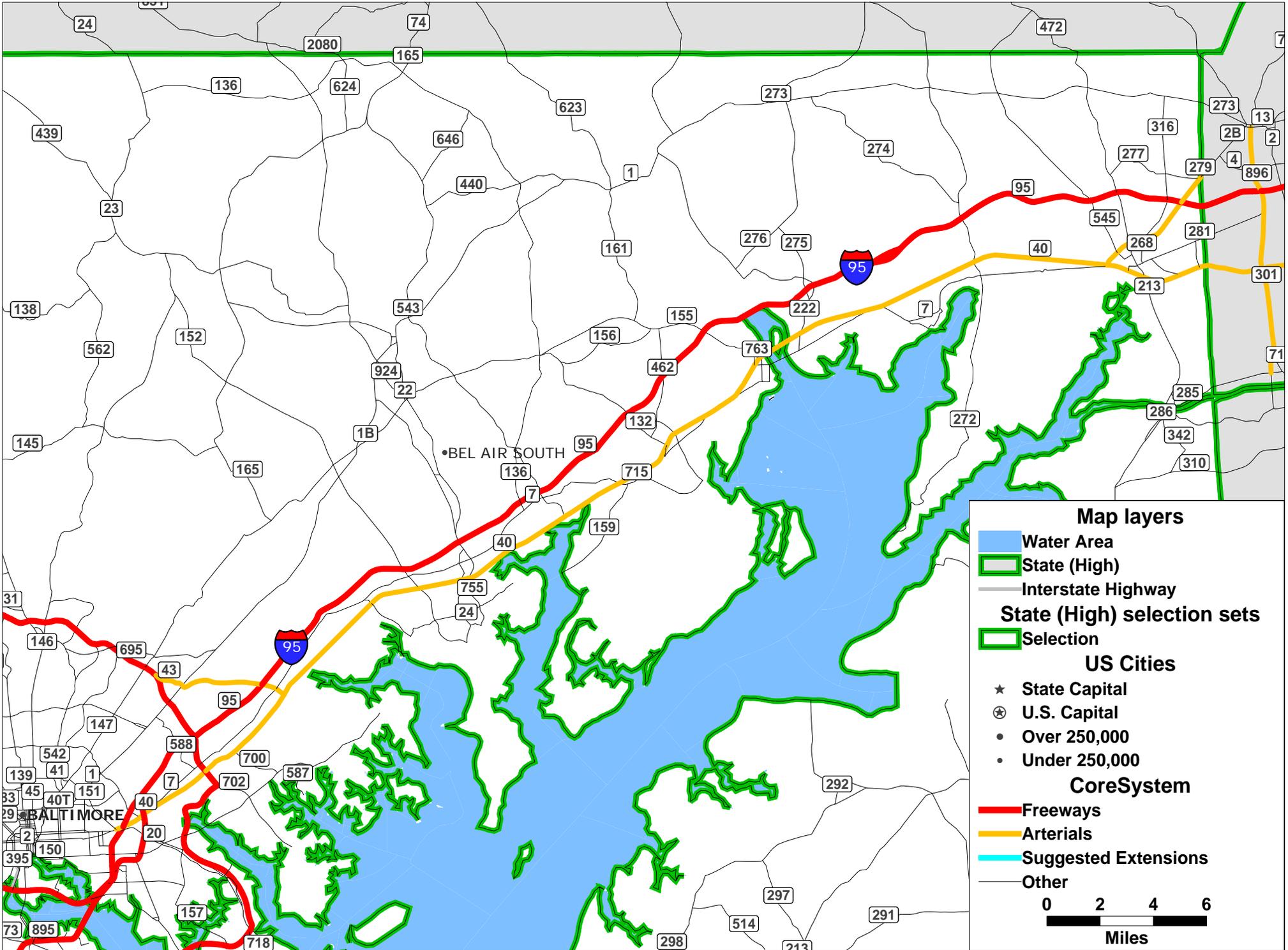
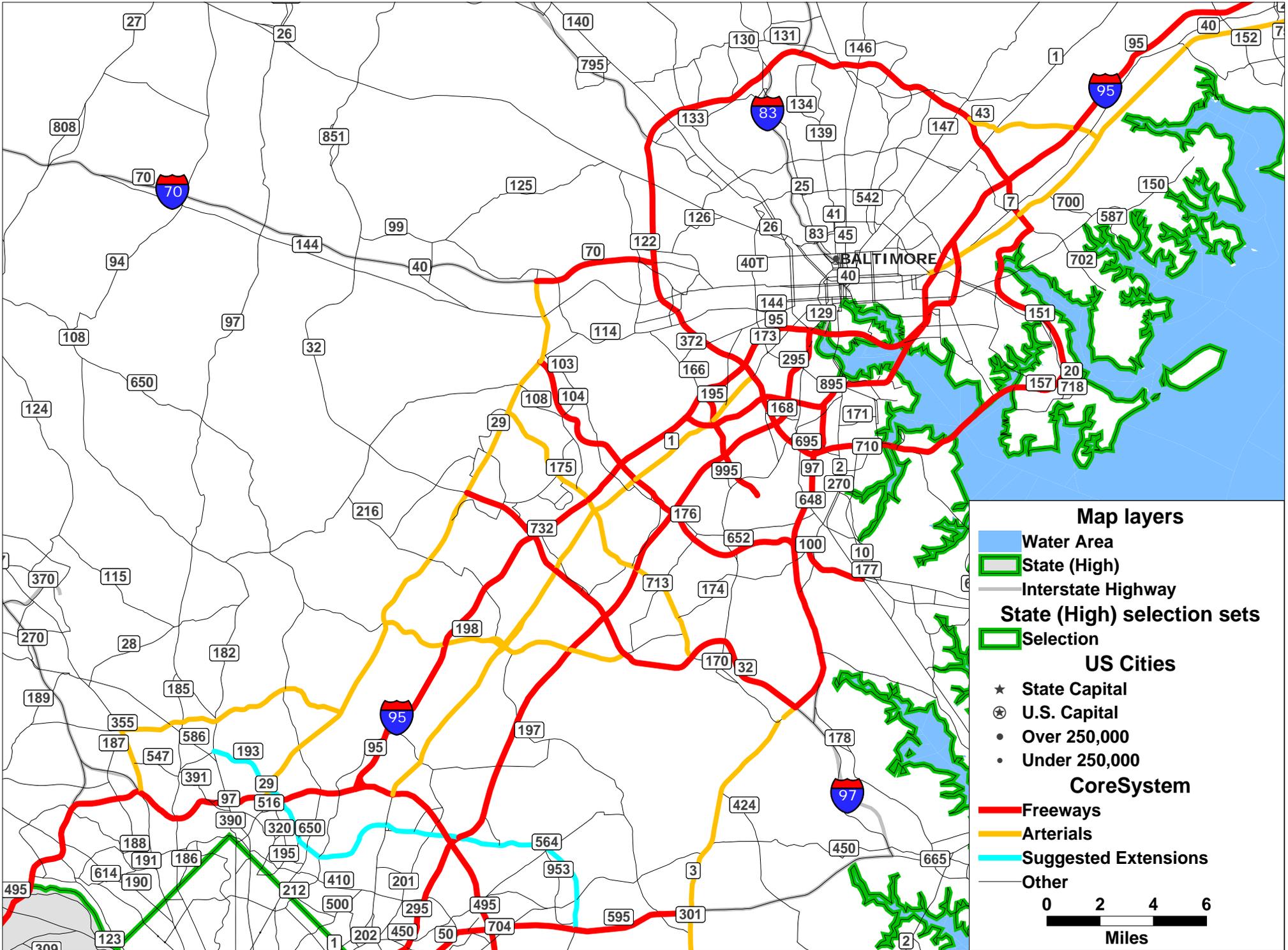
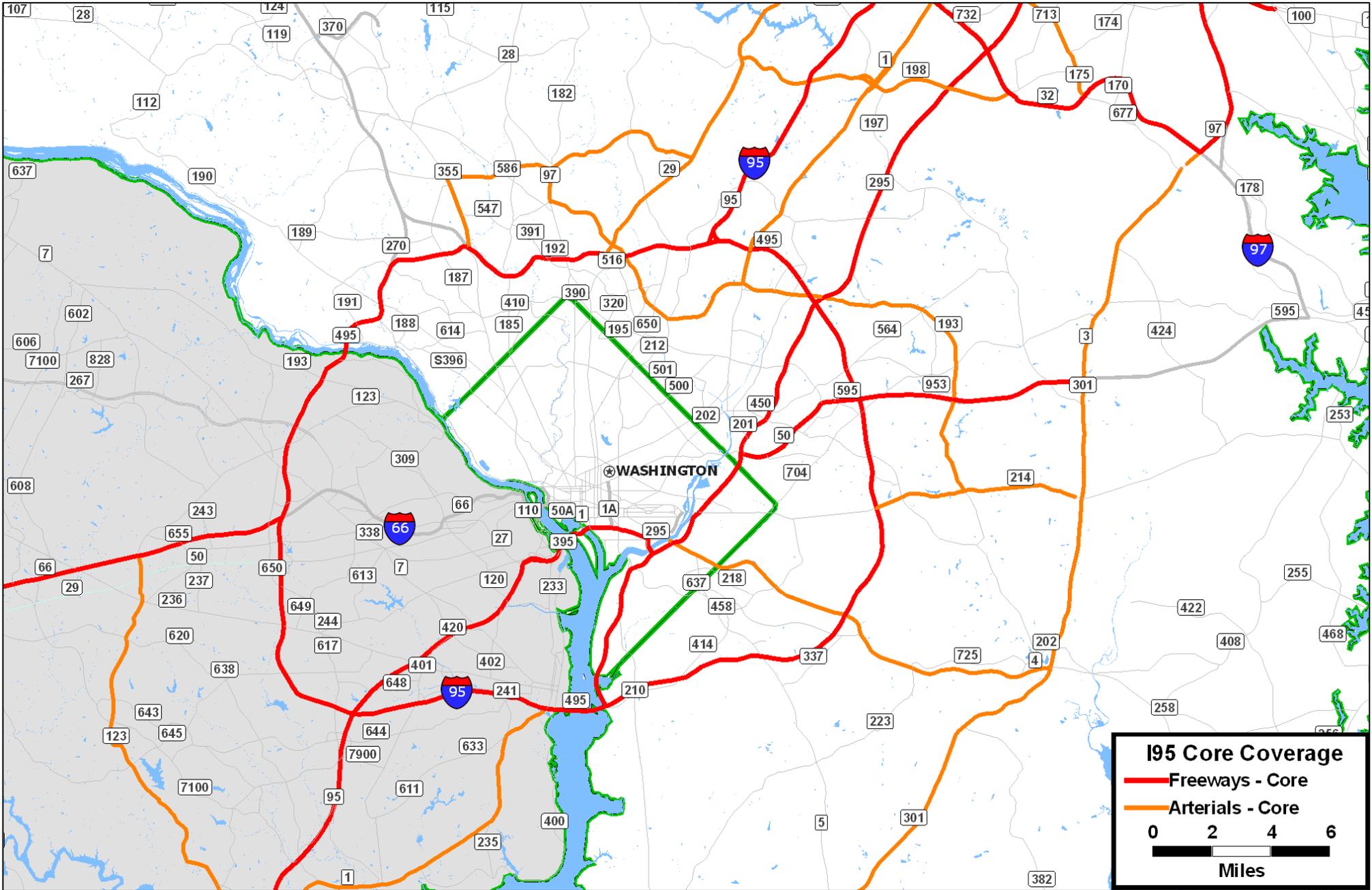


APPENDIX A: INRIX COVERAGE







APPENDIX B: NATIONAL GUIDANCE LITERATURE

National Guidance for Travel Time Message Display

MUTCD and FHWA

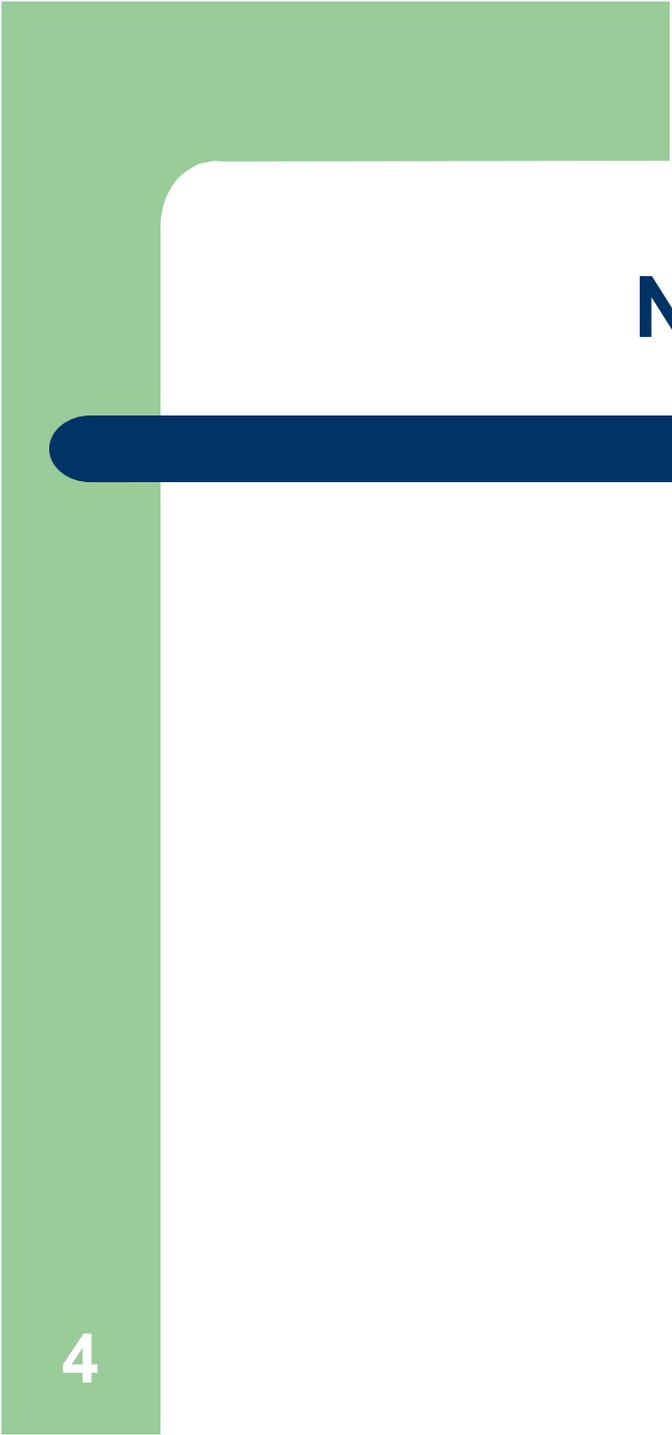
November 2008

MUTCD Guidance on DMS

- Need to follow regular guidance for overhead signs
- Acknowledges DMS is evolving

MUTCD – Pertinent Guidance

- SHALL
 - Centered within each line
 - No more than 2 messages on a 3-line sign
 - Can't use display techniques (fading, exploding, etc), nor animation, dynamic elements, etc.
- SHOULD
 - No more than 2 displays (i.e., pages, or phases) in one message cycle
 - One thought per display
 - CONGESTION AHEAD – just by itself is vague; make it meaningful by supplemental message, e.g., where, etc.
 - Limited to 3 lines and 20 characters per line
 - Letter size 18" (desired) , 10.6" (min)
 - Readable 2 times by a motorist



National Guidance



FHWA

General Guidance

- FHWA has no specific policy or position on Travel Time messages on DMS
- FHWA encourages following the MUTCD
- FHWA encourages each State to develop their own standard

DMS Recommended practice & Guidance (Paniati, Jul-2004)

- Adds value as supplemental information to incident or road construction
- Adds value for special event traffic
- Recommended practice:
 - Public awareness before travel time implementation
[Note: Media blitz, “Travel time coming in X days” on signs]
 - Travel time display in a full autonomous way without any operator intervention
 - Travel time may not be appropriate at all times/ for all DMSs
 - Add distance to destination – gives a good sense of congestion

Amber, Emergency & Travel Time Messaging Guidance for Transp. Agencies 2004

- Scan of the practice
 - Automated display
 - All agencies -- Information posted during AM & PM peaks
 - Opinion
 - Accuracy of travel time – important for credibility
 - Most interviewees – info geared for local commuters; however, others can be accommodated

Amber, Emergency & Travel Time Messaging Guidance for Transp. Agencies 2004 (Cont'd)

- Lessons learned
 - Public awareness and feedback needed
 - Travel time must be dynamic
 - Needs to be treated differently than emergency messages
 - Should be well designed so that motorists get familiar quickly and can read the message faster
 - Same sign should not be used for TT for HOV and general purpose lanes
 - Too much info
 - If needed, can provide the time savings between the two (*Note: may apply to ETL*).

Travel Time Best Practice – Enterprise Pooled Fund Program, 2007

Provides a good and updated nationwide scan of DMS Travel Time

- Seattle, WA
 - City as a destination (vs. routes)
 - Shorter distance – better feedback
 - Change messages every 2 mins
- Twin Cities, MN
 - Road or key landmarks (e.g., river) as destination

Travel Time Best Practice – Enterprise Pooled Fund Program, 2007 (Cont'd)

- Illinois State Toll Highway Authority
 - Uses both permanent and portable DMSs
- Toronto, Canada
 - Uses range
 - Under free-flow, it uses speed limit
 - When it exceeds 40 minutes, it displays:
 - “Stop and Go Conditions”

Travel Time Best Practice – Enterprise Pooled Fund Program, 2007 (Cont'd)

- Milwaukee, WI
 - Updates every minute
 - Destinations change based on TOD (e.g., during AM peak, downtown destinations are reported).
- Houston, TX
 - Updates every 10 mins between 5:30 - 7:30 or when travel time differs from free-flow
 - Reports time of calculation (i.e., @ 4:30pm)

Travel Time Best Practice – Enterprise Pooled Fund Program, 2007 (Cont'd)

- Nashville, TN
 - Destinations are less than 5 miles
 - Reports distance
 - Reports range
 - Incident higher priority than travel time

Travel Time Best Practice – Enterprise Pooled Fund Program, 2007 (Cont'd)

- Reporting methods
 - Destination, Road or Landmark: Most Common
 - Twin Cities – Posts 2 destinations on same phase
 - Milwaukee
 - Bay Area
 - Houston
 - Kansas City - Posts 3 destinations, with bottom most furthest way

Travel Time Best Practice – Enterprise Pooled Fund Program, 2007 (Cont'd)

- Reporting methods (cont'd)
 - Destination, City
 - Seattle
 - Destination with Travel Time
 - Nashville
 - Travel time with time of calculation
 - Houston – Takes care of latency issue
 - Event description with travel time
 - Toronto, Canada
 - In Ranges
 - Nashville

APPENDIX C: STATE-OF-THE-PRACTICE SCAN

Examples from Other States

Atlanta, GA
* Buffalo, NY
Chicago, IL
Cincinnati, OH
Denver, Colorado
* Fort Lauderdale, FL
Houston, TX
Kansas City, MO
Milwaukee, WI
Nashville, TN
Orlando, FL
Portland, Oregon
San Antonio, TX
San Francisco, CA
Seattle, WA
* Toronto, Canada
* Twin Cities, MN

November 2008

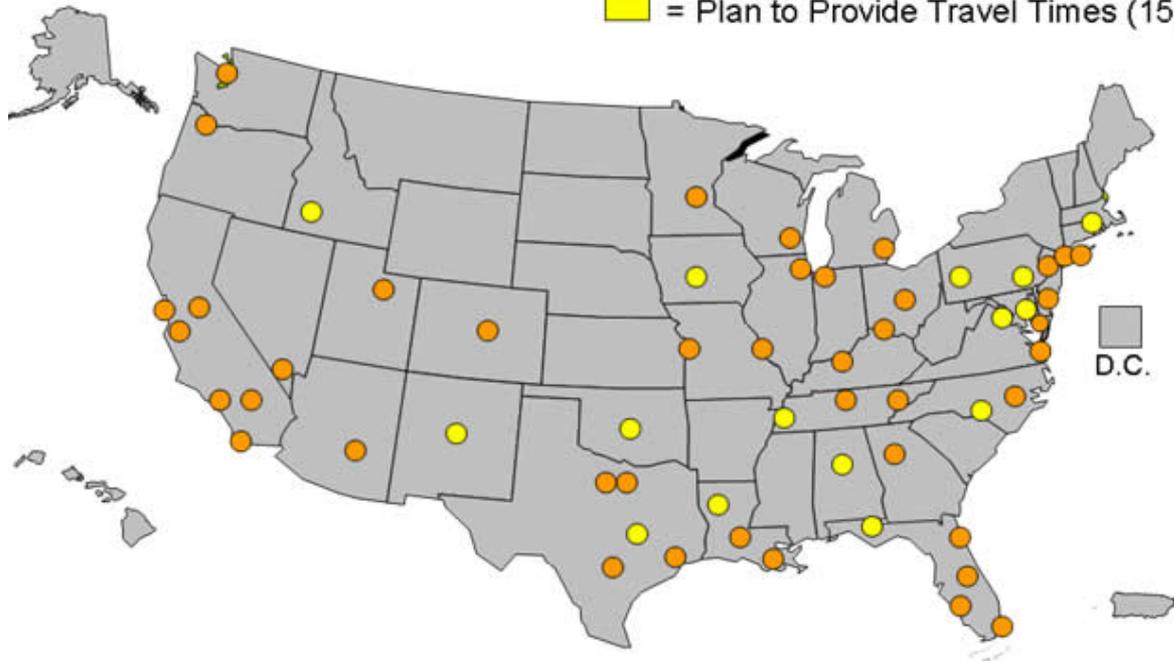
* Not included in the list of 42 implementation cited in FHWA list

Other Implementations

Travel Times on DMS Status

Total, as of August 20, 2008

- = Provide Travel Times (42)
- = Plan to Provide Travel Times (15)



[Source: FHWA Website for Real Time Traveler Information Program](#)

Other Implementations (Cont'd)

As of August 20, 2008

Provide Travel Time Locations

Atlanta, Georgia • Baton Rouge, Louisiana • Chicago, Illinois • Cincinnati, Ohio • Columbus, Ohio • Dallas, Texas • Denver, Colorado • Detroit, Michigan • Fort Worth, Texas • Hampton Roads, Virginia • Houston, Texas • Jacksonville, Florida • Kansas City, Missouri • Knoxville, Tennessee • Las Vegas, Nevada • Los Angeles, California • Louisville, Kentucky • Miami, Florida • Milwaukee, Wisconsin • Minneapolis, Minnesota • Nashville, Tennessee • New Orleans, Louisiana • Newark, New Jersey • NW Indiana, Indiana • New York City bridge approach, New York, New York City Staten Island Expressway • Long Island, New York • Orlando, Florida • Phoenix, Arizona • Portland, Oregon • Raleigh, North Carolina • Sacramento, California • Salisbury, Maryland • San Antonio, Texas • San Bernardino, California • San Diego, California • San Francisco, California • San Jose, California • Salt Lake City, Utah • Seattle, Washington • St. Louis, Missouri • Tampa, Florida • Wilmington, Delaware

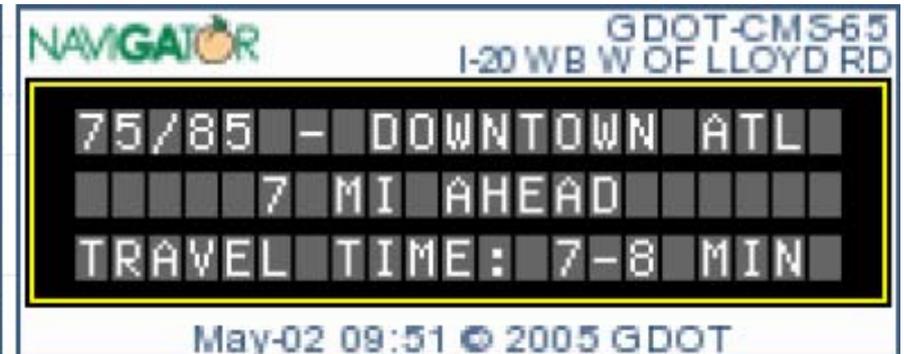
Plans to Provide Travel Time Locations

Albuquerque, New Mexico • Austin, Texas • Baltimore, Maryland • Birmingham, Alabama • Boise, Idaho • Charlotte, North Carolina • Des Moines, Iowa • Memphis, Tennessee • Northern Virginia (DC Metro), Virginia • Oklahoma City, Oklahoma • Philadelphia, Pennsylvania • Pittsburgh, Pennsylvania • Providence, Rhode Island • Shreveport, Louisiana • Tallahassee, Florida

Source: FHWA Website for Real Time Traveler Information Program

Atlanta (GDOT NaviGator)

- Information collected from the VDS
- Provides travel times along interstate
- Information provided between 6am - 9pm
- Distance information – Good practice (per FHWA)



Chicago (ISTHA-IL State Toll Hwy Auth)

- Right justified (Non-compliant with MUTCD)
- **Two formats for number of destinations**
- Full automated
- **Uses fixed number (not range)**
- **TT display – 1) 5-10 am, 2) 3-7 pm, 3) after incidents**
- Incidents, road works, other emergencies (e.g., amber alerts) override TT
- Typical message “To I-90 7 Min | To I-290 12 Min | To I-94 17 Min”



** Red indicates an item that may require extra attention in this study*

Chicago [Chicago TMC (Not Toll)]

- Full automated feed
- Verbiage different than Toll Facilities; No complaints from the public

Cincinnati (ARTIMIS)

- Type of Message
 - TT info on DMS is manual, not automatic
 - Destination
 - Incidents, road works, other emergencies (e.g., amber alerts) override TT
 - 2-Min Ranges
 - Display only during 6 am – 8 pm M-F



** Red indicates an item that may require extra attention in this study*

Denver (CDOT)

- Planned for future
- Areas with no DMS
- Cost-effective -- Vs. full DMS



Houston (Houston TranStar)

- Updates every 10 mins betn 5:30 - 7:30 or when travel time differs from free-flow
- Reports time of calculation (i.e., @ 4:40pm)
- Road or Landmark as Destination

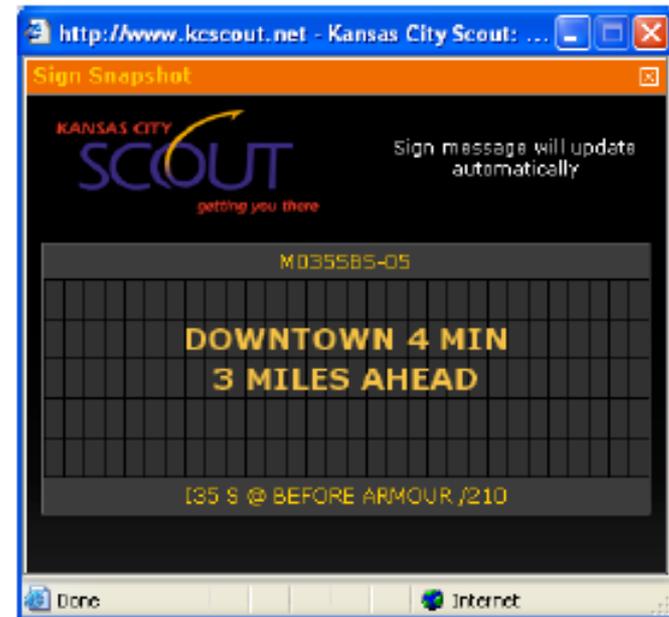
**TRAVEL TIME
TO IH 45
11 MIN AT 4:40**

Jacksonville, FL

- Fully automated process from sensor to DMS display
- Incidents, road works, other emergencies (e.g., amber alerts) override TT
- Display in range
- **Display during 6 am – 8 pm**

Kansas City

- Posts 3 destinations, with bottom most furthest way
- Road or Landmark as Destination



Milwaukee (WisDOT)

- Type of Message
 - Multiple Destination
 - Road or Landmark as Destination
 - Exact Travel Time
 - Center justification
 - **Updates every minute**
 - **Destinations change based on TOD (e.g., during AM peak, downtown destinations are reported).**



** Red indicates an item that may require extra attention in this study*

Nashville (TDOT)

- Type of Message
 - Multiple Destinations
 - **Destinations are less than 5 miles**
 - Distance
 - Travel Time Range
 - Incident higher priority than travel time



I-65 South Bound
North of Trinity

**TRAVEL TIME TO:
BROADWAY 6-8 MIN
SHELBY 4-6 MIN**

I-24 East Bound
West of Briley Pkwy.

**DOWNTOWN LOOP
4.5 MI AHEAD
TRAVEL TIME 8-10 MIN**

Source:

www.tdot.state.tn.us/tdotsmartway

Operating Agency: TDOT

ATMS System: Smartway

** Red indicates an item that may require extra attention in this study*

Orlando (FDOT)

- Type of Message
 - Destination
 - 2-Min Ranges
 - Two Phase Design



Portland (ODOT)

- Up to 4-min ranges during congestion
- 2-Min ranges at other times

TRAVEL TIME TO	
I-405	12-15 MIN
HWY 26	10-12 MIN

San Antonio (TxDOT)

- Type of Message
 - Multiple Destinations
 - 2-Min Range Travel Time



TRAVEL TIME TO
US90 UNDER 5 MINS
US281 6-8 MINS



TRAVEL TIME TO
US 281
4-6 MINS



TRAVEL TIME TO
WALZEN 5-7 MINS
LP1604 11-13 MINS



TRAVEL TIME TO
410/281 7-9 MINS
LP1604 7-9 MINS

San Francisco (CalTrans)

- Type of Message
 - Destination
 - Road or Landmark as Destination
 - Exact Travel Time
 - Multiple Destinations shown on one phase



Seattle, WA

- **City as a destination (vs. routes)**
- Shorter distance – better feedback
- Change messages every 2 mins





Not Listed on FHWA Records

Buffalo (NYS DOT)

- NYS Thruway
 - Destination
 - Exact Travel Time



Source: www.nittec.org

Operating Agency: NITTEC

ATMS System: Crossroads (IBI)

NIMS Graphical User Interface

User Name: sysuser Organization: IBI GROUP

Route Name	Length (mi)	Current TT	Free Flow TT
I-290 WB	3.5	03:48	03:52
I-290E Maple Rd to I-90W Ex...	3.4	04:12	03:42
I-90 EB Exit 50-48A	15.8	16:46	17:21
I-90 EB Exit 55-50	9.1	08:55	10:02
I-90 EB Exit 61-55	63.6	01:00:13	01:09:48
I-90 WB Exit 48A-50	15.9	17:15	17:23
I-90 WB Exit 50-55	9.1	08:51	10:01
I-90 WB Exit 55-61	65.4	58:54	01:11:47
I-90E Exit 54 to Downtown	8.2	08:54	08:59
Rte33 EB	6.9	07:39	07:37
Rte33 WB	6.9	08:52	07:37
TT Route 1	7.6	09:50	08:19
TT Route 2A	6.2	08:54	08:59
TT Route 2B	7.9	07:25	08:38
TT Route 3A	8.6	11:30	09:28
TT Route 3B	9.1	09:26	09:55
TT Route 4	6.5	06:16	07:10

Map labels: Lake Erie, I-190, I-190 West State Thruway, I-190 East State Thruway, I-190 West Exit 55, I-190 West Exit 50-48A, I-190 West Exit 48A-50, I-190 West Exit 50-55, I-190 West Exit 55-61, I-190 East Exit 54 to Downtown, Rte33 EB, Rte33 WB, I-290 WB, I-290E Maple Rd to I-90W Ex...

VMS - 4 [290EB:4:VMS 4] TRAVEL TIME TO DOWNTOWN 12 MINUTES

VMS - 6 [33WB:6:VMS 6] TRAVEL TIME TO DOWNTOWN 10 MINUTES

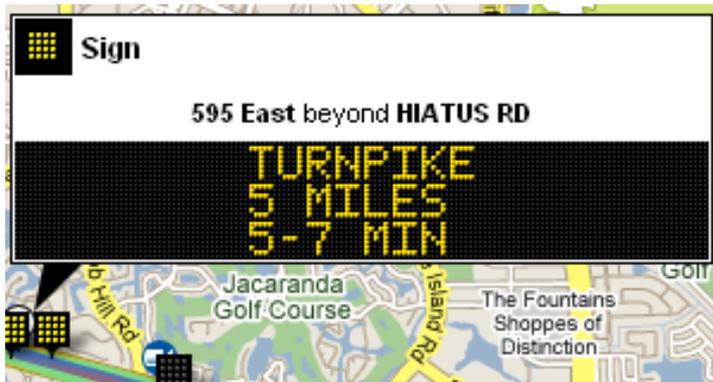
VMS - 11 [N2.675I-190 Seneca] TRAVEL TIME TO I-90 WEST EXIT 55 6 MINUTES

VMS - 17 [42B:7E1-90 Lockwood] TRAVEL TIME TO DOWNTOWN 9 MINUTES

System: DTO001542 x=173168 y=4779432

Fort Lauderdale (FDOT)

- Type of Message
 - Destination
 - Distance
 - Range Travel Time



Source: www.smartsunguide.com

Operating Agency: FDOT Region 4

ATMS System: SunGuide (SWRI)

ATIS Website: SmartSunGuide (IBI)

A screenshot of the SmartSunGuide website interface. The top navigation bar includes the SunGuide logo, SMART logo, and links for "TRAFFIC INFORMATION", "ABOUT US | OUR SERVICES", "FEEDBACK", and "SEARCH". Below the navigation bar, there is a "Traffic Incidents" section with a list of incidents, a "Sign In" form, and a "SMART SunGuide in the news" section. The main content area is divided into a "Route Editor" panel on the left and a "Map" panel on the right. The "Route Editor" panel shows a "New Route 1" with a route name, approximate length of 28 miles, and a travel time of 5-7 minutes. The "Map" panel shows a map of the Fort Lauderdale area with a route highlighted in yellow and a sign icon indicating the location of the VMS.

Toronto, Canada

- Uses range
- Under free-flow, it uses speed limit
- When it exceeds 40 minutes (distance), it displays “Stop and go conditions”
- Event description with Travel Time

Twin Cities, MN

- Road or key landmarks (e.g., river) as destination
- Posts 2 destinations on same phase



APPENDIX D: INTERVIEW MATRIX

PROCEDURAL GUIDELINES FOR IMPLEMENTING TRAVEL TIME ON DMS IN CHART

November-2008

Note: GM = Glenn McLaughlin; BJ = Bob Jordan; DL/RD = Dale Lineweaver / Rick Dye; JP/JY = Jean Yves Point-du-Jour / John Young; TV = Toby Valmas, EI = Eguia Igbinosun

No.	Question/Issue	Discussion/Draft Resolution	MUTCD/ National Guidance	Scan of Practice (Other States)	Study Recommendation
A Messaging Questions					
1	What will be the format of the travel time messages?	GM: See Item #2	<p>MUTCD: Centered within the line No more than 2 phases</p> <p>FHWA: Per FHWA:</p> <ol style="list-style-type: none"> FHWA has no specific policy or position on Travel Time messages on DMS. FHWA encourages following the MUTCD. FHWA encourages each State to develop its own standard. 	<p>See the PowerPoint slide for illustrations.</p> <p>Most - Destination with travel time (some with distance).</p> <p>Toronto displays Event Description with travel time.</p>	See Recommendation in #2 below.
2	Will the travel time message formats require a combination of left justification (say for the destinations) and right justification (say for the travel times) of different portions of the DMS message? (9/3/08 JAD)	<p>GM: For single destination messages, each line will be centered and the destination will precede the time. For multiple destinations, data will be column oriented. Destinations will be listed on the left and will be left justified. Times will be on the right and will be right justified. Spaces will be added to align columns. See illustrations at the end of this document.</p> <p>BJ: Good with above.</p> <p>DL/RD: No opinion. Traffic Engineers to determine. CHART will support whatever is decided.</p> <p>JP/JY: Good with GM's response.</p> <p>TV: Top line should always say "Travel Time To" or "Travel Time". The policy is "what" (i.e., the item of interest) goes on the 1st line. Destination and time should go on the 2nd line. Distance can go on the same line or the third line.</p> <p>EI: Good with Toby's responses. Prefers what (1st line), location/distance (2nd line), and time (3rd line)</p>	<p>MUTCD: Fine as long as centered within the line</p> <p>FHWA: See item #1.</p>	<p>Two types were seen:</p> <ol style="list-style-type: none"> Fully centered. Left column left justified; right column right justified. 	<p>The acceptable formats are as follows:</p> <ol style="list-style-type: none"> Text fully-centered for single destination travel time messages. Left element (destination) left justified & right element (travel time) right justified. This can be used for single destination or multiple destination travel time messages. <p>Message content order should be as follows:</p> <ol style="list-style-type: none"> Heading ("Travel Time To") Destination Distance (preferred), Travel Time <p>See illustration.</p>

No.	Question/Issue	Discussion/Draft Resolution	MUTCD/ National Guidance	Scan of Practice (Other States)	Study Recommendation
3	Will multiple phases (pages) be used to display travel time and other information on DMS?	<p>GM: No. Travel time priority is not high enough to do that. When incident messages or other msgs are displayed travel data will not be displayed.</p> <p>BJ: Yes. Has to be. On the toll rate signs, TT data alternates with Toll Rate data. Other than that agree. No multi-phase except in this case.</p> <p>DL/RD: Yes. In the future, incident messages may be combined with on-the-fly Travel Time data. CHART should provide the ability to do other things, such as "WIPERS ON" msgs on one phase and the travel time msg on the 2nd phase. CHART supports multiple message types on the same sign using 3 capabilities: 1) arbitration queue (set for each event); 2) # of phases allowed (per sign); 3) DMS Message Combination Rules (globals all signs). Rick: this topic also encroaches on the debate of whether travel time information should be displayed when there is an incident. There are 2 schools of thought: 1) some believe travelers demand for travel time information is the highest during incidents; 2) others believe incident information is enough and should take priority, because the TT data is much less accurate when there is an incident on the route.</p> <p>JP/JY: Agree with GM's response. 2 phase messages slow traffic and are hard to read. The TT data is also expected to be less accurate during incidents. JY: disagrees and believes TT data should be displayed as a 2nd phase during incidents.</p> <p>TV: No. Travel Time messages themselves should only be single phase. During incidents, a 2nd phase (page) with Travel Time information would be acceptable, but only if there is an alternate route downstream. <i>(System may have to be smart enough to discern which signs are capable of single destination only messages vs. multiple destination msgs.)</i></p> <p>EI: Agree with TV's response, but during an incident we shouldn't require there to be an alternate route. It would be OK to just post travel time to a destination as the 2nd phase.</p>	<p>MUTCD: Up to 2 phases allowed FHWA: No addition</p>	Some use 2-phase (e.g., Orlando).	<p>Travel Time messages themselves should only be single phase.</p> <p><u>Short-Term Recommendation:</u> During incidents, a 2nd phase with Travel Time information.</p> <p><u>Long-Term Recommendation:</u> During incidents, a 2nd phase with Travel Time information, along with alternate routes.</p>
4	Will some signs provide travel times for multiple destinations?	<p>GM: Yes, where applicable. Both single and multiple destinations will be displayed.</p> <p>BJ: Agreed.</p> <p>DL/RD: No opinion. Traffic Engineers to determine.</p> <p>JP/JY: Yes.</p> <p>TV: Yes. Absolutely.</p> <p>EI: Yes.</p>	<p>MUTCD: No guidance FHWA: See item #1.</p>	Common practice. Kansas City even uses 3 destinations.	Yes.
5	How often will travel times be updated?	<p>GM: Every 5 minutes, but dictated by the source, i.e., Inrix. (Note: Inrix updates data every 5-minutes). Operations feedback needed.</p> <p>BJ: No inquiry.</p> <p>DL/RD: Dependent on data the source. INRIX updates will be provided every 5 minutes. CHART polls for data every 5 minutes using an XML interface.</p> <p>JP/JY: Agree with DL's response.</p> <p>TV: Depends on the data source. 5 minutes is good, but if more or less frequent updates are available, don't need to change the message unless the Travel Time changes by 5 minutes or more.</p> <p>EI: Agree with TV's response.</p>	<p>MUTCD: No guidance. FHWA: See item #1.</p>	Varies. 1 min (Milwaukee) -10 mins (Houston).	Depends on provider's frequency. Nominally a 5-minute update cycle should be provided to keep travel times accurate.

No.	Question/Issue	Discussion/Draft Resolution	MUTCD/ National Guidance	Scan of Practice (Other States)	Study Recommendation
6	<p>Will the travel times be displayed in ranges, and if so will how will these ranges be calculated - e.g. would we use time "bins" like 0-5 mins, 5-10 mins, 10-15 mins or would we use a plus or minus calculation for example plus or minus 2 minutes 11-15 mins, 14-18 mins, etc.? (9/3/08 JAD)</p>	<p>GM: Yes. Suggest use of a graduated scale, as follows-</p> <p>0-10 Mins : +/- 1 mins (e.g., 5 will be 4-6)</p> <p>11-20 Mins: +/- 2 mins (e.g., 15 will be 13-17)</p> <p>And so on</p> <p>BJ: Agreed. If INRIX provides a range, use it. If INRIX does not provide a range we should inquire if we can get one. I do not like making up a range when the data should be able to tell us this.</p> <p>DL/RD: No opinion. Traffic Engineers to determine. Comment: Dale: would like to see exact numbers, no range. Rick: for the initial deployment, the simple number (or bin) is fine. Policy should cover ultimate situation, for which the range should be tied to INRIX quality indicators (score 30 – link data is good, 20-medium, data only available from surrounding links, 10-based on historical data, no probe data). So, for example, a wider range might be the way to go for data scored in the 20s. And still wider range for data scored as 10. Since a route consists of multiple links, and each link can have a different INRIX quality indicator, some thought would need to be provided if we go with this approach. For now, keep it simple us exact number or a range according to the bins.</p> <p>JP/JY: Agree with GM's response, but we need to cap the range to no more than 5 minutes.</p> <p>TV: Prefers to have travel time be displayed to the nearest 5 minute increment, without breaking speed limit. Public would be more appreciative of 5 minute increments. People say "I'll be there in 5 minutes" or "I'll be there in 10 minutes". Nobody says I'll be there in 7 minutes.</p> <p>EI: Would recommend going with a range for < 30 minutes. After 30 minutes go with 5-minute buckets as Toby suggested.</p>	<p>MUTCD: No guidance FHWA: See item #1.</p>	<p>Both exact time and ranges (mostly) are used. Milwaukee uses range. Tampa uses a hybrid - Range up to 30 minutes and then 5 minute buckets.</p>	<p><u>Short-Term Recommendation:</u> display range. Have option, if less than posted speed limit, to adjust as required to free flow time at posted speed limit.</p> <p>0-10 mins : +/- 1 mins (e.g., 5 will be 4-6)</p> <p>11-20 mins: +/- 2 mins (e.g., 15 will be 13-17)</p> <p>>20 mins: +/- 3 mins (e.g., 25 will be 22-28)</p> <p><u>Long-Term Recommendation:</u> same as above, except when > 30 minutes would be rounded to 30, 35, 40, 45, 50, 55, 60 mins</p> <p><u>Note: Use speed limit as the driver of minimum travel time threshold.</u></p>
B Display Locations					
7	<p>Which DMS will be used for travel time (this will be influenced by INRIX data coverage area)?</p>	<p>GM: Study to determine that.</p> <p>BJ: Agreed. The CHART modifications should impose no limits on which signs can be used. It should be solely based on the size sign/shape and needs identified by the study.</p> <p>DL/RD: Will be configurable in CHART on a per sign basis. Initially, TT data may only be displayed on a small # of signs, then added incrementally to other signs.</p> <p>JP/JY: Any of the 3x18 or bigger signs can support TT msgs, and possibly 3x14 signs.</p> <p>TV: Any sign really, if the information fits. 2x14 and bigger would work. 3x8 (portables) could also work, but 3x8s could not be used on Interstates. 3x8 (portables) to display travel times on State Routes is OK.</p> <p>EI: Agree with TV's response. If there is no space on smaller signs, the travel time would be more important than the distance. Also, on a 3x8 sign there is no room for a travel time range, must be exact.</p>	<p>MUTCD: No guidance FHWA: See item #1.</p>	<p>None found.</p>	<p>To be provided as a separate list. Not all DMS locations will be suitable for travel time displays. However, all sign types will be, except the test 1x3 and 1x8 signs.</p>

No.	Question/Issue	Discussion/Draft Resolution	MUTCD/ National Guidance	Scan of Practice (Other States)	Study Recommendation
8	What destinations/routes will travel times be provided for?	<p>GM: In general, focus should be interstate to interstate. Stick with roads and exits, not points of interest (e.g., BWI or Inner Harbor). Major destinations (for display) include Interstate to Interstate interchanges and major routes (e.g., MD 32, MD 100, and MD 195). Destination is to be displayed in terms of route mostly.</p> <p>BJ: Agreed.</p> <p>DL/RD: No opinion. Traffic Engineers to determine. Comment: The current opinions listed would not work very well for MdTA. Using Bay Bridge, 895 Toll..... are more recognizable and are referred to by the media than any exit/route combination. I am not offering it as an opinion just a comment that exit/route may need some exceptions.</p> <p>JP/JY: Agree Glenn, except that Bridges and Tunnels should be allowed also. Agree with DL.</p> <p>TV: Good with the above. Display the interstate destinations as a 1st priority, then State Routes. DMS on Interstates should give travel times to other Interstates and major State Routes as a 1st priority. Signs on State Routes should give Travel Times to Interstates as a 1st priority and other major State routes as a 2nd priority. For example, the DMS on Rt. 32 EB could give the travel time to the I95/495 beltway or to the I95/895 interchange (2 destinations in opposite directions). Also, it can be based on the time of day demand.</p> <p>EI: OK with the above. In additions, to Interstates, Routes, Bridges, and Tunnels as destinations we should also include major landmarks like JKC/Fed-X Field during special events. And, it's OK to put multiple destinations if no alternate routes are available. On signs that can display both alternate routes and multiple destinations, alternate routes should be provided over multiple destinations. As far as the signs, some information is better than none (leaving blank is not good).</p>	<p>MUTCD: No guidance FHWA: See item #1.</p>	<p>Varies: -- Routes (I-435), Point of Interest (e.g., Downtown), Landmark (e.g., River), City name.</p> <p>In some cases, destination varies with time of day.</p>	<p>The following destinations are recommended for display on Travel Time DMS:</p> <ol style="list-style-type: none"> 1. Interstates 2. Major State Routes 3. Landmarks (Bridges and tunnels) 4. Major sinks along the route during special events (e.g., Redskins Stadium, Camden Yards)

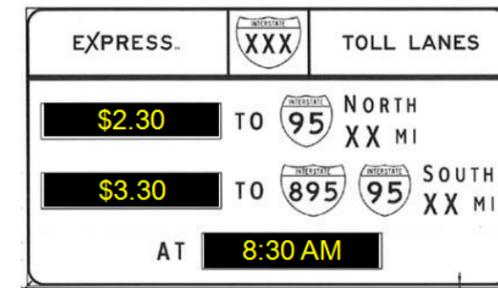
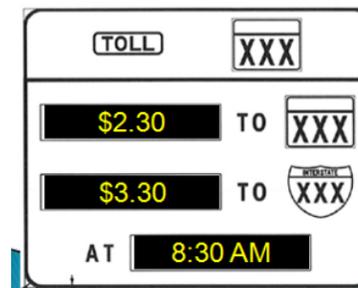
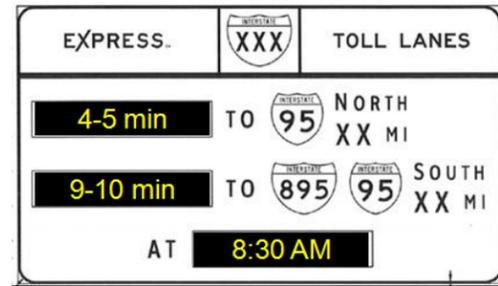
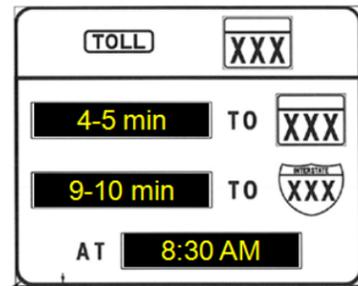
No.	Question/Issue	Discussion/Draft Resolution	MUTCD/ National Guidance	Scan of Practice (Other States)	Study Recommendation
C Logistical Issues					
9	Will travel times be shown that indicate speeds greater than the speed limit?	<p>GM: No. Basically stay with <i>Miles in Minutes</i> range.</p> <p>BJ: Disagree strongly. There is no law for this and ETLs require accurate Travel Times. If we limit the lower bound it could greatly influence demand (in a negative way) to use the ETL since the public will not see an accurate time savings. This would discourage use of ETL MLs. (For example, If travel times in the ETL's are free-flowing and above posted speed, while GP's are somewhat congested but still flowing near posted speed, this may be a 10 MPH speed difference. Limiting the travel times to posted speed would show no time savings at all between the GP's and ETL's.)</p> <p>DL/RD: No opinion. Traffic Engineers to determine. Comment: preference would be to see actual times. However, CHART will be able to support upper and lower bounds on a per route (not link) basis. Rick: possible area of concern if travel times are posted that exceed speed limits it could be construed that the Government is acknowledging that laws are being broken. Political nightmare.</p> <p>JP/JY: Emphatically no! Should not display any travel times that are lower than the posted speed limit. This could easily be interpreted that the Gov't is condoning speeding.</p> <p>TV: Stick with what is safe (meaning no travel times implying State Law is being broken).</p> <p>EI: SHA should put nothing on the DMS to encourage people to go over the speed limit. If the Travel Time is less than what it should be if travelers were following the posted speed limit, CHART should display nothing less than the time it would take at the posted speed limit or display no delays. We can also perhaps show "Destination- Distance- Free Flow (instead of TT)".</p> <p>MSP: MSP does not recommend that SHA list any travel times for traffic that would travel over the posted speed limit. Their suggestion would be to indicate "No delays" when traffic is traveling without obstructions. MSP suggests that when there are delays, the travel times that SHA lists should be the actual travel speed (assuming that the traffic's speed is at or under the posted speed limit). MSP cannot approve or condone traveling over the posted speed limit, nor should travel times indicate such approval.</p>	<p>MUTCD: No guidance on the issue.</p> <p>FHWA: Minimum should be posted speed limit (B. Jeffers)</p>	<p>Toronto uses Speed Limit as threshold. Not seen anything for others.</p>	<p>Provide the option to limit the bottom threshold by the speed limit derivative. Provide flexibility in the software to support changes in policy and potentially different needs between MdTA and SHA. For example, SHA may be more sensitive to, and want to prohibit display of travel times that imply traffic is moving faster than posted speed limit.</p> <p>Whereas, MdTA may be more inclined to post the actual time, whatever it is, particularly in the managed/express toll lanes, as this can influence demand.</p>

No.	Question/Issue	Discussion/Draft Resolution	MUTCD/ National Guidance	Scan of Practice (Other States)	Study Recommendation
10	What constitutes "bad" data? (e.g., we don't want to display Travel Time: 999 minutes)?	<p>GM: If the travel time exceeds some threshold (say 4 times the norm – from a table), we should switch to an incident or congestion message and pull down the travel time message. At 4x, there are 2 possibilities: a) bad data from INRIX or b) an incident (congestion or accident).</p> <p>BJ: Would like to see an alert when it exceeds 4x the time it would take at the posted speed limit and disabling TT display all together at 10X. Really at 4x (or sooner), there should be some sort of incident msg to go up and Travel time estimates may be best done manually by operations.</p> <p>DL/RD: CHART will support upper and lower limits by route. Currently there is only one number which is used to provide an alert (e.g., 4x). If another parameter is required (e.g., the 10x one which would automatically pull down the travel time message), CSC would need to know soon.</p> <p>JP/JY: Agree with GM's response. 4X is fine to alert. Do not prefer a second threshold. Would be up to the operator (default display cut off at 4x).</p> <p>TV: 4x is a good idea for alert. Like having the flexibility for a 2nd parameter to stop TT message display automatically if a 2nd threshold is exceeded. 10x sounds okay.</p> <p>EI: Agree with TV's response. Keep the 2nd parameter as an option that may or may not be used.</p> <p><i>[Note: CHART will support 2 threshold parameters. That is, to alert at 4x and stop displaying at 10x, can be handled]</i></p>	<p>MUTCD: No guidance FHWA: See item #1.</p>	<p>Toronto switches to Test Display " Stop and go conditions" if time hits a threshold.</p>	<p>Recommend two types of threshold:</p> <ol style="list-style-type: none"> 1. <u>Alert Operator Threshold:</u> Recommend a configurable threshold (e.g., 4x nominal travel time) to alert the operator. 2. <u>Pull Down Message Threshold:</u> Recommend a configurable threshold (e.g., 10x nominal travel time) to switch to "Blank" or other message, such as "Stop and Go" or "Congestion Ahead".

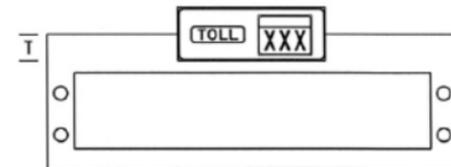
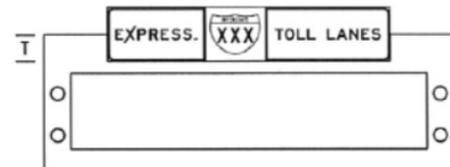
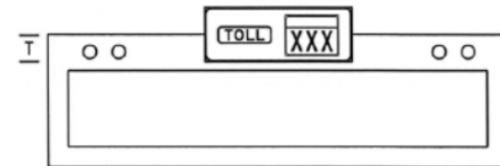
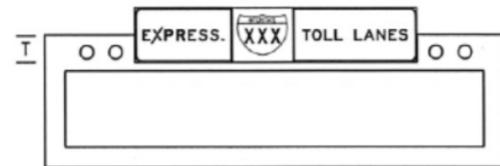
No.	Question/Issue	Discussion/Draft Resolution	MUTCD/ National Guidance	Scan of Practice (Other States)	Study Recommendation
11.	Where does travel time come in the hierarchy of DMS messages?	<p>GM: Low on the list. Maybe with Safety Messages. Operations feedback needed. Possible hierarchy is-</p> <ol style="list-style-type: none"> 1. Urgent Messages (like Amber alerts) 2. Incident messages 3. Roadwork 4. Congestion 5. SHAZAM 6. Weather 7. Special 8. Action 9. Safety - Discretionary safety messages (e.g., Governor requested "Drive to Survive"), or Generic messages (e.g., "Drive to Survive" or "Set Your Clocks Back") <p>BJ: No inquiry.</p> <p>DL/RD: Same answer as #3: This will be handled using the arbitration queue, # phases allowed per sign; message combination rules.</p> <p>JP/JY: Agree with GM's response, but TT messages should have priority greater than Discretionary Safety Messages during peak travel time.</p> <p>TV: Should be at the same level as congestion. At least 4 on the hierarchy.</p> <p>EI: During peak travel agree with TV's response. During non-peak should come after Safety (same as GM's).</p>	<p>MUTCD: No guidance FHWA: See item #1.</p>	<p>All seen to come after Incidents, Roadwork and other <i>ad hoc</i> preemptive messages (such as Amber Alert).</p>	<p><u>Short-Term Recommendation:</u> The travel time message should be displayed before or in lieu of congestion messages. <i>(Scan from other States are consistent with this recommendation).</i></p> <p>The suggested priority is as follows:</p> <p>#1. Urgent, #2. Incident, #3. Planned Roadway Closure, #4. Toll Rate, #5. Travel Time, #6. Congestion, #7. Shazam, #8. Weather, #9. Special, #10. Action, #11. Safety</p> <p>Toll Rate priority justification is as follows:</p> <ol style="list-style-type: none"> A. For the Toll Rate Signs (e.g., ETL) – CHART should configure the system so that only the MdTA centers can talk to these signs. They are for toll operations only. B. For Shared Signs – these signs could possibly display incident messages, travel time messages or toll rate messages (like signs on I-695 near the I-95 interchange). For these signs, Toll Rate messages should be displayed after Travel time. C. For Incident Management Signs – these signs would never display Toll Rate, but could display Travel time. Travel time messages should be after urgent, incident, and planned roadwork messages. <p><u>Long-Term Recommendation:</u> During non-peak travel, the travel time message should come after Safety. <i>(Scan from other States supports indirectly; a lot of states turn off travel time during off-peak time).</i></p>

No.	Question/Issue	Discussion/Draft Resolution	MUTCD/ National Guidance	Scan of Practice (Other States)	Study Recommendation
12.	Do we need to display distance with the travel time data?	<p>GM: Yes. See examples below. For example, 10 miles to 695, Travel Time 7-9 minutes.</p> <p>BJ: We should try to do this. But it should not be a requirement. It should be a user option and determined by policy. There may be case by case exceptions and variances.</p> <p>DL/RD: Yes, if space is available on the DMS. CHART will support as many characters as the sign supports.</p> <p>JP/JY: Yes.</p> <p>TV: Yes, if we have it and it fits, then display distance.</p> <p>EI: Yes, unless there is no room on the sign, and then the travel time is obviously more important than the distance.</p>	<p>MUTCD: No guidance on the issue. FHWA: Encourages as good practice</p>	<p>Many do it now.</p>	<p>Yes, if space is available on the sign, display location, distance, and travel time. Without distance, the message may lose some meaning, particularly for travelers not familiar with the area. On small signs, distance can be left out. Priority should be given to destination and travel time for smaller signs.</p>
13.	Should there be a minimal distance for travel time messages?	<p>GM: Yes. Probably no less than 3-4 miles if within 5 miles of the City, and no less than 5-10 miles if greater than 10 miles from the City?</p> <p>BJ: Yes. We do not want to be posting messages for a half mile saying 30 seconds to the next exit. The minimum should be in policy, not a system parameter. I'll go with GM.</p> <p>DL/RD: Reference response to question #8. Comment: if decision is made to use parens or special characters, we will need to confirm all sign types support those special characters.</p> <p>JP/JY: Agree with GM's response.</p> <p>TV: If it is less than 5 minutes of normal travel time, then don't display it.</p> <p>EI: This question is too confusing and should be deleted. We should decide which signs we want Travel Time messages on. Period.</p>	<p>MUTCD: No guidance FHWA: See item #1.</p>	<p>None found.</p>	<p>Depends on the site itself and will be deferred to the Engineer on a case-by-case basis. <i>(Some States indicated better results for shorter distances).</i></p>
14.	<p>At what point should the travel time data obtained from INRIX be deemed to be of not good enough quality to display travel time messages?</p> <p>Note: INRIX assigns a quality indicator to each link. The quality indicator is actually a score of 10, 20, or 30. A score of 30 indicates the link data is good. A score of 20 means link data is only available from surrounding links. A score of 10 means the data is based on historical data, no probe data.</p>	<p>GM: No inquiry.</p> <p>BJ: We need to study this and determine the parameter over time. I am not familiar enough with the quality indicator provided by Inrix to comment on an exact figure at this time.</p> <p>DL/RD: No opinion. Traffic Engineers to determine. Comment: if all the link data in the route is scored a 10, probably should not display travel time messages. Not accurate enough. However, if half of the links in the route are 30s and half are 10s, what should be done?</p> <p>JP/JY: If the score for all links in the route are 10s, don't display the TT message. It's OK to display if all scores are 20 or above. For routes consisting of multiple links, don't display the TT message if any single link has a score of 10. The historical data is not useful, and the accuracy problems may introduce credibility issues with the traveling public.</p> <p>TV: Agree with JP/JY's response.</p> <p>EI: Agree with JP's response. Even for long routes, with many links, accuracy is very important. For the long-term we may want to study certain cases where just 1 or 2 links with a score of 10 could still be used.</p>	<p>MUTCD: No guidance FHWA: See item #1.</p>	<p>N/A.</p>	<p>Any destination comprising of at least one link with a score of 10 should not be displayed. The historic data can be highly inaccurate.</p> <p>Note: based on a review of INRIX archived data, it's expected that most links (i.e., 95+%) will be scored a 20 or 30 during peak travel times. This should be sufficient for reliable and accurate travel time message display. During certain non peak travel times, travel time message display may not be practical or desired since INRIX data will be spotty (i.e., most routes will have at least one link with a score of 10).</p>

Sample MdTA Toll Rate Signs



Sample MdTA Branded Signs



MANAGED LANE FACILITY

MANAGED FACILITY

Messages would be the same as a typical 3x21 & 3x15 sign.

APPENDIX E: ILLUSTRATIONS OF MESSAGE DISPLAYS FOR CHART DMSs

Illustrations of CHART Travel Time Message Displays Using Existing and Future DMS

November 2008

Note: The messages shown here are for illustration purposes and may not be displayed at some locations at the current time. For example, many signs at BWI are for parking uses.

DMS Inventory

Existing Sign Types			Owner		
DMS Type	Total Quantity	Use for TT Msgs?	SHA	MdTA	BWI
1x3 (SHA test)	1	No	1		
1x8 (SHA test)	1	No	1		
2x12	20	Yes		14	6
2x18	2	Yes			2
3x10	1	Yes			1
3x12	3	Yes	3		
3x13	1	Yes			1
3x14	1	Yes	1		
3x16	2	Yes			2
3x18	7	Yes	7		
3x20	15	Yes	11	4	
3x21	76	Yes	53	23	
3x8 (Portable)*	63	Yes	59	4	
4x15 (MdTA test)	1	No		1	
Total	194	11	136	46	12

* Among the SHA-owned portables shown, 23 of them are deployed at specific locations.

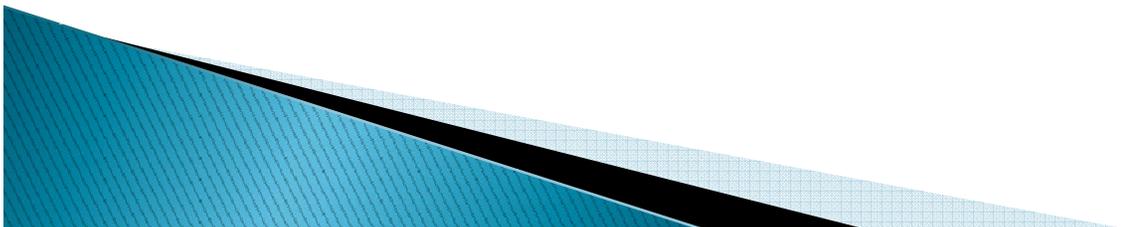
Planned Future Sign Types			Owner		
DMS Type	Quantity	Use for TT Msgs?	SHA	MdTA	BWI
1x3	0	No			
1x8	0	No			
2x12	0	Yes			
2x15 (Type III)	23	Yes		23	
2x18	0	Yes			
3x10	0	Yes			
3x12	0	Yes			
3x13	0	Yes			
3x14	0	Yes			
3x15 (Type II)	1	Yes		1	
3x16	0	Yes			
3x17	4	Yes		4	
3x18	1	Yes	1		
3x20 - 24 (Type 4)	6	Yes		6	
3x20	0	Yes			
3x21	80	Yes	10	70	
3x8	0	Yes			
4x15	0	No			
Total	115	15	11	104	0

= New Type
 = Existing Type

Note: The inventory shown here are fused information and may not be accurate. The quantities obtained from different various sources did not always exactly match.

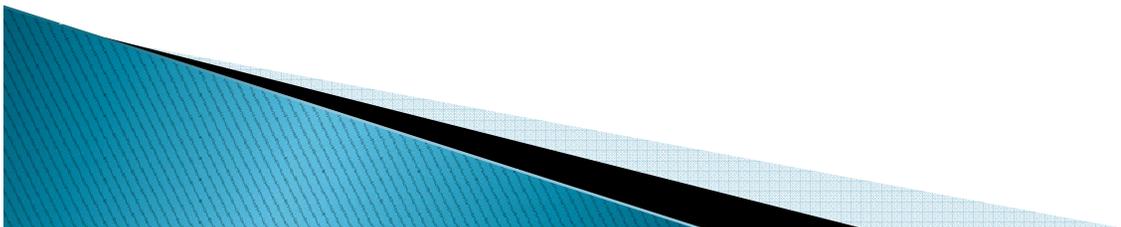
Recommendations (1 of 2)

- ▶ All DMS, except 1x3 and 1x8 can be used for DMS TT Display
- ▶ 15 characters required to allow for 5 character location, 2-digit distance and 2-digit start/end time range, w/space before MI/MIN
 - I-XXXbYY-ZZbMIN
 - I-395 15-20 MIN
- ▶ 14 characters required if no space before MIN
 - I-XXXbYY-ZZMIN
 - I-395 15-20MIN

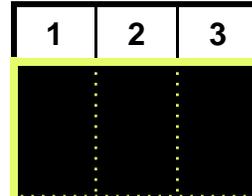


Recommendations (2 of 2)

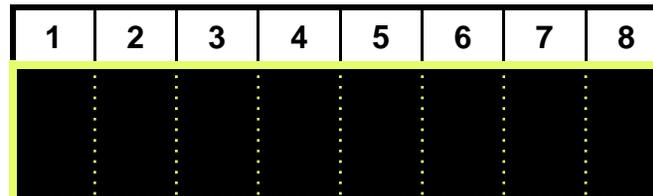
- ▶ Abbreviations and Shortened Names
 - MI for MILES
 - MIN for MINUTES
 - TIME TO for TRAVEL TIME TO
- ▶ Use Spaces before MI, MIN when possible
 - but be consistent, if space before MI, space before MIN
- ▶ For Space Limitation, May Use Exact Time (exception from the guideline), but not indicate speeding.



1x3 DMS (1)



1x8 DMS (1)



These signs can't be used for Travel Times. These are test signs only, located in the Radio Shop and the SOC Backdoor.

2x12 DMS (20 MdTA & BWI Signs)

Single Dest
TT Msg

1	2	3	4	5	6	7	8	9	10	11	12
		T	I	M	E		T	O			
I	-	8	9	5		1	0		M	I	N

Exceptions:
1. No Distance
2. No Time Range

Multiple Dest
TT MSG

1	2	3	4	5	6	7	8	9	10	11	12
INSUFFICIENT SPACE											

Does NOT
Work

or

1	2	3	4	5	6	7	8	9	10	11	12
I	-	8	9	5		1	0		M	I	N
I	-	3	9	5		1	5		M	I	N

Exceptions:
1. No Heading
2. No Time Range

2x15 DMS (23 Future DMSs)

Single Dest
TT Msg

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
T	R	A	V	E	L		T	I	M	E		T	O	
I	-	8	9	5		1	0	-	1	5		M	I	N

No Exceptions

Multiple Dest
TT MSG

or

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
INSUFFICIENT SPACE														

Does NOT
Work

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
I	-	8	9	5		1	0	-	1	5		M	I	N
I	-	3	9	5		2	0	-	2	5		M	I	N

Exceptions:
1. No Heading

2x18 DMS (2 BWI)

Single Dest
TT Msg

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
		T	R	A	V	E	L		T	I	M	E		T	O		
I	-	8	9	5					1	0	-	1	5		M	I	N

No
Exceptions

Multiple Dest
TT MSG

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

Does NOT
Work

or

Multiple Dest
TT MSG

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
I	-	8	9	5					1	0	-	1	5		M	I	N
I	-	3	9	5					2	0	-	2	5		M	I	N

Exceptions:
1. No Heading

3x10 DMS (1 BWI)

Single Dest
TT MSG

1	2	3	4	5	6	7	8	9	10
	T	I	M	E		T	O		
I	-	8	9	5		1	0	M	I
	1	0	-	1	5		M	I	N

- Exceptions:
1. Truncate "TRAVEL"
 2. No space between # and Mile

Multiple Dest
TT MSG

1	2	3	4	5	6	7	8	9	10
	T	I	M	E		T	O		
I	-	8	9	5	1	5	M	I	N
I	-	3	9	5	2	5	M	I	N

INSUFFICIENT SPACE

Does NOT work - No room for a space.

3x12 DMS (4 @ I-68)

Single Dest
TT Msg

1	2	3	4	5	6	7	8	9	10	11	12
		T	I	M	E		T	O			
I	-	8	9	5		1	0		M	I	
		1	0	-	1	5		M	I	N	

Exceptions:

1. Truncate "TRAVEL"

Multiple Dest
TT MSG

1	2	3	4	5	6	7	8	9	10	11	12
		T	I	M	E		T	O			
I	-	8	9	5		1	5		M	I	N
I	-	3	9	5		2	5		M	I	N

Exceptions:

1. Truncate "TRAVEL"
2. No Time Range

3x13 DMS (1 BWI)

Single Dest
TT Msg

1	2	3	4	5	6	7	8	9	10	11	12	13
			T	I	M	E		T	O			
	I	-	8	9	5		1	0		M	I	
		1	0	-	1	5		M	I	N		

Exceptions:
1. Truncate "TRAVEL"

Multiple Dest
TT MSG

1	2	3	4	5	6	7	8	9	10	11	12	13
			T	I	M	E		T	O			
	I	-	8	9	5		1	5		M	I	N
	I	-	3	9	5		2	5		M	I	N

Exceptions:
1. Truncate "TRAVEL"
2. No Time Range

3x14 DMS (1 MD 210)

Single Dest
TT Msg

1	2	3	4	5	6	7	8	9	10	11	12	13	14
T	R	A	V	E	L		T	I	M	E		T	O
	I	-	8	9	5		1	0		M	I		
		1	0	-	1	5		M	I	N			

No Exceptions

Multiple Dest
TT MSG

1	2	3	4	5	6	7	8	9	10	11	12	13	14	
T	R	A	V	E	L		T	I	M	E		T	O	
	I	-	8	9	5			1	5		M	I	N	
		I	-	3	9	5			2	5		M	I	N

Exceptions:
1. No Time Range

3x15 DMS (1-Future MdTA)

Single Dest
TT Msg

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
T	R	A	V	E	L		T	I	M	E		T	O	
		I	-	8	9	5		1	0		M	I		
		1	0	-	1	5		M	I	N				

No Exceptions

Multiple Dest
TT MSG

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
T	R	A	V	E	L		T	I	M	E		T	O	
I	-	8	9	5		1	0	-	1	5		M	I	N
I	-	3	9	5		2	0	-	2	5		M	I	N

No Exceptions

3x16 DMS (2 @ BWI)

Single Dest
TT Msg

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	T	R	A	V	E	L		T	I	M	E		T	O	
	I	-	8	9	5			1	0		M	I			
			1	0	-	1	5		M	I	N				

No Exceptions

Multiple Dest
TT MSG

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
	T	R	A	V	E	L		T	I	M	E		T	O		
I	-	8	9	5				1	0	-	1	5		M	I	N
I	-	3	9	5				2	0	-	2	5		M	I	N

No Exceptions

3x17 DMS (4 Future MdTA)

Single Dest
TT Msg

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	T	R	A	V	E	L		T	I	M	E		T	O		
			I	-	8	9	5		1	0		M	I			
			1	0	-	1	5		M	I	N					

No Exceptions

Multiple Dest
TT MSG

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	T	R	A	V	E	L		T	I	M	E		T	O		
I	-	8	9	5				1	0	-	1	5		M	I	N
I	-	3	9	5				2	0	-	2	5		M	I	N

No Exceptions

3x18 DMS (8 @ US 50/495/95)

Single Dest
TT MSG

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
		T	R	A	V	E	L		T	I	M	E		T	O		
		I	-	8	9	5			1	0		M	I				
				1	0	-	1	5		M	I	N					

No Exceptions

Multiple Dest
TT MSG

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
		T	R	A	V	E	L		T	I	M	E		T	O		
I	-	8	9	5					1	0	-	1	5		M	I	N
I	-	3	9	5					2	0	-	2	5		M	I	N

No Exceptions

3x20 DMS (11 Existing+6 Future)

Single Dest
TT Msg

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
			T	R	A	V	E	L		T	I	M	E		T	O			
			I	-	8	9	5			1	0		M	I					
					1	0	-	1	5		M	I	N						

No Exceptions

Multiple Dest
TT MSG

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
			T	R	A	V	E	L		T	I	M	E		T	O			
I	-	8	9	5							1	0	-	1	5		M	I	N
I	-	3	9	5							2	0	-	2	5		M	I	N

No Exceptions

3x21 DMS (76 Existing + 70 Future)

Single Dest
TT Msg

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
			T	R	A	V	E	L		T	I	M	E		T	O				
		I	-	8	9	5			1	0		M	I		A	H	E	A	D	
							1	0	-	1	5		M	I	N					

No Exceptions

Alternate
Format

3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21		
			T	R	A	V	E	L		T	I	M	E		T	O				
		I	-	8	9	5						1	0	-	1	5		M	I	N

No Exceptions

3x21 DMS (76 Existing + 70 Future)

Multiple Dest
TT MSG

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
			T	R	A	V	E	L		T	I	M	E		T	O				
I	-	8	9	5								1	0	-	1	5		M	I	N
I	-	3	9	5								2	0	-	2	5		M	I	N

No Exceptions

3- Dest TT
MSG

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
I	-	8	9	5								1	0	-	1	5		M	I	N
I	-	6	9	5								1	3	-	1	8		M	I	N
I	-	3	9	5								2	0	-	2	5		M	I	N

Exceptions:
1. No Heading

3x8 Portable DMS (63)

1	2	3	4	5	6	7	8
T	I	M	E		T	O	
		B	A	Y			
	B	R	I	D	G	E	

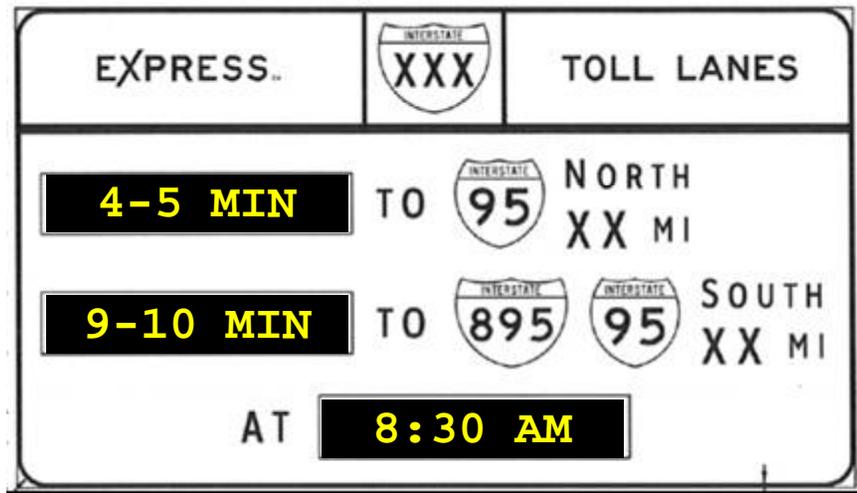
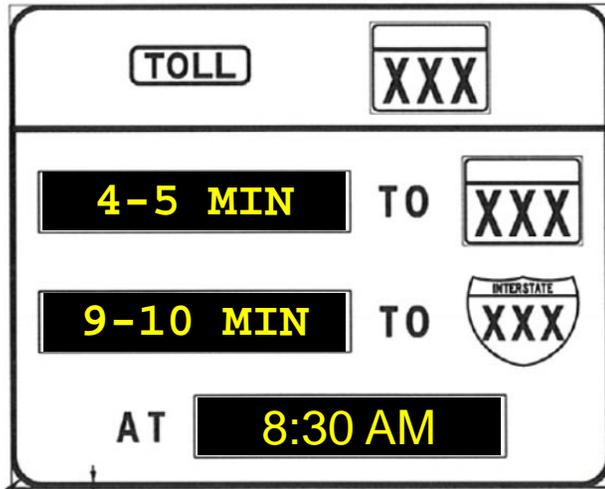
1	2	3	4	5	6	7	8
			4	5			
M	I	N	U	T	E	S	

Exceptions:

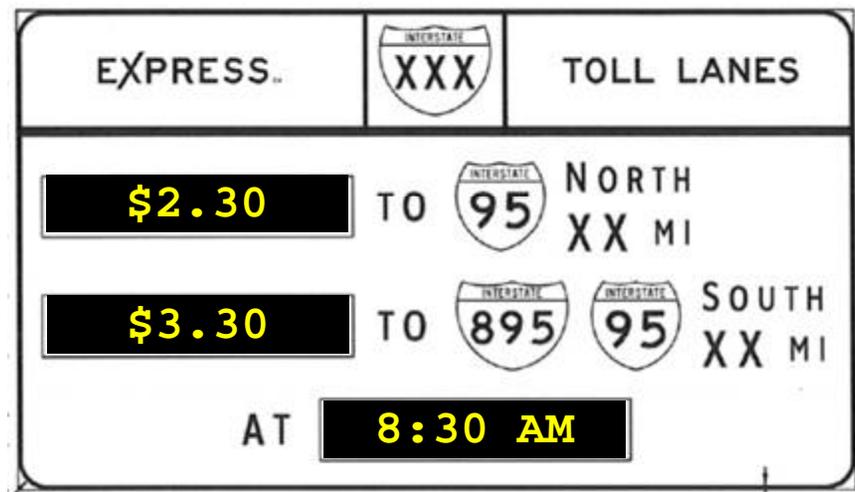
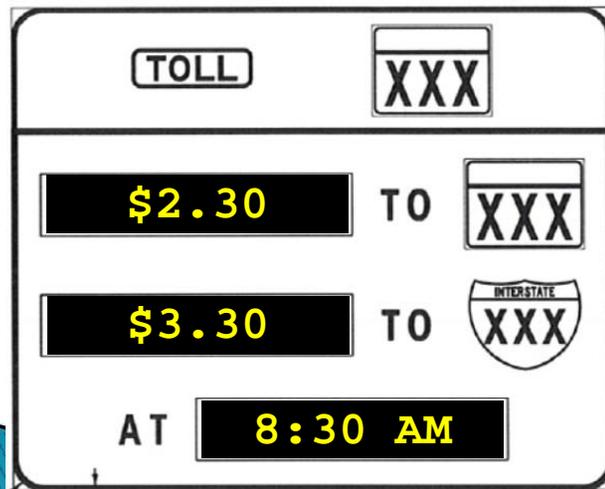
1. Requires a 2-Phase Message

3x9 MdTA Toll Rate Signs

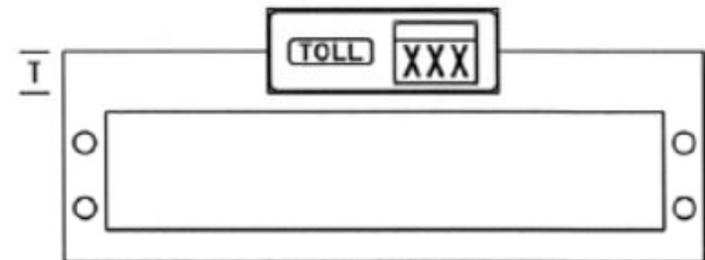
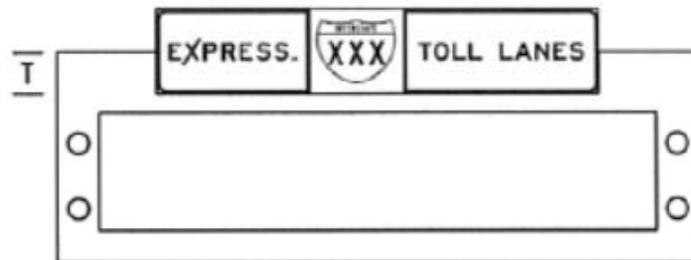
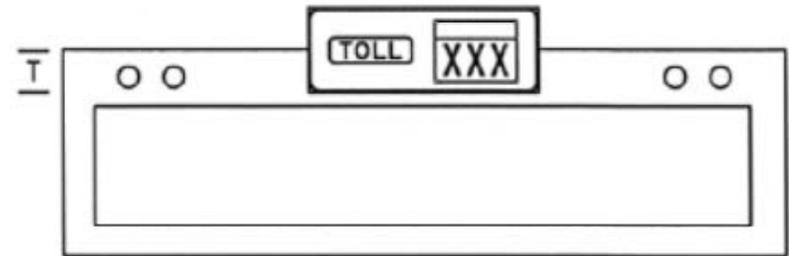
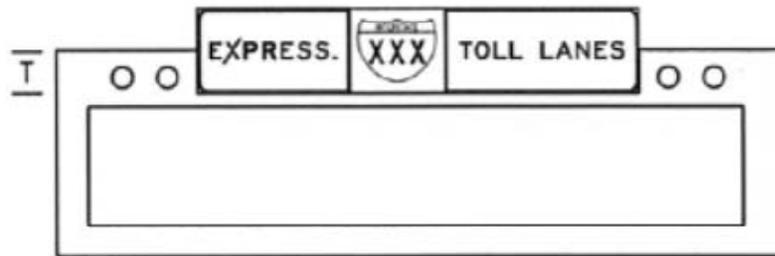
Multiple Dest
TT MSG



Multiple Dest
Toll MSG



3x21 & 3x15 MdTA Branded Signs



MANAGED LANE FACILITY

MANAGED FACILITY

To be treated the same as typical 3x21 & 3x15 signs

**APPENDIX F: CHART DMS FOR TRAVEL TIME DISPLAY AND CANDIDATE
DESTINATIONS**

Note: The following tables provide lists of Dynamic Message Signs (DMS's) available in the State of Maryland for displaying travel times, and recommended travel time destinations for each sign. These DMS - Destination pairings are subject to change as the travel time message program is implemented statewide.

PRELIMINARY SHORT-LIST OF CANDIDATE DESTINATIONS FOR CHART AND MDTA DMS

#	DEVICE	LOCATION DESCRIPTION	ROUTE	DIRECTION	DESTINATION 1*	DISTANCE** TO DEST. 1 (MI)	DESTINATION 2*	DISTANCE** TO DEST. 2 (MI)
1	N/A	Radioshop US 40 @ I-695	N/A	N/A	N/A	N/A	N/A	N/A
2	1102	Eastbound US 50 East of Hall Road	50	EB	NO INRIX COVERAGE		NO INRIX COVERAGE	
3	1103	Westbound US 50 West of Friendship Road	50	WB	NO INRIX COVERAGE		NO INRIX COVERAGE	
4	1105	Eastbound US 50 East of MD 347	50	EB	NO INRIX COVERAGE		NO INRIX COVERAGE	
5	2204	Westbound US 50 East of Skipton Creek	50	WB	NO INRIX COVERAGE		NO INRIX COVERAGE	
6	2205	Eastbound US 50 West of Scottown Lane	50	EB	NO INRIX COVERAGE		NO INRIX COVERAGE	
7	2206	Eastbound US 50 West of Exit 40B	50	EB	NO INRIX COVERAGE		NO INRIX COVERAGE	
8	3301	I-495 (I/L) North of Exit 39, MD 190	495	I/L	I-95	13		
9	3302	I-270 (SB) prior to I-495 Split	270	SB	NO INRIX COVERAGE		NO INRIX COVERAGE	
10	3303	I-270 (NB) prior to Exit 4, Montrose Road	270	NB	NO INRIX COVERAGE		NO INRIX COVERAGE	
11	3304	I-495 (O/L) West of Exit 33, MD 185	495	O/L	LEG_BRG	8		
12	3305	I-270 (SB) South of Exit 13, Middlebrook Road	270	SB	NO INRIX COVERAGE		NO INRIX COVERAGE	
13	3313	US 50 (EB) @ MD 950, Church Road	50	EB	MD3	3		
14	3314	US 50 (WB) prior to Exit 7, I-95/I-495	50	WB	BW_PKWY	7	WW_BRG	19
15	3315	US 50 (EB) prior to Exit 5, MD 410	50	EB	MD3	9		
16	3316	I-95/I-495 (O/L) @ Glenarden Parkway (prior to Exit 19, US 50)	95	O/L	I-95	9		
17	3317	I-95/I-495 (I/L) @ Good Luck Road (prior to Exit 20, MD 450)	95	I/L	WW_BRG	20		
18	3318	I-95/I-495 (I/L) @ Old Auth Road (prior to Exit 7, MD 5)	95	I/L	WW_BRG	7		
19	3319	I-95 (SB) South of Exit 29, MD 212	95	SB	LEG_BRG	17	WW_BRG	27
20	3320	I-95 (SB) @ Brooklyn Bridge Road (prior to Exit 33, MD 198)	95	SB	I-495	7		
21	3321	I-95/I-495 (O/L) North of Exit 20, MD 450	95	O/L	I-95	6		
22	3322	I-495 (I/L) @ Northwest Branch Bridge (Prior to MD 650)	495	I/L	BW_PKWY	7		
23	3323	I-95/I-495 (I/L) North of MD 202	95	I/L	WW_BRG	16		
24	3325	I-95/I-495 (O/L) North of Exit 23, MD 201	95	O/L	I-270	12		
25	3326	I-95/I-495 (O/L) prior to Exit 15, MD 214	95	O/L	I-95	13		
26	3327	I-95/I-495 (O/L) @ Temple Hill Road (North of Exit 4, MD 414)	95	O/L	I-95	21		
27	3328	I-95/I-495 (I/L) South of Exit 4, MD 414	95	I/L	WW_BRG	5		
28	3331	MD 210 (NB) 0.5 mile prior to I-95/I-495	210	NB	NO INRIX COVERAGE		NO INRIX COVERAGE	
29	3332	MD 210 South, 1/4 Mile Prior to I-95	210	SB	NO INRIX COVERAGE		NO INRIX COVERAGE	
30	4401	I-695 (O/L) prior to Exit 12B, MD 372 (Wilkins Avenue)	695	O/L	I-495	24		
31	4403	I-695 (O/L) @ Exit 10, Alt.US 1 (Washington Blvd.)	695	O/L	I-97	3		
32	4404	I-95 (NB) North of Exit 47, I-195	95	NB	I-395	5		
33	4405	I-695 (I/L) North of Exit 17, Security Blvd.	695	O/L	I-795	3	I-83	10
34	4406	I-95 (SB) North of Exit 50, Caton Avenue	95	SB	I-195	3	I-495	23
35	4407	I-695 (O/L) @ Windsor Mill Road (prior to Exit 17, Security Blvd.)	695	O/L	I-95	7		
36	4408	I-695 (I/L) @ Stevenson Road (East of Exit 21, Park Heights Avenue)	695	I/L	I-95	14		
37	4409	I-695 (O/L) prior to Exit 28, Providence Road	695	O/L	I-795	10	I-70	15

#	DEVICE	LOCATION DESCRIPTION	ROUTE	DIRECTION	DESTINATION 1*	DISTANCE** TO DEST. 1 (MI)	DESTINATION 2*	DISTANCE** TO DEST. 2 (MI)
38	4410	I-695 (I/L) North of Exit 12A, MD 372 (Wilkins Avenue)	695	I/L	I-795	8	I-83	13
39	4411	I-695 (I/L) East of Exit 32, US 1 (Belair Road)	695	I/L	FSK_TOLL	14		
40	4412	I-695 I/L (South) Prior to Exit 38, Eastern Blvd.	695	I/L	I-95	16		
41	4414	US 40 (WB) prior to MD 700	40	WB	I-695	3		
42	4421	I-83 (SB) approaching Timonium Road	83	SB	NO INRIX COVERAGE		NO INRIX COVERAGE	
43	4422	I-795 (SB) @ Church Road (South of Exit 7, Franklin Blvd.)	795	SB	NO INRIX COVERAGE		NO INRIX COVERAGE	
44	4427	I-695 (O/L) prior to Exit 21, MD 129 (Park Heights Avenue)	695	O/L	I-95	12		
45	4428	I-695 (O/L) 1 mile prior to MD 702	695	O/L	I-95	3		
46	5501	I-695 (I/L) West of Exit 8, Nursery Road	695	I/L	I-70	7		
47	5504	US 50/US 301 (WB) @ Sandy Point	50	WB	NO INRIX COVERAGE		NO INRIX COVERAGE	
48	5505	US 50/US 301 (WB) 1 mile East of Exit 21, I-97	50	WB	NO INRIX COVERAGE		NO INRIX COVERAGE	
49	5506	MD 295 (NB) prior to I-195	295	NB	I-95	8		
50	5507	MD 295 (NB) South of I-895	295	NB	I-95	3		
51	5508	I-97 (NB) @ Wellham Avenue (prior to I-695/I-895)	97	NB	BHT_TOLL	7		
52	5511	I-97 (NB) @ New Cut Road (North of Exit 12, Bus. MD 3)	97	NB	I-695	5		
53	5512	I-97 (SB) prior to Exit 10, Benfield Road	97	SB	US50	10		
54	5516	US 50/US 301 (WB) 1 mile East of Exit 13, MD 3	50	WB	NO INRIX COVERAGE		NO INRIX COVERAGE	
55	5517	US 50/US 301 (EB), 1 mile West of Exit 21, I-97	50	EB	NO INRIX COVERAGE		NO INRIX COVERAGE	
56	6601	I-68 (EB) @ Lavale	68	EB	NO INRIX COVERAGE		NO INRIX COVERAGE	
57	6602	I-68 (EB) prior to US 220	68	EB	NO INRIX COVERAGE		NO INRIX COVERAGE	
58	6603	I-68 (WB) @ Hillcrest	68	WB	NO INRIX COVERAGE		NO INRIX COVERAGE	
59	7701	I-95 (NB) @ Rest Area (prior to Exit 38, MD 32)	95	NB	I-195	9	I-395	15
60	7702	I-95 (NB) Prior to MD 100	95	NB	I-195	5	I-395	10
61	7703	I-95 (SB) South of Exit 41, MD 175	95	SB	I-495	13		
62	7704	I-95 (SB) 1.5 miles prior to Exit 43, MD 100	95	SB	I-495	17		
63	7706	MD 32 (EB) @ Broken Land Pkwy (1 mile prior to I-95)	32	EB	I-695	13	I-495	13
64	7707	MD 32 (WB) approaching US 1	32	WB	I-695	13	I-495	15
65	7719	I-70 (EB) @ Bethany Lane (2 miles prior to Exit 87, US 29)	70	EB	NO INRIX COVERAGE		NO INRIX COVERAGE	
66	7720	I-70 (EB) 1.5 miles prior to I-270 (West of MD 180)	70	EB	NO INRIX COVERAGE		NO INRIX COVERAGE	
67	7723	I-70 (WB), 2 miles East of Exit 56, MD 144 (Patrick Street)	70	WB	NO INRIX COVERAGE		NO INRIX COVERAGE	
68	7724	I-270 (NB) 1 mile South of Exit 31, MD 85 (Buckeystown Pike)	270	NB	NO INRIX COVERAGE		NO INRIX COVERAGE	
69	8802	I-95 (NB) South of Exit 50, Caton Avenue	95	NB	FMT_TOLL	3		
70	8809	I-695 (O/L) Prior to Exit 3A, MD 2	695	O/L	I-95	20		
71	8815	I-695 (O/L) prior to Francis Scott Key Bridge	695	O/L	I-95	16		
72	8816	I-695 (I/L) West of Francis Scott Key Bridge	695	I/L	I-95	10		
73	8817	I-695 (I/L) prior to Francis Scott Key Bridge	695	I/L	I-95	11		
74	8818	I-95 South, 160' South of Chesaco Avenue	95	SB	I-395	9		
75	8819	I-95 (SB) @ Exit 57, O'Donnell Street	95	SB	I-395	5	I-695	8
76	8823	I-95 (NB) 150 feet South of King Avenue (MP 64.8 N)	95	NB	DEL_TOLL	46		
77	8824	I-95 (NB) 60 feet South of Clayton Road (MP 74.9 N)	95	NB	DEL_TOLL	36		
78	8825	I-95 (SB) 250 feet North of Old Joppa Road (MP 73.5 S)	95	SB	I-695	9	I-395	21
79	8826	I-95 (NB) 100 feet South of New Forge Road (MP 69.5)	95	NB	DEL_TOLL	41		

#	DEVICE	LOCATION DESCRIPTION	ROUTE	DIRECTION	DESTINATION 1*	DISTANCE** TO DEST. 1 (MI)	DESTINATION 2*	DISTANCE** TO DEST. 2 (MI)
80	8827	I-95 (SB) 1,100 feet North of Clayton Road (MP 75.3 S)	95	SB	I-695	11	I-395	22
81	8828	I-95 (NB) 57 feet South of Abingdon Road (MP 78 N)	95	NB	DEL_TOLL	33		
82	8829	I-95 (SB) 200 feet North of MD 136 (MP 79.6 S)	95	SB	I-695	15	I-395	27
83	8830	I-95 (NB) 1,500 feet South of Stepney Road (MP 83.4 N)	95	NB	DEL_TOLL	27		
84	8831	I-95 (SB) 30 feet North of Stepney Road (MP 83.7 S)	95	SB	I-695	19	I-395	31
85	8832	I-95 (SB) 100 feet North of Paradise Road (MP 86.9 S)	95	SB	I-695	23	I-395	34
86	8833	I-95 (NB) 200 feet North of Paradise Road (MP 86.9 N)	95	NB	DEL_TOLL	24		
87	8834	I-95 (NB) 65 feet South of Belvidere Drive (MP 95.9 N)	95	NB	DEL_TOLL	15		
88	8835	I-95 (SB) 1,600 North of Red Toad Road (MP 98.3 S)	95	SB	I-695	34	I-395	45
89	8836	I-95 (SB) 137 feet North of MP 103.2 S	95	SB	I-695	39	I-395	50
90	8837	I-95 (NB) 2,000 feet South of MD 213 (MP 106)	95	NB	DEL_TOLL	5		
91	8838	I-95 (SB) 1 mile North of MD/DE Line (MP 1)	95	SB	I-695	46	I-395	57
92	8839	I-95 (SB) @ Exit 55, Key Highway (South of Ft. McHenry Tunnel)	95	SB	I-695	5		
93	8840	I-95 (NB) @ Hazelwood Avenue (North of I-95/I-895)	95	NB	DEL_TOLL	51		
94	8870	US 50/US 301 (WB) 1 mile prior to Bay Bridge	50	NB	NO INRIX COVERAGE		NO INRIX COVERAGE	
95	8872	US 50 (EB) Approx. 1/2 mile past MD 2 (prior to Bay Dale Drive)	50	EB	PROPOSED		PROPOSED	

* Destination sequences are not necessarily the same as on the expanded list.

** Distance measured from DMS to the Destination's exit gore

Note:

1. This list represents the permanent signs (owned by CHART and MdTA) shown on the SHA GIS database file.
2. The destination abbreviations used in the list are arbitrarily assigned for GIS data entry and may not be the most appropriate abbreviations for DMS text display.

EXPANDED LIST OF CANDIDATE DESTINATIONS FOR CHART AND MdTA DMS

#	DEVICE	LOCATION DESCRIPTION	ROUTE	DIRECTION	DESTINATION 1	DESTINATION 2	DESTINATION 3	DESTINATION 4	DESTINATION 4+	SPECIAL EVENT DEST.
1	N/A	Radioshop US 40 @ I-695	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	1102	Eastbound US 50 East of Hall Road	50	EB	NO INRIX COVERAGE					
3	1103	Westbound US 50 West of Friendship Road	50	WB	NO INRIX COVERAGE					
4	1105	Eastbound US 50 East of MD 347	50	EB	NO INRIX COVERAGE					
5	2204	Westbound US 50 East of Skipton Creek	50	WB	NO INRIX COVERAGE					
6	2205	Eastbound US 50 West of Scottown Lane	50	EB	NO INRIX COVERAGE					
7	2206	Eastbound US 50 West of Exit 40B	50	EB	NO INRIX COVERAGE					
8	3301	I-495 (I/L) North of Exit 39, MD 190	495	I/L	I-270	I-95	US29	-	-	-
9	3302	I-270 (SB) prior to I-495 Split	270	SB	NO INRIX COVERAGE					
10	3303	I-270 (NB) prior to Exit 4, Montrose Road	270	NB	NO INRIX COVERAGE					
11	3304	I-495 (O/L) West of Exit 33, MD 185	495	O/L	I-270	LEG BRG	MD190	-	-	-
12	3305	I-270 (SB) South of Exit 13, Middlebrook Road	270	SB	NO INRIX COVERAGE					
13	3313	US 50 (EB) @ MD 950, Church Road	50	EB	MD3	BAY BRG*	-	-	-	-
14	3314	US 50 (WB) prior to Exit 7, I-95/I-495	50	WB	BW PKWY	WW BRG	-	-	-	-
15	3315	US 50 (EB) prior to Exit 5, MD 410	50	EB	I-495**	BAY BRG*	MD3	-	-	-
16	3316	I-95/I-495 (O/L) @ Glenarden Parkway (prior to Exit 19, US 50)	95	O/L	BW PKWY	I-95	-	-	-	-
17	3317	I-95/I-495 (I/L) @ Good Luck Road (prior to Exit 20, MD 450)	95	I/L	MD4	BAY BRG*	WW BRG	-	-	FEDEX_FLD
18	3318	I-95/I-495 (I/L) @ Old Auth Road (prior to Exit 7, MD 5)	95	I/L	WW BRG	-	-	-	-	-
19	3319	I-95 (SB) South of Exit 29, MD 212	95	SB	I-270	WW BRG	LEG BRG	-	-	-
20	3320	I-95 (SB) @ Brooklyn Bridge Road (prior to Exit 33, MD 198)	95	SB	I-495	US50	I-270	-	-	-
21	3321	I-95/I-495 (O/L) North of Exit 20, MD 450	95	O/L	BW PKWY	I-95	I-270	-	-	-
22	3322	I-495 (I/L) @ Northwest Branch Bridge (Prior to MD 650)	495	I/L	I-695	US50	BW PKWY	-	-	-
23	3323	I-95/I-495 (I/L) North of MD 202	95	I/L	MD4	WW BRG	-	-	-	-
24	3325	I-95/I-495 (O/L) North of Exit 23, MD 201	95	O/L	I-270	US29	-	-	-	-
25	3326	I-95/I-495 (O/L) prior to Exit 15, MD 214	95	O/L	US50	I-95	BW PKWY	-	-	FEDEX_FLD
26	3327	I-95/I-495 (O/L) @ Temple Hill Road (North of Exit 4, MD 414)	95	O/L	MD4	BW PKWY	US50	I-95	-	FEDEX_FLD
27	3328	I-95/I-495 (I/L) South of Exit 4, MD 414	95	I/L	WW BRG	-	-	-	-	-
28	3331	MD 210 (NB) 0.5 mile prior to I-95/I-495	210	NB	NO INRIX COVERAGE					
29	3332	MD 210 South, 1/4 Mile Prior to I-95	210	SB	NO INRIX COVERAGE					
30	4401	I-695 (O/L) prior to Exit 12B, MD 372 (Wilkins Avenue)	695	O/L	I-495	BHT TOLL	MD295	-	-	-
31	4403	I-695 (O/L) @ Exit 10, Alt.US 1 (Washington Blvd.)	695	O/L	MD295**	I-97	-	-	-	-
32	4404	I-95 (NB) North of Exit 47, I-195	95	NB	I-695	I-395	FMT TOLL	US40	-	ALT 1: HBR/M&T/CMDYDS
33	4405	I-695 (I/L) North of Exit 17, Security Blvd.	695	I/L	I-795	MD146	I-83	-	-	-
34	4406	I-95 (SB) North of Exit 50, Caton Avenue	95	SB	I-695	I-195	MD100	MD32	I-495	-
35	4407	I-695 (O/L) @ Windsor Mill Road (prior to Exit 17, Security Blvd.)	695	O/L	I-70	I-95	US40	-	-	-
36	4408	I-695 (I/L) @ Stevenson Road (East of Exit 21, Park Heights Avenue)	695	I/L	I-83	MD146	I-95	-	-	-
37	4409	I-695 (O/L) prior to Exit 28, Providence Road	695	O/L	I-83	I-70	I-795	I-695	-	-
38	4410	I-695 (I/L) North of Exit 12A, MD 372 (Wilkins Avenue)	695	I/L	I-70	MD146	I-795	-	-	-
39	4411	I-695 (I/L) East of Exit 32, US 1 (Belair Road)	695	I/L	FSK TOLL	I-95**	US40	-	-	-
40	4412	I-695 (I/L) (South) Prior to Exit 38, Eastern Blvd.	695	I/L	FSK TOLL	I-97	MD295	I-95	-	-
41	4414	US 40 (WB) prior to MD 700	40	WB	I-695	FSK TOLL	-	-	-	-
42	4421	I-83 (SB) approaching Timonium Road	83	SB	NO INRIX COVERAGE					
43	4422	I-795 (SB) @ Church Road (South of Exit 7, Franklin Blvd.)	795	SB	NO INRIX COVERAGE					
44	4427	I-695 (O/L) prior to Exit 21, MD 129 (Park Heights Avenue)	695	O/L	I-795	I-95	I-70	-	-	-
45	4428	I-695 (O/L) 1 mile prior to MD 702	695	O/L	US40	I-95	I-83	-	-	-
46	5501	I-695 (I/L) West of Exit 8, Nursery Road	695	I/L	I-95**	I-70	I-795	I-83	-	-
47	5504	US 50/US 301 (WB) @ Sandy Point	50	WB	NO INRIX COVERAGE					
48	5505	US 50/US 301 (WB) 1 mile East of Exit 21, I-97	50	WB	NO INRIX COVERAGE					
49	5506	MD 295 (NB) prior to I-195	295	NB	I-695	I-895	I-95	-	-	ALT 1: HBR/M&T/CMDYDS
50	5507	MD 295 (NB) South of I-895	295	NB	I-95	-	-	-	-	ALT 1: HBR/M&T/CMDYDS
51	5508	I-97 (NB) @ Wellham Avenue (prior to I-695/I-895)	97	NB	BHT TOLL	MD295	FSK TOLL	I-95	-	ALT 1: HBR/M&T/CMDYDS
52	5511	I-97 (NB) @ New Cut Road (North of Exit 12, Bus. MD 3)	97	NB	I-695	FSK TOLL	BHT TOLL	-	-	-
53	5512	I-97 (SB) prior to Exit 10, Benfield Road	97	SB	MD32**	US 50	-	-	-	-
54	5516	US 50/US 301 (WB) 1 mile East of Exit 13, MD 3	50	WB	NO INRIX COVERAGE					
55	5517	US 50/US 301 (EB), 1 mile West of Exit 21, I-97	50	EB	NO INRIX COVERAGE					
56	6601	I-68 (EB) @ Lavale	68	EB	NO INRIX COVERAGE					
57	6602	I-68 (EB) prior to US 220	68	EB	NO INRIX COVERAGE					
58	6603	I-68 (WB) @ Hillcrest	68	WB	NO INRIX COVERAGE					
59	7701	I-95 (NB) @ Rest Area (prior to Exit 38, MD 32)	95	NB	I-195	I-395	I-695	BHT TOLL	FMT TOLL	ALT 1: HBR/M&T/CMDYDS
60	7702	I-95 (NB) Prior to MD 100	95	NB	I-195	I-395	I-695	I-895	BHT TOLL	ALT 1: HBR/M&T/CMDYDS
61	7703	I-95 (SB) South of Exit 41, MD 175	95	SB	MD32	MD198	I-495	-	-	-
62	7704	I-95 (SB) 1.5 miles prior to Exit 43, MD 100	95	SB	MD100	I-270	MD29	I-495	I-295 VIA I-95	-
63	7706	MD 32 (EB) @ Broken Land Pkwy (1 mile prior to I-95)	32	EB	I-195	I-695	I-495	-	-	-
64	7707	MD 32 (WB) approaching US 1	32	WB	I-95	MD29	I-195	I-695	I-70	ALT 1: HBR/M&T/CMDYDS
65	7719	I-70 (EB) @ Bethany Lane (2 miles prior to Exit 87, US 29)	70	EB	NO INRIX COVERAGE					
66	7720	I-70 (EB) 1.5 miles prior to I-270 (West of MD 180)	70	EB	NO INRIX COVERAGE					
67	7723	I-70 (WB), 2 miles East of Exit 56, MD 144 (Patrick Street)	70	WB	NO INRIX COVERAGE					
68	7724	I-270 (NB) 1 mile South of Exit 31, MD 85 (Buckeystown Pike)	270	NB	NO INRIX COVERAGE					
69	8802	I-95 (NB) South of Exit 50, Caton Avenue	95	NB	FMT TOLL	US40	I-695	I-95	-	ALT 1: HBR/M&T/CMDYDS
70	8809	I-695 (O/L) Prior to Exit 3A, MD 2	695	O/L	FSK TOLL	US40	I-95	-	-	-
71	8815	I-695 (O/L) prior to Francis Scott Key Bridge	695	O/L	FSK TOLL	I-95	-	-	-	-
72	8816	I-695 (I/L) West of Francis Scott Key Bridge	695	I/L	I-97	MD295	I-95	-	-	ALT 1: HBR/M&T/CMDYDS

#	DEVICE	LOCATION DESCRIPTION	ROUTE	DIRECTION	DESTINATION 1	DESTINATION 2	DESTINATION 3	DESTINATION 4	DESTINATION 4+	SPECIAL EVENT DEST.
73	8817	I-695 (I/L) prior to Francis Scott Key Bridge	695	I/L	I-97	MD295	I-95	-	-	ALT 1: HBR/M&T/CMDYDS
74	8818	I-95 South, 160' South of Chesaco Avenue	95	SB	FMT_TOLL	BHT_TOLL	I-395	-	-	ALT 1: HBR/M&T/CMDYDS
75	8819	I-95 (SB) @ Exit 57, O'Donnell Street	95	SB	I-395	I-695	MD295	I-195	-	ALT 1: HBR/M&T/CMDYDS
76	8823	I-95 (NB) 150 feet South of King Avenue (MP 64.8 N)	95	NB	MD43	MD24	JFK_TOLL	MD279	DELL_TOLL	-
77	8824	I-95 (NB) 60 feet South of Clayton Road (MP 74.9 N)	95	NB	MD24	JFK_TOLL	MD213	MD279	DELL_TOLL	-
78	8825	I-95 (SB) 250 feet North of Old Joppa Road (MP 73.5 S)	95	SB	MD43	I-695	I-895	FMT_TOLL	BHT_TOLL, I-395	ALT 1: HBR/M&T/CMDYDS
79	8826	I-95 (NB) 100 feet South of New Forge Road (MP 69.5)	95	NB	MD24	JFK_TOLL	MD213	MD279	DELL_TOLL	-
80	8827	I-95 (SB) 1,100 feet North of Clayton Road (MP 75.3 S)	95	SB	MD43	I-695	I-895	FSK_TOLL	BHT_TOLL, I-395	ALT 1: HBR/M&T/CMDYDS
81	8828	I-95 (NB) 57 feet South of Abingdon Road (MP 78 N)	95	NB	JFK_TOLL	MD213	MD279	DEL_TOLL	-	-
82	8829	I-95 (SB) 200 feet North of MD 136 (MP 79.6 S)	95	SB	MD24	MD43	I-695	I-895	BHT_TOLL, I-395	ALT 1: HBR/M&T/CMDYDS
83	8830	I-95 (NB) 1,500 feet South of Stepney Road (MP 83.4 N)	95	NB	JFK_TOLL	MD213	MD279	DEL_TOLL	-	-
84	8831	I-95 (SB) 30 feet North of Stepney Road (MP 83.7 S)	95	SB	MD24	MD152	MD43	I-695	I-895, I-395	ALT 1: HBR/M&T/CMDYDS
85	8832	I-95 (SB) 100 feet North of Paradise Road (MP 86.9 S)	95	SB	MD24	MD152	MD43	I-695	I-895, I-395	ALT 1: HBR/M&T/CMDYDS
86	8833	I-95 (NB) 200 feet North of Paradise Road (MP 86.9 N)	95	NB	JFK_TOLL	MD213	MD279	DEL_TOLL	-	-
87	8834	I-95 (NB) 65 feet South of Belvidere Drive (MP 95.9 N)	95	NB	MD213	MD279	DEL_TOLL	-	-	-
88	8835	I-95 (SB) 1,600 North of Red Toad Road (MP 98.3 S)	95	SB	MD279	MD213	JFK_TOLL	MD24	MD43, I-695, I-395	ALT 1: HBR/M&T/CMDYDS
89	8836	I-95 (SB) 137 feet North of MP 103.2 S	95	SB	MD279	MD213	JFK_TOLL	MD24	MD43, I-695, I-395	ALT 1: HBR/M&T/CMDYDS
90	8837	I-95 (NB) 2,000 feet South of MD 213 (MP 106)	95	NB	MD279	DEL_TOLL	-	-	-	-
91	8838	I-95 (SB) 1 mile North of MD/DE Line (MP 1)	95	SB	MD279	MD213	JFK_TOLL	MD24	MD43, I-695, I-395	ALT 1: HBR/M&T/CMDYDS
92	8839	I-95 (SB) @ Exit 55, Key Highway (South of Ft. McHenry Tunnel)	95	SB	I-395**	I-695	MD295	I-195	-	-
93	8840	I-95 (NB) @ Hazelwood Avenue (North of I-95/I-895)	95	NB	MD43	DEL_TOLL	-	-	-	-
94	8870	US 50/US 301 (WB) 1 mile prior to Bay Bridge	50	NB	NO INRIX COVERAGE	NO INRIX COVERAGE				
95	8872	US 50 (EB) Approx. 1/2 mile past MD 2 (prior to Bay Dale Drive)	50	EB	PROPOSED	PROPOSED	PROPOSED	PROPOSED	PROPOSED	PROPOSED

* Future destination - Currently not covered by INRIX

** Possible destination, but too close

Note:

1. This list represents the permanent signs (owned by CHART and MdTA) shown on the SHA GIS database file. The destinations identified have been inserted as an attribute to the GIS, so that when the destinations are revised, SHA may modify the record on the GIS.
2. The destination abbreviations used in the list are arbitrarily assigned for GIS data entry and may not be the most appropriate abbreviations for DMS text display.
3. The destinations identified in the table represent apparently all viable locations for a specific DMS. Appropriate destinations should be selected as needed for travel time display.