

Appendix L:

ITS MEETING MINUTES

TO: Tom Hall, PE
Judi Hickerson
Mikael Pelfrey, PE
Project Managers, KYTC

FROM: Parsons Brinckerhoff

DATE: July 16, 2014

SUBJECT: I-265 Programming Study
Minutes of ITS Discussion Meeting #1

A meeting to discuss Intelligent Transportation Systems (ITS) was held at 10:00 AM (EST) on Wednesday, July 16, 2014, at the KYTC District 5 Office. The following people were in attendance:

NAME	AGENCY/COMPANY	E-MAIL ADDRESS
Tom Hall	KYTC – District 5	tom.hall@ky.gov
Judi Hickerson	KYTC – District 5	judi.hickerson@ky.gov
Chris Allen	KYTC – District 5	chris.allen@ky.gov
Jason Richardson	KYTC – District 5	jason.richardson@ky.gov
Cody Davis	KYTC – District 5	cody.davis@ky.gov
Stacy L. Keith	Louisville Metro Traffic	stacy.keith@louisvilleky.gov
Todd Hood	TRIMARC	Todd.Hood@ngc.com
Tim Emington	TRIMARC	tim.emington@ngc.com
Daniel Woo	TRIMARC	daniel.woo@ngc.com
Shawn Dikes	Parsons Brinckerhoff	dikes@pbworld.com
Chris Barrow	Parsons Brinckerhoff	barrowcp@pbworld.com

Welcome and Introductions

Judi Hickerson welcomed everyone to the meeting and facilitated introductions. Representatives from the Kentucky Transportation Cabinet (KYTC), TRIMARC, Louisville Metro Traffic and the consulting firm (Parsons Brinckerhoff) were present.

Judi then handed over the meeting to Shawn Dikes who provided a general project update and context for the discussion regarding the ITS equipment along the corridor and how this component should be handled for the rest of the project.

Project Update

Shawn started by describing the project as a look into the future (2020 and 2040) as to what the I-265 corridor will need to be when it “grows up” due to the construction of various transportation components as well as a product of general growth and development in the region. Shawn transitioned into the ITS discussion by reiterating the need and desire for tenth of a mile markers to help with incident identification by the public and/or stranded motorists. Before opening up the discussion Shawn stated that this ITS portion should be independent of anything that the team recommends or prioritizes through this process along I-265.

Judi mentioned the fact that the I-71 project included an independent ITS spreadsheet of projects. Shawn agreed and continued to speak about the current need for these devices.

ITS Wish List

Todd Hood from TRIMARC started by reviewing the maps of the existing close caption television (CCTV) and dynamic message signs (DMS) sign locations and began to speak about the impacts that widening would have on the DMS around I-265. Because all DMS are road side installation (\$75-\$100K), they are only suitable for two-lane roadways. As such, any additional widening would require that these be upgraded to an overhead unit with a roadway truss (\$250K) so that messages are in the cone of vision for the far travel lane. Current locations of DMS are only approaching the I-65 and I-64 interchanges.

The East End Bridge will also bring in additional devices, proposed to include an overhead DMS to be located North of Westport Road on I-265. On I-71, the NB DMS is expected to be installed around the 8 mile marker. On Hwy 22, there will be an arterial DMS that will be on cantilever arms for traffic approaching I-265 in each direction. The intent being to display travel time information and updates to the public before they get on I-265 when an incident occurs in the new tunnel. Todd also added that two new CCTVs will be installed with the DMS on KY 22 so that the messages displayed can be verified remotely as well as check on traffic conditions. The bridge project will also add fiber optic cable for communications from the tunnel to I-265 at I-71 interchange including a fiber hub. There is a possibility that the fiber optic cable may be extended to Westport Road.

Jason Richardson then brought up the fiber optic cable installation project along I-71 (Downtown to I-265) which has been in the KYTC Six Year plan for the past ten years and added that talks again have surfaced inside the cabinet and may be an upcoming priority.

Readily Needed Projects

- Mile Markers every at least two tenths (0.2) of a mile along I-265 with direction along both sides of the roadway

Other Items on the Needs List

- CCTV cameras to be added
 - At Billtown Road (Between Bardstown Rd and Talorsville Rd)
 - Beulah Church Road
- Arterial DMS – Highest priority
 - Between I-71 and I-64 (Shelbyville Rd, Old Henry Road and Westport Rd)
- Arterial DMS – Next priority
 - Bardstown Rd
 - Taylorsville
 - All other routes
- Travel Time Devices
 - Wide Beam Radar, goal to have at least each camera locations, and additional in locations where more than one mile exist between devices.
 - Bluetooth Travel Time sensors

With respect to other jurisdictions, Tim asked what Atlanta was using and Chris Barrow mentioned that for the interstate system, Georgia Department of Transportation (GDOT) has negotiated a statewide package for data from Inrix. Additionally, GDOT is working on identifying a most appropriate device for arterial applications through the Regional Traffic Operations Program (RTOP) for performance measures.

Lack of communications (fiber backbone) was noted at the the biggest need to grow the network. The ability to bring traffic signals online from nearby arterials along with installing more devices along the roadway could be more effective than recurring cost for modems and telephone lines.

Judi asked about the limitation of wireless communication. Both Todd and Chris added that line of sight is the biggest issue when it comes to maintaining wireless communications. Todd also added that because of the trees in the area being so tall the distance between repeaters is limited and ends up costing more money and also creating more locations for equipment malfunctions.

Judi followed up with what should KYTC be pushing for as new projects come out and both TRIMARC, Metro and Parsons Brinckerhoff emphasized that developing a fiber optic backbone is the most appropriate approach to properly build your system. Chris further spoke about the need in all future projects to design a place (designated conduit) for fiber even if it will not be installed now. This will save money in the future and give the state more flexibility when funding becomes available as the major cost factor infrastructure is already in place and only fiber and splice closures will need to be added. Additionally creating a statewide specification for this type of install is needed so that this can be done moving forward.

KYTC was unsure about who was the best internal person to get a specification written for conduit and installation.

Chris also mentioned GDOT's agreement with Verizon which allows for the state to purchase 4G modems at a discount to be used on all State Routes in Georgia. This would allow the continued growth of the system (via more devices) in places like Louisville, Frankfort and Lexington while the fiber network is being planned, designed and constructed.

Stacy Keith from Metro was asked to talk about what they were doing with wireless through a local provider but expressed that what was once thought to be a great opportunity to reach new devices turned out to be more overlap of the system that they already had. She continued to speak about how different the operation is between the signals with communication and without and the additional benefit that communication brings to being more proactive in the day to day operations of the TMC.

Louisville Metro Needs List

- Better communication than currently available (sharing bandwidth with public)
- Getting all major corridors signals onto a communication backbone
- Installing fiber optics along the other corridors

Todd summed up the discussion with imaging driving around Louisville everyday without all of the interstates (265, 264, 64, 65, and 71) that currently exists. That is equivalent to what can be done with ITS devices.

Tom Hall asked about who would maintain a fiber backbone. TRIMARC noted that they could maintain it. Shawn also added what other states have done by taking a bid on the construction and control of the fiber for say 20 years to recover cost on the cost of installation. Once that time frame is up the fiber is returned to the States control. Chris mentioned GDOT's maintenance contract as their ITS network has grown beyond their capability to maintain. Chris also mentioned that when you are installing fiber put in more than you think you need as the capacity will disappear quickly if it is available.

Needs List Continued

- Interstate DMS on I-65 NB or SB approaching I-265
- Interstate DMS on I-64 EB approaching I-265
- Highway Advisory Radio (have 5 with 6th coming with East End Bridge)
 - I-71 at I-265 (EEB)
 - I-265 at Billtown Road
- Big problem is the enhanced mile markers installed
- Access doors through sound barrier wall and access to fire hydrants is a big concern

Judi mentioned incident management program and Tim talked about the Florida Turnpike Authority incentive program and Chris also talked about GDOT's Towing/Recovery Incentive Program (TRIP) program. Shawn also spoke about what Virginia is doing in that regard.

Shawn wrapped up the meeting talking about the timeline and expected completion of the project being by the end of the year with a stakeholder and public meeting coming up in late September (25th and 30th).


























Action Items




The following represent the action items following this meeting:



- List of all desired devices throughout Louisville (TRIMARC)
- List of cost for devices over the past few years (TRIMARC / PB)
- Parsons Brinckerhoff would provide KYTC with more information about TRIP, GDOT ITS maintenance and GDOT talks with Verizon about the Cellular 3G and 4G modems

The meeting concluded at approximately 11:15 AM.


















NUM	ICON	TRIMARC_ID	TRIMARC_LOC_DESCRIPTION	ROADWAY	MILE_MARK	DIRECTION	LATITUDE	LONGITUDE	DEC_LATITUDE	DEC_LONGITUDE	APPROX. Installation Cost
51		CCTV051	I-71 at I-265	I-71	9.20	N	38° 18' 47.43"	85° 35' 3.95"	38.313175	85.58443056	N/A - Already Installed
77		CCTV077	I-265 at Westport Road	I-265	32.50	N	38° 17' 49.2648"	85° 32' 50.096"	38.297018	85.547249	N/A - Already Installed
78		CCTV078	I-265 at LaGrange Road	I-265	30.40	Median	38° 17' 11.3958"	85° 30' 55.101"	38.28645026	85.51530361	N/A - Already Installed
79		CCTV079	I-265 at Old Henry Road	I-265	28.70	N	38° 16' 11.0562"	85° 30' 2.0154"	38.26974046	85.50056219	N/A - Already Installed
80		CCTV080	I-265 at Shelbyville Road	I-265	26.80	Median	38° 14' 30.051"	85° 30' 13.7442"	38.241681	85.503818	N/A - Already Installed
46		CCTV046	I-265 at I-64	I-265	25.50	S	38° 13' 27.26"	85° 30' 20.81"	38.22423889	85.50578056	N/A - Already Installed
81		CCTV081	I-265 at Taylorsville Road	I-265	23.20	Median	38° 11' 21.4296"	85° 30' 32.9652"	38.189286	85.509157	N/A - Already Installed
82		CCTV082	I-265 at Bardstown Road	I-265	17.30	W	38° 8' 30.5124"	85° 35' 2.493"	38.141809	85.584026	N/A - Already Installed
83		CCTV083	I-265 at Smyrna Parkway	I-265	13.50	E	38° 7' 3.972"	85° 38' 37.536"	38.11777	85.64376	N/A - Already Installed
84		CCTV084	I-265 at Preston Hwy	I-265	11.70	E	38° 6' 35.0094"	85° 40' 33.5238"	38.109725	85.675979	N/A - Already Installed
32		CCTV032	I-65 at I-265	I-65	124.90	N	38° 6' 52.21"	85° 42' 3.14"	38.11450278	85.70087222	N/A - Already Installed
85		CCTV085	KY 841 at New Cut Rd	KY 841	6.00	W	38° 7' 14.2248"	85° 46' 45.6456"	38.120618	85.779346	N/A - Already Installed
C1		Proposed CCTV	KY 841 at National Turnpike	KY 841	8.00	W					\$75,000
C2		Proposed CCTV	KY 841 at I-65	KY 841	10.00	W					\$75,000
C3		Proposed CCTV	I-265 at Beulah Church Rd	I-265	15.00	E					\$75,000
C4		Proposed CCTV	I-265 at Biltown Rd	I-265	19.00	E					\$75,000
C5		Proposed CCTV	I-265 at Old Heady Rd	I-265	21.60	W					\$75,000
C6		Proposed CCTV	I-265 South of Taylorsville Rd	I-265	22.80	W					\$75,000
C7		Proposed CCTV	I-265 at S Pope Lick Rd East of I-64	I-265	24.50	E					\$75,000
C8		Proposed CCTV	I-265 at Brownsboro Rd	I-265	34.40	S					\$75,000

1		DMS001	I-64 (WB) at Clark Station	I-64	23.60	W	38° 13' 3.48"	85° 24' 37.86"	38.21763333	85.41051667	N/A - Already Installed
16		DMS016	I-71 (SB) South, North of I-265	I-71	11.00	S	38° 19' 37.2468"	85° 32' 52.7418"	38.32701300	85.54798383	N/A - Already Installed
17		DMS017	I-71 (SB) South of I-265	I-71	8.00	S	38° 18' 26.4564"	85° 35' 50.3334"	38.30734900	85.59731483	N/A - Already Installed
19		DMS019	I-265 (SB) South of Old Henry Rd	I-265	27.90	S	38° 15' 32.5692"	85° 30' 9.9786"	38.25914324	85.5026865	?? - Not aware of what removal cost will be.
		Proposed DMS	I-265 (SB) South of Old Henry Rd	I-265	27.90	S	Replacing existing roadside DMS019 with an Overhead DMS due to lane expansions. \$250,000				
20		DMS020	I-265 (EB) East of I-64	I-265	24.30	E	38° 12' 19.1226"	85° 30' 23.2662"	38.20551009	85.50674211	?? - Not aware of what removal cost will be.
		Proposed DMS	I-265 (EB) East of I-64	I-265	24.30	E	Replacing existing roadside DMS020 with an Overhead DMS due to lane expansions. \$250,000				
21		DMS021	I-265 (WB) West of Smyrna Pkwy	I-265	12.80	W	38° 6' 59.1552"	85° 39' 24.3102"	38.11668079	85.65638781	?? - Not aware of what removal cost will be.
		Proposed DMS	I-265 (WB) West of Smyrna Pkwy	I-265	12.80	W	Replacing existing roadside DMS021 with an Overhead DMS due to lane expansions. \$250,000				
22		DMS022	Hwy 841 (EB) East of National Turnpike	HWY 841	6.80	E	38° 7' 3.4716"	85° 45' 48.2502"	38.11764306	85.76352596	?? - Not aware of what removal cost will be.
		Proposed DMS	Hwy 841 (EB) East of National Turnpike	HWY 841	6.80	E	Replacing existing roadside DMS022 with an Overhead DMS due to lane expansions. \$250,000				
D1		Proposed DMS	I-65 (SB) North of Fern Valley Rd	I-65	12.50	S					\$250,000
D2		Proposed DMS	I-65 (NB) South of John Harper Hwy (KY 1526), Exit 121	I-65	120.70	N					\$250,000
D3		Proposed DMS	I-64 (EB) East of S Hurstbourne Pkwy	I-64	16.00	E					\$250,000
H1		Proposed Comm. Hut	I-265 at I-65	KY 841	10.00	E					\$90,000
H2		Proposed Comm. Hut	I-265 at I-64	I-265	25.00	W					\$90,000
HX1		Proposed HAR XMTR	Fern Creek Fire Dept. #4 off Billtown Rd.	Billtown Rd		E					\$60,000

OC1		Proposed ORBP CCTV	I-265 at I-71	I-265	35.20	S					N/A - Will be installed as part of the ORBP East End Crossing
OH1		Proposed ORBP Hut	I-265 at I-71	I-265	35.20	S					N/A - Will be installed as part of the ORBP East End Crossing
OHX1		Proposed ORBP HAR XMTR	I-265 at I-71	I-265	35.20	S					N/A - Will be installed as part of the ORBP East End Crossing

OD1		Proposed ORBP DMS	I-265 (NB) North of Westport Rd	I-265	32.80	N	N/A - Will be installed as part of the ORBP East End Crossing
OD2		Proposed ORBP DMS	I-71 (NB) South of I-265	I-71	8.50	N	N/A - Will be installed as part of the ORBP East End Crossing

Additional Assets & Notes

ADMS		Brownsboro Rd. (Hwy 22) Southbound approaching I-265					N/A - Will be installed as part of the ORBP East End Crossing
ADMS		Brownsboro Rd. (Hwy 22) Northbound approaching I-265					N/A - Will be installed as part of the ORBP East End Crossing
ADMS		Westport Rd. Southbound approaching I-265	Arterial DMS (ADMS) units also require and associated Verification Camera				\$110,000 w/ a Verification Camera
ADMS		Westport Rd. Northbound approaching I-265	Arterial DMS (ADMS) units also require and associated Verification Camera				\$110,000 w/ a Verification Camera
ADMS		La Grange Rd. (Hwy 146) Southbound approaching I-265	Arterial DMS (ADMS) units also require and associated Verification Camera				\$110,000 w/ a Verification Camera
ADMS		La Grange Rd. (Hwy 146) Northbound approaching I-265	Arterial DMS (ADMS) units also require and associated Verification Camera				\$110,000 w/ a Verification Camera
ADMS		Old Henry Rd. Southbound approaching I-265	Arterial DMS (ADMS) units also require and associated Verification Camera				\$110,000 w/ a Verification Camera
ADMS		Old Henry Rd. Northbound approaching I-265	Arterial DMS (ADMS) units also require and associated Verification Camera				\$110,000 w/ a Verification Camera
ADMS		Shelbyville Rd. (US 60) Westbound approaching I-265	Arterial DMS (ADMS) units also require and associated Verification Camera				\$110,000 w/ a Verification Camera
ADMS		Shelbyville Rd. (US 60) Eastbound approaching I-265	Arterial DMS (ADMS) units also require and associated Verification Camera				\$110,000 w/ a Verification Camera
ADMS		Taylorsville Rd. Southbound approaching I-265	Arterial DMS (ADMS) units also require and associated Verification Camera				\$110,000 w/ a Verification Camera
ADMS		Taylorsville Rd. Northbound approaching I-265	Arterial DMS (ADMS) units also require and associated Verification Camera				\$110,000 w/ a Verification Camera
ADMS		Billtown Rd. Southbound approaching I-265	Arterial DMS (ADMS) units also require and associated Verification Camera				\$110,000 w/ a Verification Camera
ADMS		Billtown Rd. Northbound approaching I-265	Arterial DMS (ADMS) units also require and associated Verification Camera				\$110,000 w/ a Verification Camera
ADMS		Bardstown Rd. (US 31E) Southbound approaching I-265	Arterial DMS (ADMS) units also require and associated Verification Camera				\$110,000 w/ a Verification Camera
ADMS		Bardstown Rd. (US 31E) Northbound approaching I-265	Arterial DMS (ADMS) units also require and associated Verification Camera				\$110,000 w/ a Verification Camera
ADMS		Beulah Church Rd. Southbound approaching I-265	Arterial DMS (ADMS) units also require and associated Verification Camera				\$110,000 w/ a Verification Camera

ADMS		Beulah Church Rd. Northbound approaching I-265	Arterial DMS (ADMS) units also require and associated Verification Camera	\$110,000 w/ a Verification Camera
ADMS		Smyrna Pkwy. Southbound approaching I-265	Arterial DMS (ADMS) units also require and associated Verification Camera	\$110,000 w/ a Verification Camera
ADMS		Smyrna Pkwy. Northbound approaching I-265	Arterial DMS (ADMS) units also require and associated Verification Camera	\$110,000 w/ a Verification Camera
ADMS		Preston Hwy. Southbound approaching I-265	Arterial DMS (ADMS) units also require and associated Verification Camera	\$110,000 w/ a Verification Camera
ADMS		Preston Hwy. Northbound approaching I-265	Arterial DMS (ADMS) units also require and associated Verification Camera	\$110,000 w/ a Verification Camera
ADMS		National Turnpike Southbound approaching I-265	Arterial DMS (ADMS) units also require and associated Verification Camera	\$110,000 w/ a Verification Camera
ADMS		National Turnpike Northbound approaching I-265	Arterial DMS (ADMS) units also require and associated Verification Camera	\$110,000 w/ a Verification Camera
ADMS		New Cut Rd. Southbound approaching I-265	Arterial DMS (ADMS) units also require and associated Verification Camera	\$110,000 w/ a Verification Camera
ADMS		New Cut Rd. Northbound approaching I-265	Arterial DMS (ADMS) units also require and associated Verification Camera	\$110,000 w/ a Verification Camera
ADMS		Stonestreet Rd. Southbound approaching I-265	Arterial DMS (ADMS) units also require and associated Verification Camera	\$110,000 w/ a Verification Camera
ADMS		Stonestreet Rd. Northbound approaching I-265	Arterial DMS (ADMS) units also require and associated Verification Camera	\$110,000 w/ a Verification Camera
ADMS		Dixie Hwy. (US 60) Westbound approaching I-265	Arterial DMS (ADMS) units also require and associated Verification Camera	\$110,000 w/ a Verification Camera
ADMS		Dixie Hwy. (US 60) Eastbound approaching I-265	Arterial DMS (ADMS) units also require and associated Verification Camera	\$110,000 w/ a Verification Camera
WBR		Wide Beam Radar detectors placed approximately every 1/2 mile along the 35 mile corridor		Placement of detectors will affect the cost. The detectors can be co-located on camera poles or other devices for \$5,000. Stand alone detectors with a pole \$30,000. A detector can span 250 feet and provide information for both directions when properly located.
Fiber		Approximately 35 road miles of fiber optic cable (96 strand, minimum)		\$100,000 per road mile

