Stakeholder Workshop #2

MONDAY, OCTOBER 17, 2022
9:00 AM – 12:30 PM

PHYSICAL LOCATION:
BCDCOG OFFICE
5790 CASPER PADGETT WAY
NORTH CHARLESTON, SC 29406

VIRTUAL OPTION:
Click here to join the meeting
MEETING ID: 213-416-960-059
PASSCODE: vXEmHB
OR CALL IN (AUDIO ONLY):
+1 984-204-1608,,857-633-202#

MODERATOR: JEFFERY DALE AND KYLE JAMES
NOTE TAKER: DANIELLE CURRI

Attendees:

In Person

• Megan Clark (City of North Charleston)	• Steve Thigpen (Charleston County)
• Danielle Curri (Kimley-Horn)	• Sarah Cox (BCDCOG)
• Jeffery Dale (Kimley-Horn)	• Matthew LaPoint (Berkeley County)
• Octavio Fabisiewicz (City of Charleston Police)	• Rick Reiff (Kimley-Horn)
• Kyle James (BCDCOG)	• Todd Martin (Joint Base Charleston)
• Josh Johnson (SCDOT)	• Nick Matthews (RS&H)
• Laura Kelly (Kimley-Horn)	• Troy Mitchell (City of Charleston)
• Megan Ross (BCDCOG/ CARTA/ TriCounty Link)	

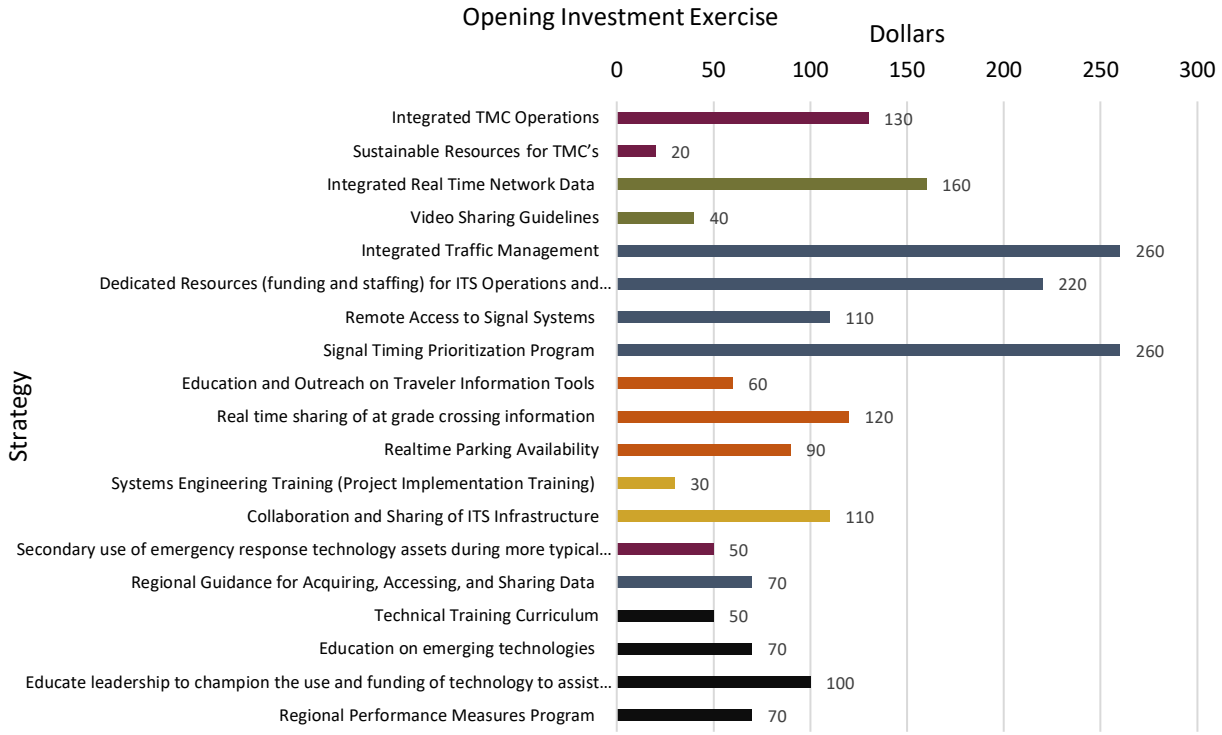
Virtual

• Jon Chambers (Kimley-Horn)	• Tom Booth (SCDOT)
• Dimitra Michaka (The Citadel)	• Charles Drayton (Town of Sullivan's Island)
• Jennifer Rhoades (SCDOT)	• Daniel Halstead (SCDOT)
• Rene Kelly	• Manny Insignares (ConSysTec)
• Swati Patel	• Adam MacConnell (City of North Charleston)
• Erin Lutz (City of Folly Beach)	• Paul Roberts
• Joe Coates (Charleston County)	• Viban Gonzalez (ConSysTec)
• David Gray (SCDOT)	• Steve Haynie (RS & H)
• Ken Hill (Roper St. Francis Healthcare)	• Megan Ross
• Charles Zeberlein (SCDOT)	

Meeting Summary:

Opening Exercise

Each attendee was given $100 representative dollars to invest in $10 increments. Attendees were asked to invest in the strategies for the region in the next 5 years. In person and online options were provided. The results are shown below.



Welcome and Introduction – Kyle James, BCDCOG and Jeffery Dale, KH

Attendees were welcomed to the workshop and given packets to reference during the workshop. The packets included the agenda, the Capability Maturity Model Matrices, and a prioritization exercise for the end of the workshop.

- Kyle James – Welcomed everyone to the workshop and gave some general project updates
  - This workshop is the second stakeholder workshop for the CHATS Regional ITS Architecture.
  - The goal of the project is to better prepare the region for the implementation of transportation technology.
  - BCDCOG has been saving to support this plan and the implementation of some pilot projects as recommended by the plan.
- Jeff Dale – Since the last stakeholder workshop, we have been working on multiple deliverables.

- We have been completing the baseline inventory and will finish the inventory once the preferred strategies are identified.
- We performed a gap assessment of the region utilizing the Capability Maturity Model (CMM)
- ConSysTec has been developing the Draft Regional ITS Architecture Website

Brief Summary of Stakeholder Workshop #1 – Jeffery Dale, KH

Stakeholder Workshop #1 was held at the BCDCOG Office on July 26, 2022.

- Stakeholder Workshop #1 was largely focused on establishing a regional baseline for each of the focus areas of the project.
- Breakout sessions were held on the following focus areas:
  - Recurring Congestion Regional Traffic Management
  - Nonrecurring Congestion and Incident Management
  - Parking Management
  - Resource Management
  - Transit
- In each session, the following topics were discussed for each focus area:
  - Existing regional technology and strategies
  - Highlights that have been going well
  - Challenges in the region
  - Regional Goals
- Some key points came out of the first workshop:

Capability Maturity Model (CMM)

The CMM was utilized to perform a gap assessment of the region.

- The CMM is used to ensure a wholistic approach to technology deployment. By reviewing each of the areas, it ensures that the technology will be supported throughout its lifecycle.
- The areas are the same for most of the categories except Traffic Incident Management. The main areas are:
  - Business Processes
  - Systems and Technology
  - Performance Measurement
  - Culture
  - Organization/Staffing
  - Collaboration
- Based on the baseline inventory, each of the categories was assigned a level. The four levels are:
  - Level 1 (Ad-hoc) – Activities are not integrated or regularly performed
  - Level 2 (Managed) - There are regular processes and some collaboration.
  - Level 3 (Proactive) – There are regional programs, commitments, and collaboration
  - Level 4 (Fully Optimized) – There are regional commitments to the area, high level coordination and interagency integration and proactive programs

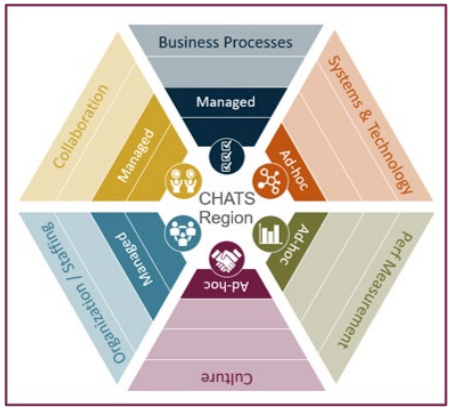
- A matricie was developed for each category summarizing the baseline inventory, identified gaps, and levels. The categories include: Traffic Management Centers (TMCs), Traffic Incident Management (TIM), Arterials and Signal Coordination, Traveler Information, ITS and Communications, Emergency Response and Resiliency, and Data Management.
- The matrices were included in the attendee packet. From the gap assessment, strategies were identified.
- Additionally, several strategies were reoccurring throughout the different categories. These were separated into a Programmatic category.

Traffic Management Centers

Baseline Inventory

The slides were reviewed showing the results of the baseline inventory and the identified levels. There were no additional comments on the baseline in the region.

- 3 TMCs
- Surveillance via CCTV
- Systems Engineering process applied sometimes
- Resource challenges for local agencies
- Ad-hoc collaboration between agencies



Gap Assessment

The gaps for TMC's were identified based on the baseline inventory, feedback from the Core Team and Stakeholders, and tours of the City of Charleston TMC and Statewide TMC.

- **Challenges around staff retention and training** – There has been difficulty finding operators to fill open positions in the TMC. The Charleston TMC has had difficulty filling open operator positions.
- **Limited funding for TMC Operations** – Funding streams are limited for TMCs and are not consistent. The funding does not allow for growth or expansion to arterials.
- **Agencies primarily focused on the TMC role for specific events** – The SCDOT TMCs are largely focused on freeways. There is minimal collaboration between TMCs.

- **Agency decisions not driven by performance measures** – The Statewide TMC uses some performance measures. The other TMCs have sometimes used performance measures but that was limited.

Strategies

From the gaps, the following strategies were identified. For each strategy, examples were presented to gain feedback on how the strategy could be implemented throughout the region. The programmatic strategy examples were presented after all the categories were reviewed.

- **Technical Training Curriculum** (Programmatic)
- **Integrated TMC Operations**
    - There has been some discussion of interest in co-locating TMC Operations. There are two examples showing different levels of co-location.
    - **Example: San Antonio TransGuide**
        - Shared by TxDOT and the City of San Antonio
        - Brings together a combination of ITS equipment to help better manage traffic including road sensors, video cameras, and changeable message signs.
        - Has the local TMC seen changes in operations coming from diversions at the state level that they do not know about? (Kyle James)
            - Has not noticed this (Troy Mitchell)
            - There is no one to receive that conversation. (Josh Johnson)
    - **Example: Austin MMC (Mobility Management Center) and CTECC (Combined Transportation Emergency and Communications Center)**
        - Austin MMC – shared facility between City MMC, Office Space, Signal and Sign Warehouse
        - Austin CTECC – shared between police, fire, toll operations TMC, TXDOT TMC, and EOC
        - Integrated Operations – MMC will send staff for major events and PM Peak
        - What is the appetite for a co-located regional TMC (Jeff Dale)?
            - Right now, the focus should be on helping to pass information from the interstate to the arterial, sharing on how traffic is being diverted, helping with traffic management on arterials. Unsure about the benefit of having law enforcement co-located (Josh Johnson).
            - When law enforcement is co-located, they can assign an officer to coordinate from inside the TMC during certain shifts or co-locate the law enforcement communications center (Jeff Dale).
        - Will the plan say how many additional staff is needed or just that the region will need additional staff (Megan Clark)?
            - The plan will give a recommendation of the staff needed, but not the specific staff to fill those positions. The plan will focus on the staff needed to fulfill the need (Jeff Dale)
        - There is a full-time trainer at the state TMC (Kyle James).
        - How do you get ahead of Waze directing people (Joint Base Charleston Representative)?

        - Some cities coordinate directly with Waze. Austin is partnering with Waze and Google to let them know where they can push traffic. Growing the partnership helps streamline traffic management especially during evacuations (Jeff Dale).
    - There is a want to start communicating more to help with traffic being diverted on arterials.
    - There has been talk of a co-located facility for years and it would be helpful. There has not been an identified approach. Maybe a gradual approach would be beneficial. They could start with someone in the Charleston TMC being designated to receive calls from the SCDOT TMCs for coordination. They could put in place an agreement or establish a phone line during the day. (Josh Johnson)
    - Are there any facilities that are set to be upgraded soon (Jeff Dale)?
        - Statewide is developing a new facility in the next 5 years (Kyle James)
        - There is some funding in the infrastructure bill to upgrade TMCs. Unsure when the District 6 TMC will be upgraded (Josh Johnson)
        - In Virginia, some localities have been struggling to fund fulltime staff. By co-locating, they can collectively fund one person in an integrated facility (Jon Chambers).
        - NCDOT STOC is co-located with the National Guard. Maybe some value with locating with Joint Base Charleston (Nick Matthews).
        - Some emergency facilities may be co-located (Todd Martin).
    - Would there be benefit for co-locating transit?
        - Yes, there would be benefit. They have some past traffic data and train crossing information based off bus delay. They can contribute that data (Megan Ross)
- **Sustainable Resources for TMCs**
    - **Example: MAG Systems Management and Operations Plan**
        - Goal to help the region make smart investments and identify resources for operations and management
        - The plan is one step further than architecture by breaking down how much they need to fund the ITS Program and where the funding will come from
        - Focuses on how do we fund this, how do we staff this, where is the funding coming from
        - Could incorporate a similar strategy into a Congestion Management Plan rather than a new plan
    - **Example: FHWA TMC Pooled Fund Study – TMC Staffing**
        - This is an ongoing study with the Draft Final Report Submitted. KH can provide updates as it is finalized.
        - Several focuses have been identified to help with staffing.
        - Recruitment and Retention
            - Having flexibility in HR processes and the candidates they are looking for

        - Adequately reflecting and compensating the roles they are filling. Operator roles are getting more complex due to technology involved.
    - Connection to Career Path
        - Have opportunities for staff to progress and grow over time
    - Performance Measures
        - Use performance measures to demonstrate the benefit-cost of the program
        - Communicate with data the benefits of the TMC especially during large events
        - Share performance measures with decision makers
    - Applicability to Region
        - There are some performance measures but need to communicate them better and share targets (Kyle James)
        - Do TMC staff have connection to career path and places to grow?
            - That is partially true, but there is a certain peak staff can reach. Lately, they can't even get people to interview even though they are pushing the job postings everywhere (Troy Mitchell).
        - Where are staff leaving to (Sarah Cox)?
            - The Charleston TMC has not lost anyone recently, but they have some nearing retirement. They are trying to prepare for retiring staff. They have had two positions open for 2 years and can't get people to even interview. A lot of the issues are the pay scale (Troy Mitchell).
            - The Joint Base has had similar issues (Ray Deck).
        - What is keeping people (Kyle James)?
            - Relationships and some reorganization to avoid the ceiling (Troy Mitchell)
        - Is there an issue because people expect to work remotely (Kyle James)?
            - The pay scale doesn't line up with the responsibilities anymore. They are looking for a new type of person. Working with HR to rewrite job descriptions has been very difficult (Troy Mitchell).
            - KH can look at some of the consortium for how others are paying staff and paying shared positions (Jeff Dale).
        - Would SCDOT be interested in sharing resources (Kyle James)?
            - Would need to check with higher level.

- **Regional Performance Measures Program** (Programmatic)

Traffic Incident Management

Baseline Inventory

The slides were reviewed showing the results of the baseline inventory and the identified levels. For TIM, there are different evaluation areas. There were no additional comments on the baseline in the region.

- SCDOT TIM program
- Quick Clearance legislation
- SHEP covers control-of-access roadways
- 511 Program provides traveler information
- HAAS Alert Devices for activated emergency responders
- Alastar Software: Berkeley, Charleston, and Dorchester Counties

Gap Assessment

The gaps for TIM were identified based on the baseline inventory and feedback from the Core Team and Stakeholders.

- **The TIM program is currently focused on freeways and limited on arterials –** SHEP program is focused on arterials and run by SCDOT
- **Video sharing is not in place between transportation agencies –** There is limited sharing between agencies.
- **Limited data integration or coordination between agencies –** Alastar is integrating a lot of data, but it is not integrated between external agencies.
- **Limited performance measures –** Some agencies are using performance measures, but they are not consistent or being used to make decisions.

Strategies

From the gaps, the following strategies were identified. For each strategy, examples were presented to gain feedback on how the strategy could be implemented throughout the region. The programmatic strategy examples were presented after all the categories were reviewed.

- **Integrated Real Time Network Data**
  - **Example: NCDOT TMC Operator View**
    - Integrated platform with multiple data sources such as INRIX and WAZE.
    - Operators can toggle between data platforms.
    - How do you currently get as much data as you can to show how the network is performing (Jeff Dale)?
      - A lot of data comes from CAD feed
    - Any of data sources that would be valuable to have (Jeff Dale)?
      - Railroad Crossing information
      - In the first workshop, it came up that being able to share data from flood sensors would be valuable (Kyle James).
      - SWIFTLY is a system that transit uses. There is a tracker on each of the buses that use the schedule and real time information to tell you where the bus is and how long until it gets to the next stop (Megan Ross).
        - Use the information for transit app and digital information sign. Passengers can also text a number to get bus information.
        - System is in place for James Island, Mt. Pleasant, Charleston, and North Charleston.
        - They have years of data that could be valuable to the region. From the data, they can see what happens when trains stop traffic because transit vehicles are stopped. They should be able to share the data.
        - The City of Charleston would like this information (Troy Mitchell).
        - Something to note is when procuring data to make sure they language says they can share (Jeff Dale).
        - From the data, some buses have been delayed 30 minutes or more from the train (Megan Ross).
        - BCDCOG is pursuing a grant to purchase more sensors to communicate railroad crossing information. They had bus drivers noting when they were stopped to help support the application (Kyle James).
        - It would be helpful for police to know when the train is there so they can reroute or respond before it is blocked (Octavio Fabisiewicz).
      - Fog and wind data of bridges could be helpful.
      - More pedestrian data would be helpful for signal coordination. The City of Charlotte has started collecting some data and Vissim has some pedestrian data (Nick Matthews).
        - It would be helpful to have pedestrian data and micro mobility data (bikes, golf carts, scooters) (Troy Mitchell).
        - BCDCOG has purchased two permanent pedestrian counters to help with projections for rotational counters. They are planning

on investing in more over time as the technology gets better (Kyle James).

- Signal coordination data to know when signals are in flash and if they are running the correct signal plan.
- Charleston County EM and Dispatch would like to be able to ingest wind data into Alastar.

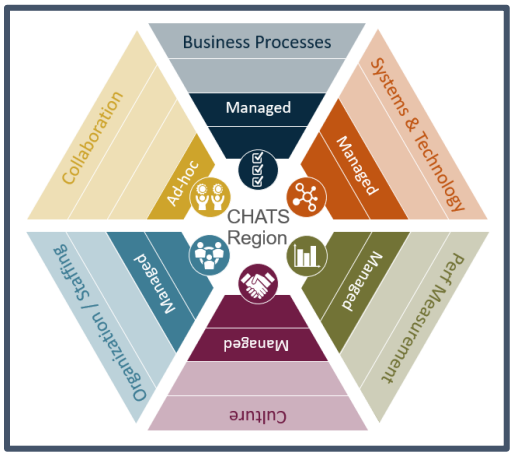
- **Video Sharing Guidelines**
  - **Example: AZTech CCTV Operating Guidelines for MCDOT**
    - CCTV Operating guidelines and regional video sharing system processes
    - Guidelines include how to access different cameras and how to address sensitive scenes.
    - Usage agreements between agencies.
    - Video sharing does not have to be this formal, but this is a good example of a formal, well-documented process. In North Carolina, some agencies are sharing video feed by setting up a Microsoft Teams Meeting and sharing a view of a screen with camera feeds from the TMC. Anyone can join the meeting at any time and can send a message to request a different view (Jeff Dale).
- **Regional Guidance for Acquiring, Accessing, and Sharing Data** (Data Management)
- **Regional Performance Measures Program** (Programmatic)

Arterials and Signal Coordination

Baseline Inventory

The slides were reviewed showing the results of the baseline inventory and the identified levels. There were no additional comments on the baseline in the region.

- Signal Maintenance programs exist
- Before and after travel time runs are primary metric
- Consultant community supports traffic signal coordination
- Standard practices exist for design and operations
- Some adaptive signal systems in place



Gap Assessment

The gaps for Arterials and Signals Coordination were identified based on the baseline inventory and feedback from the Core Team and Stakeholders.

- **Limited collaboration between freeway and arterial management –** Local and Statewide TMC's are not coordinating
- **Funding and staffing constraints –** Limited dedicated funding for ITS and difficulty hiring/training staff
- **SCDOT and maintaining agencies are currently unable to remotely manage traffic signal systems –** Some traffic signal systems are remotely accessible but not all. Access is not shared.
- **No routine updates for signal plans –** Updates for timing plans are not proactive
- **Limited signal timing projects are coordinated for routes that cross multiple jurisdictions –** Signal timing plans do not extend through multiple jurisdictions

Strategies

From the gaps, the following strategies were identified. For each strategy, examples were presented to gain feedback on how the strategy could be implemented throughout the region.

- **Integrated Traffic Management**
  - **Example: I-85 Integrated Corridor Management (ICM)**
    - ICM use a variety of ITS technologies to reroute traffic during incidents
    - Technologies can include CCTV Camera monitoring, traveler information, Arterial DMS/ Trailblazer signs, and special traffic signal coordination plans.
    - For the ICM, signal timing plans are developed to flush rerouted traffic through the detour route applied.
    - North Carolina has found it helpful to install before major construction projects. The Statewide Center can enact the ICM at night and sends notifications to partners.
    - Coordination with Google and Waze helps keep people on the detour route.
    - Do not have to deploy all the technology. The region could pick and choose what it needs.
    - A ICM has not been considered for the region before.
- **Dedicated Resources for ITS Operations and Maintenance**
  - **Example: MDOT ITS Maintenance**
    - Michigan uses statewide and regional contracts for maintenance
    - Helps ensure ITS maintenance contractors are available
    - Allows internal staff to focus on oversite and coordination
    - Helps when agencies can not keep up with training for limited maintenance staff
    - With different agencies having different signal equipment, it would be nice to have standards and move towards a shared standard (Megan Clark).
- **Remote Access to Signal Systems**
  - **Example: VDOT Locality Security Plan**
    - Collaboration with ICM

- Security Plan was established to have a way to securely integrate local and state systems so that State TMC could activate timings for municipal signals after hours
- Integrated a variety of hardware and software
- State accessed a subset of signals with a memo of understanding between agencies. Memo of understanding serves as institutional documentation of the commitment between agencies.
- Who can currently remotely access signals (Kyle James)?
    - The City of Charleston can remote access most signals except a handful (Troy Mitchell).
    - The district can remote access more than half (Josh Johnson).
    - North Charleston - don't think they have remote access or communications.
    - Joint Base Charleston only has one signal that is not connected.
    - From the conversation, this seems like a priority in the region while considering security risks (Jeff Dale).
    - Does SCDOT have access to signals in Dorchester (Todd Martin)?
        - Yes (Josh Johnson)

- **Signal Timing Prioritization Program**
    - **Example: NCDOT COST Retiming Prioritization Tool**
        - Tool developed by consultants and researchers for NCDOT.
        - Metrics based on safety and travel time reliability.
        - Helps NCDOT identify which corridors to focus retiming efforts.
        - Helps identify corridor limits even across jurisdictional boundaries.
        - Signal Timing Prioritization Program has the most investment from the group in the jars from the first exercise.
        - Is this something the region is interested in (Jeff Dale)?
            - A lot of corridors in the region are scheduled to be retimed every 3 years. Without performance measures, it can be hard to know when one was last updated due to development in the region.
            - Unsure about the value of the tool to the region. In the District, they only maintain 20 coordinated corridors. Unsure about the number of corridors the City of Charleston maintains (Josh Johnson).
                - The District uses ClearGuide to figure out which corridors have issues. They are normally aware of issues.
                - The main problems with signal timing have been funding and staffing.
                    - Have not had funding to proactively retime signals.
                    - Last year they used an enhanced volume of consultants for signal retiming.
                    - Internally, they did not have enough people to review plans from consultants and work with consultants.

        - The main limitation recently has been staff levels and not funding.
        - There have been a lot of inconsistencies between plans produced by consultants and level of trouble shooting consultants can perform.
- North Carolina developed a signal timing philosophy manual. They worked with consultants on what in the process needed to be documented and developed a checklist of expectations (Jeff Dale).
    - That is a good point. Frequently consultants put a lot of effort into the report and then have to change most of it after review (Josh Johnson).
- What limitations are there because of the way North Charleston maintains signals (Todd Martin)?
    - There are 6 signal maintenance agreements in the region. North Charleston is the only agreement in the state where SCDOT does not pay them for engineering. They do not do arterial retiming but just respond to complaints. Other municipalities like Mt. Pleasant put significantly more into their signals (Josh Johnson).
- Is the region looking for a regional tool or something that everyone could use separately (Jeff Dale)?
    - Thought the goal is to act more regional but constrained by staff (Josh Johnson).
    - Some regions in Virginia have established corridors of regional significance separate from state prioritization efforts (Jon Chambers)
    - Funding has been an issue for signal retiming in the City of Charleston. They have an on call for signal retiming and have staffing constraints (Troy Mitchell).
        - Signals operate different than DOT signals due to the grid of the peninsula. When they adjust, they must due it more wholistically and in large portions at a time. They did adjustments in 2018. Due to growth, they are experiencing, they should be retiming more frequently.
        - Troy does most of the reviewing with help from one other person.
- A focus could be on a hybrid approach with local agencies and corridors of regional significance. A lot of the conversation has gone back to dedicated resources of both funding and staffing (Jeff Dale).

Traveler Information

Baseline Inventory

The slides were reviewed showing the results of the baseline inventory and the identified levels. There were no additional comments on the baseline in the region.

- Some traveler information tools
- Expansion of Real Time Arrival signs for transit planned
- Vendor selected for app-based parking payment – City of Charleston
- North Charleston Fire using social media for incidents travinfo
- Airport has parking availability information in new parking decks

Gap Assessment

The gaps for Traveler Information were identified based on the baseline inventory and feedback from the Core Team and Stakeholders.

- **Low Public awareness on available systems and pre-trip planning software –** There are some available systems in place, but they are not widely known by the public
- **Standalone traveler information systems that are not connected or integrated –** Agencies have not been collaborating with traveler information systems
- **Limited performance measures –** Minimal use of performance measures for traveler information
- **Limited parking capacity information is available in real time –** Besides the airport, there is minimal real time parking capacity information
- **Limited strategies to address wayfinding to available parking at high volume destinations**

Strategies

From the gaps, the following strategies were identified. For each strategy, examples were presented to gain feedback on how the strategy could be implemented throughout the region. The programmatic strategy examples were presented after all the categories were reviewed.

- **Education and Outreach on Traveler Information Tools**
    - **Example: WashDoT Active Traffic and Demand Management (ATDM)**
        - Created an informational video on how to use ATDM system being implemented

        - The video showed the public how to use and interact with the new technology
        - Accompanied a campaign in advance of the system activation to prepare the public
- **Real time sharing of at grade crossing information**
    - **Example: TRAINFO**
        - On going pilot with Charleston County to allow for better dynamic dispatching of emergency services.
        - City of Winnipeg is using TRAINFO to notify drivers via a DMS and WAZE of travel time and train blockages. Allows drivers to reroute. Has helped reduce public complaints and traffic delay.
        - City of London is using TRAINFO to study delays caused by rail crossings while designing rapid transit problems. Helped address concerns of funding rapid transit with at grade crossings.
        - BCDCOG is preparing a grant application to help fund more sensors. The application is due this winter (Kyle James).
            - This would be helpful for the Joint Base because it is separated from the air base by trains (Joint Base representative)
        - Is there any hesitation by the group to use DMS signs to communicate crossing information?
            - The group thinks it is a good idea.
        - Is there a way to flag when the controller goes into RR Preempt (Nick Matthews)?
            - BCDCOG is looking into it. They have been told that they should be able to pull that data (Kyle James).
- **Regional Performance Measures Program** (Programmatic)
- **Realtime Parking Availability – Capacity and Wayfinding**
    - **Example: Advanced Parking Guidance System – Milwaukee, Wisconsin**
        - Collects parking availability from multiple parking facilities and displays them on electronic guidance signs.
        - Signs show the direction of the parking facility and the number of available spaces.
        - Would this be useful for the region? Maybe in downtown garages or the coliseum (Kyle James)?
            - For on street parking system, the City of Charleston currently has out a solicitation for a system that is app based. The system should help with route finding and positions available. Waiting to receive bids (Troy Mitchell).
            - Parking is not a big issue in Berkely County (Matthew LaPoint)
            - Might be helpful in Park Circle in North Charleston (Megan Clark)
            - There are some low-tech systems in place (static signs) in downtown Charleston (Joint Base representative).
            - The beaches might appreciate some help with parking.
            - The airport has more advanced information as approaching.

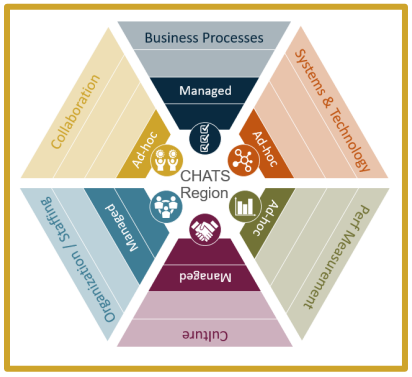
- Not as much of a need for payment solutions but need for more app-based information.

ITS and Communications

Baseline Inventory

The slides were reviewed showing the results of the baseline inventory and the identified levels. There were no additional comments on the baseline in the region.

- Expanding communications networks
- Past focused on fiber, DMS, and CCTV camera coverage
- Maintenance is largely reactive
- Local responsibilities for ITS and communications infrastructure is provided by staff with shared functions



Gap Assessment

The gaps for ITS and Communications were identified based on the baseline inventory and feedback from the Core Team and Stakeholders.

- **Limited experience applying the systems engineering process for project implementation –** The systems engineering process is rarely applied and there is not training on how to apply it
- **Currently agencies are not sharing communications infrastructure or access to devices**
- **Local staff mostly focused on signals, fiber optic cables, and cameras but not broader ITS applications –** Staff are often juggling multiple roles with ITS being a small portion

Strategies

From the gaps, the following strategies were identified. For each strategy, examples were presented to gain feedback on how the strategy could be implemented throughout the region. The programmatic strategy examples were presented after all the categories were reviewed.

- **Systems Engineering Training (Project Implementation Training)**
  - **Example: Systems Engineering Guidebook for ITS**
    - Systems Engineering process is federally required for ITS projects using federal funds
    - Helps ensure that the right solution is being implemented and will be supported

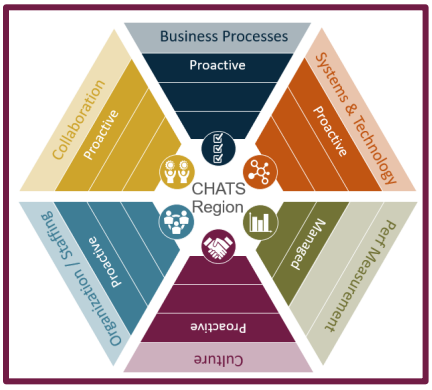
    - Many resources already exist with this training
    - Systems Engineering Guidebook is one of those existing solutions
        - It contains guidance on implementing the entire systems engineering process with example deliverables and checklists throughout the process
        - It complements a free training that Caltrans provides
- **Collaboration and Sharing of ITS Infrastructure**
    - **Example: VDOT and Localities in Virginia**
        - Same example as shown before. Here the goal is to highlight how they shared infrastructure.
        - Through the project, they began to collaborate on an ICM by sharing connections to fiber infrastructure, signals, and cameras.
        - Developed data sharing agreements and security plan to ensure agency roles were documented.
        - From the conversations held, it seems like there is an interest in the region to share more. However, data sharing agreements and security plans will need to be developed. SCDOT IT department will need to make sure security requirements are met (Jeff Dale).
- **Education on Emerging Technologies** (Programmatic)

Emergency Response and Resiliency

Baseline Inventory

The slides were reviewed showing the results of the baseline inventory and the identified levels. There were no additional comments on the baseline in the region.

- Multiagency management of large-scale emergency events
- ITS technology for evacuation operations
- Hurricane Guides are produced annually
- EM plans and hazard mitigation plans exist
- State EOC activates
- After Action Reviews (AARs) are conducted and support the assessment of response plans
- SCDOT TMCs staff for 24 hours a day during an emergency



Gap Assessment

The gaps for Emergency Response and Resiliency were identified based on the baseline inventory and feedback from the Core Team and Stakeholders. Overall, Emergency Response and Resiliency was the most mature category for the region.

- **Region not leveraging emergency response technology for secondary uses –** The region has technology that is used for emergency response but is not utilized during non-emergency times.
- **Limited use of technologies beyond foundational ITS infrastructure during emergencies –** ITS technologies deployed are foundational such as CCTV's and DMS.
- **Limited understanding from leadership on technology investments to support emergency response –** Leadership is not educated on the benefits of ITS and the value they bring to the region.
- **Limited use of performance measures to support AARs and future technology implementations –** Not all agencies are using performance measures during AARs.

Strategies

From the gaps, the following strategies were identified. For each strategy, examples were presented to gain feedback on how the strategy could be implemented throughout the region. The programmatic strategy examples were presented after all the categories were reviewed.

- **Secondary use of emergency response technology assets during more typical incidents**
    - **Example: Triad TMC Portable Message Signs**
        - Triad TMC maintains all portable message signs for the region. Partners can request them for use. The TMC programs them and delivers them.
        - They use portable message signs for emergencies, construction information, and speed enforcement initiatives.
        - The Triad TMC has been pulling speeding data for State Highway Patrol to target problematic areas during their speeding initiatives. They use portable message signs to alert drivers of the initiatives.
        - Is there a need for more portable message signs (Jeff Dale)?
            - The state has some new portable message signs, but the local agencies could use more.
            - Berkely County could use more (Matthew LaPoint)
            - With a co-located regional TMC, they may have more resources to include portable message signs as a role of the TMC (Jeff Dale).
            - Police currently use Waze to identify high speeding areas. There are a lot of speeding issues on the Ravenel Bridge. They have seen an example in Canada showing the cost of speeding. Would be helpful to use signs to help with speeding (Octavio Fabisiewicz).
            - Portable message signs can also be used to test out traveler information systems before you make an investment in a permanent solution (Jeff Dale).

- Charleston Police partner with a third party for some speed enforcement technology. They only have so many officers so having the technology helps them validate complaints (Octavio Fabisiewicz).

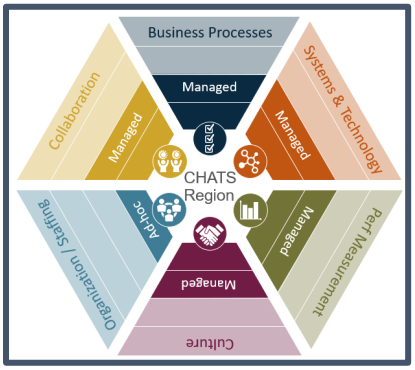
- **Education on Emerging Technologies** (Programmatic)
- **Educate leadership to champion the use and funding of technology** (Programmatic)
- **Regional Performance Measures Program** (Programmatic)

Data Management

Baseline Inventory

The slides were reviewed showing the results of the baseline inventory and the identified levels. There were no additional comments on the baseline in the region.

- TEAMS database for signals inventory accessible by partner agencies
- GIS datasets are available to external partners
- Alastar system integrates range of data
- Security protocols coordinated at agency level
- Some partnering to integrate data from Waze through Public Partnerships Program.
- Statewide data procured and shared (RITIS, ClearGuide)



Gap Assessment

The gaps for Data Management were identified based on the baseline inventory and feedback from the Core Team and Stakeholders.

- **Limited guidance or standards for how to acquire, access, or share data externally**
- **Limited training for staff on accessing and validating data**
- **Limited capacity in staffing or skills to coordinate or support data integration**
- **Not all agencies use data to inform decisions and develop performance measures**

Task 4 – Data Governance Best Practices Report

- As a part of this project, there is a task for creating a Data Governance Best Practices Document
- Jon Chambers will be leading this effort.
- The document will include a summary of data interconnects, lessons learned on data best practices, industry and peer standards for security, and standards that might best fit the region.

- This will be reviewed at Core Team Meeting #4.

Strategies

From the gaps, the following strategies were identified. For each strategy, examples were presented to gain feedback on how the strategy could be implemented throughout the region. The programmatic strategy examples were presented after all the categories were reviewed.

- **Regional Guidance for Acquiring, Accessing, and Sharing Data**
  - **Example: Municipal TMC Data Flows**
    - A municipality developed a flow chart of all data streams going into and out of their TMC.
    - Helps identify existing interconnects and plan for future data connections.
    - Documents what agencies have that could also benefit other agencies.
    - Helps identify what data streams could be incorporated into a dashboard.
  - **Example: Locality Connection Security Plan**
    - Same example that has been shared previously in Virginia.
    - Created a security plan of the different connections between agencies.
    - Identified multiple scenarios with varying hardware/ software to be connected securely.
    - Helps level the playing field for data being connected. From connection, agencies are collecting similar data with varying hardware/software.
    - Allows State TMC to access signals after hours of local/regional TMC's.
- **Technical Training Curriculum** (Programmatic)
- **Regional Performance Measures Program** (Programmatic)

Programmatic

Strategies

As the strategies were developed based on the gaps, there were several reoccurring strategies. These were pulled out into their own category to review.

- **Technical Training Curriculum**
  - Formalized trainings to provide staff with ITS skills
  - Help with new staff by providing them technical skills needed for their role. Helps expand the hiring pool.
  - Both internal and external resources can be used. Many trainings have already been created by other agencies, so you do not have to start from scratch.
  - **Example: AZTech Workforce and TSMO Development**
    - Started with a regional assessment of what skills would be beneficial and how they could increase their candidate pool.
    - Developed a database that includes resources for certification and trainings. Identifies which positions would benefit from the trainings.
    - Includes information such as course length, costs, links to the course, and process to obtain certificate.

        - What existing resources are there in the region already (Jeff Dale)?
            - There is a TEAMS system with Signals locations.
            - Troy Mitchell, Josh Johnson, and maintenance partners are using the database.
            - Every year Berkely County askes if any new signals have been installed so they might have their own database. The GIS department in Columbia is developing a map of signals and communications for the district. They were able to use it during the most recent hurricane. This would be more widely useable than TEAMS and could possibly be put on a website (Josh Johnson).
                - Is there interest from folks to add city signals (Kyle James)?
                    - Maybe some City of Charleston signals (Troy Mitchell).

- **Education on Emerging Technologies**
    - Strategy to help establish regional knowledge on emerging ITS technologies.
    - Would also help staff stay more up to date on the latest ITS technology
    - Could use peer exchanges, internal, and external resources.
    - Shared examples of Professional Organizations (in attached PowerPoint) and links to their websites. These organizations have a variety of conferences, trainings, and other resources.
    - **Example: Holly Springs Emerging Transportation Technologies Vision**
        - In their Comprehensive Transportation Plan, Holly Springs included an Emerging Technologies Toolbox.
        - The toolbox helps identify what they should consider and prepare for in the immediate, short-term, and long-term with regards to emerging technology.
        - Helps prepare them for future ITS planning efforts and connect planning efforts together.
- **Educate leadership to champion the use and funding of technology**
    - Education for leadership and decision makers on the benefits of ITS
    - Helps prepare them to champion ITS efforts and celebrate wins
    - Gaining support for programming helps with funding
    - **Example: ITS Heartland's TSMO University**
        - Roadmap for TSMO awareness in the region.
        - Train the Trainer program helps train leaders from a variety of agencies to go back and train others on ITS.
        - Website includes a variety of TSMO information to help others with championing ITS efforts.
    - **Example: TSMO Awards, National Operations Center of Excellence**
        - By submitting for awards, it helps bring recognition to the ITS work being done.
        - Winning awards helps give leadership examples of the success of the program and helps gain their support.
        - Examples of success help support funding
- **Regional Performance Measures Program**
    - Regional approach for utilizing performance measures
    - Performance measures should be used across all categories

- Formalized guidance could help agencies in the region implement and maintain performance measures
- **Example: Georgia Performance Measures Program**
  - Created a dashboard to communicate performance measures for arterial performance, corridor volumes, and communication uptime.
  - The BCDCOG region needs to think through how to best utilize the data that is being collected and how it can be used to evaluate the region.
  - CHATS is working to have a dashboard at the end of the LRTP and Congestion Management process. They will work with other agencies on what should be included (Kyle James).
- **Example: TxDOT Crash Record Information System (CRIS)**
  - Law enforcement agencies can add up to 5 custom fields.
  - TxDOT is working to update the form to include incident and roadway clearance times as standard fields to support performance measures.
- **Example: NCDOT Report on Hurricane Florence Response**
  - NCDOT tracks performance measures on hurricane response.
  - Following an event, they use the data in AARs to help them better prepare for the next storm.
- **Example: Austin MMC Annual Performance Report**
  - Austin MMC creates an annual performance report on what they have accomplished in the year.
  - They perform a benefit cost analysis to communicate the benefit of their program with leadership
  - Helps reiterate the importance of funding

Regional ITS Architecture – Manny Insignares, ConSysTec

- ConSysTec has been developing the ITS Architecture Website.
- An ITS Architecture is required to receive federal funds for ITS.
- The website can help with the implementation of ITS Projects.
- The website helps show how projects support regional goals and connect between problems and solutions.
- Projects are listed out with generic terminology along with a description and involved agencies.
- Project pages show the ITS service packages utilized to complete the project. Service packages are the ITS strategies utilized during the projects. Diagrams are created to show the connections between the ITS technology.
- The next workshop will review the ITS Architecture in more detail.

Next Steps and Closing Activity – Jeffery Dale, KH and Kyle James, BCDCOG

- Project Next Steps:
  - Revising ITS Architecture
  - Narrowing Baseline Inventory based on strategies feedback

- Developing project list based on strategies feedback
- Kicking off Data Governance Task

- Stakeholder Next Steps:
  - Core Team Members are touring District 6 TMC
  - Core Team Meeting #3 early December
  - Stakeholder Workshop #3 February 2023
    - Final Stakeholder Workshop
- Closing Exercise:
  - Attendees were asked to rank their priorities for strategies after the presentation.
  - The ranking options were:
    - 3 – High Priority for the Region, most beneficial for the region
    - 2 – Medium Priority for the Region, beneficial for the region
    - 1- Low Priority for the Region, least beneficial for the region
    - 0 – No Priority, not beneficial