
median, intermediate? Describe. We have placed it along the shoulder, near center
and are evaluating it.

Do you place a mow strip under the barrier?
○ Under what conditions?
○ What material? Width? Thickness?

We placed mow strip under the
Barrier for two (2) projects and
did not for two (2) and are
evaluating it.

Have you made any special designs due to frost heave concerns? No

Have you made any special designs due to soil conditions? No

How do you accommodate median crossovers? Are you eliminating crossovers? No

How do you accommodate mainline bridges? We go along on side of bridge.

How do you coordinate with other safety barriers and/or impact attenuators? With
concrete barriers we place it behind it, place it between impact attenuators.

How do you coordinate with existing fixed objects, such as bridge piers, inlets, sign
bridges? We go along one side of it and keep the protection for the fixed objects.

What other safety treatments do you apply in conjunction with the barrier?
○ Shoulder rumble strips? No
○ Delineators? Yes
○ Other?

Have you used socketed posts? Yes

Have you used driven posts/sockets? No

Do you place the high tension cable median barrier only in freeway medians? Yes
○ What other locations? None
QUESTIONS FOR ASAP TOUR FOR MEDIAN CROSSOVER CRASH COUNTERMEASURES

What is the longest run of cable between anchors? 5 miles

Design requirements for curves and tapers, e.g. post spacing, minimum and maximum criteria?

How are posts in rock detailed? Not encountered

Design (continued)

Is estimated deflection for a given post spacing based on the manufacturer's recommended design? If not, explain. Yes

Do you consider 3-cable and 4-cable systems to be equivalent? We are experimenting with both 3-cable and 4-cable systems.

Have you or do you plan to use TL4 cable guard? What criteria do you use? ?
QUESTIONS FOR ASAP TOUR FOR MEDIAN CROSSOVER CRASH COUNTERMEASURES

Installation

What production rate is typical [for both L.F. of cable guard and terminal installation]? [Does it vary by location (mid-median vs. edge of shoulder)? Does it vary by product?]

Were there any problems with construction of the mow strip (if used)?

Describe any difficulties with installation of the cable barrier.

Have you experienced any problems with installations in rock?

How much time is required between concrete post installation and tensioning?

Have you experienced any quality problems with manufactured materials?

Have you experienced any quality problems with constructed materials, e.g. concrete?

Do you use each manufacturer’s recommended tension meter for installation? Do you have a preference?
QUESTIONS FOR ASAP TOUR FOR MEDIAN CROSSOVER CRASH COUNTERMEASURES

Performance

Has the system allowed any "design" vehicles to penetrate?  
If so, why?

Has the system caused any rollovers or other severe consequences?  
What factors contributed?  No

Has the system remained serviceable between the time of an initial impact and start of repairs?  Yes

Has the system contained any vehicles beyond the "design" limitations (speed or mass)?

Has observed deflection matched design deflection?  Yes

Have you observed any cracking, spalling, break-offs, etc in the concrete posts as a result of impact? Weather? No

Have wet medians, poor soils, and/or frost resulted in barrier shifting or jacking up? If so, has this affected performance? No

Is the system cost effective (in terms of reducing crash/improving safety vs the amount of money spent)?  Yes
QUESTIONS FOR ASAP TOUR FOR MEDIAN CROSSOVER CRASH COUNTERMEASURES

Maintenance

Have the system anchors remained stable? Yes

Who does the repairs? (State forces, or contract forces) Both for Brifen (Contractor) & Safence (State forces)

How is training handled? Contractor (supplier trains – part of contract). Require Contractor to have certified training.

How difficult have repairs been? Simple

Have repair parts been readily available? How much time is required for delivery? Yes. For Brifen - insignificant.

Have repairs caused any confusion regarding parts or methods? No

Have winter repairs caused any special problems (posts frozen in sockets, etc.) No

Has tension been checked after repairs? Yes, at first periodically. It has been ok to check less now.

Does the cable hold correct tension after an impact? Yes

Does the system cause complications for mowing? For snow plowing? Yes. For snow plowing no problem.

Does the system cause complications for other maintenance activities? No

Does the system cause complications for emergency responders and police? Were special training or informational sessions offered? We were concerned but we have not had any problems.

How much time is spent on-site for the average repair? Is more time needed in the winter? Avg. 20 Minutes, same for winter.

Have any repairs required cable replacement? No Have any repairs required replacement of concrete posts or anchors? No

What parts are required for the typical repair? Just the posts and some of the caps

Do you keep an inventory of parts on hand? No – contractor does.
Do you keep cable on hand? How do you estimate the inventory of parts to keep on hand? Where are they stored? What parts are stored inside? What parts are stored outside? It is not an issue for us.

Does maintenance prefer a mid-median or shoulder location? Mid Median, we prefer it to be off set from the center of the median.
Maintenance (continued)

Has maintenance observed any frost heave? If so, how have they handled it? No

Has maintenance observed any salt damage? No

Does cable hold tension over time? Yes

How many tension meters and other specialized tools does each maintenance unit have? None, contractor has one.

How do maintenance workers feel about having to maintain the system with greater exposure to Interstate traffic? Contractor does it for Brifen.

How does law enforcement feel about not being able to go through the ditches to catch speeders going in the other direction? We have not had any complaints.