INTELLIGENT TRANSPORTATION SYSTEMS STRATEGIC DEPLOYMENT PLAN

JULY 2025

DOCUMENT OVERVIEW

1. Introduction

The Wichita Area Metropolitan Planning Organization (WAMPO) Intelligent Transportation Systems (ITS) deployment plan outline provides the framework for the optimal locations, timings and the steps necessary for deploying ITS across the transportation network within the Wichita metropolitan region. This deployment plan will facilitate transportation efficiency, safety, and sustainability in the WAMPO region. By identifying needs early in the process, the plan supports the WAMPO ITS vision through the planning, concept development, and design phases.

WAMPO has a history of ITS planning, starting with the 1998 Strategic Deployment Plan and the initial regional ITS architecture in 2001. The Wichita Area Regional Intelligent Transportation System (ITS) Architecture Version 1.1 was published on March 17, 2006. A Transportation Systems Management and Operations (TSMO) plan was completed in 2019 which took steps in setting up an overarching document to identify a plan to continue to develop ITS and other TSMO strategies in the region, which identified the need to update the ITS architecture. Beginning in 2024, WAMPO held a series of four Steering Committee Meetings and stakeholder meetings with the goal of updating the 2006 WAMPO ITS Architecture plan in 2025. In addition to a complete inventory of the region's ITS infrastructure, it includes anticipated deployments, implementation strategies, analysis of current system gaps, and focuses on ITS projects and initiatives put forth by WAMPO jurisdictions.

2. Purpose

As part of the ITS update process, all components of the regional ITS architecture are reviewed, some requiring only minor revisions, others, more substantial changes. To emphasize some of the most important and evolving elements, the deployment plan was developed as a companion document, and it covers four main topics.

- Context on how ITS deployment strategies are phased (existing, short-, mid-, and long-term)
- The role of data and the TSMO Index in identifying areas that may benefit from ITS deployments
- Summarization of stakeholder engagement
- Summary of ITS deployments and initiatives by jurisdiction

3. Strategic Deployment Plan Timeframes

Consistent with the latest WAMPO ITS Architecture plan, the deployment plan timeline can be divided into the following four categories:

- **Existing:** Review of the current ITS deployments such as traffic signal control systems, surveillance cameras, and real-time traffic information systems. The review should include the current TSMO index (see item 4 below) which highlights areas with elevated traffic volumes and crash rates that may benefit most from ITS implementations.
- **Short-Term (0-5 years):** Immediate projects and services that can be upgraded or implemented such as traffic signal systems upgrade, real-time traffic information systems implementation, and surveillance and monitoring capabilities enhancement. The short-term timeline can be suitable for developing countermeasures for the TSMO index information.
- **Mid-Term (6-10 years):** Intermediate projects and services such as Vehicle-to-Infrastructure (V2I) communications systems, smart parking solutions, and public transit ITS applications.
- **Long-Term (10+ years):** Future projects and services that may start after or extend beyond 2035. Examples may include, developing a comprehensive connected vehicles environment, implementation of autonomous vehicles infrastructure, and emerging technologies.

The timeframes categories above can be modified and solicited from stakeholders via engagement meetings and strategies to align with WAMPO's ITS goals and visions.

4. Transportation Systems Management and Operations (TSMO) Index

The TSMO Index is a gauge of where ITS projects may be useful to solve issues. In the WAMPO region, in the context of non-recurring congestion, ITS projects typically achieve the highest benefit cost ratios where a technology solution can be applied to an area and achieve high traffic diversion to other routes (saves delay as well as allows any existing capacity to be utilized by users who can't delay), where there are crashes or other disruptions to the system on a more regular basis (crashes tend to be one of the major disruptions, although things like oversize/overweight load and railroad interactions often also are other good examples of a disruption

to normal traffic patterns). A good way to identify these areas is to divide an area's roadways into segments and have existing volumes assigned to them. For this report, traffic volumes were sourced from WAMPO's Travel Demand Model which simulates regional traffic patterns and estimates vehicle volumes based on projected travel behavior. Once this process is completed, crashes are assigned to these road segments using historical crash data that is overlayed on each individual segment. Then the total number of crashes by segment is calculated and normalized by segment length, accounting for differences in segment size. The resulting map of segments and formula is shown in Figure 1. While this is not an all-inclusive list, it creates an index for each segment that can help prioritize possible areas for ITS deployments.

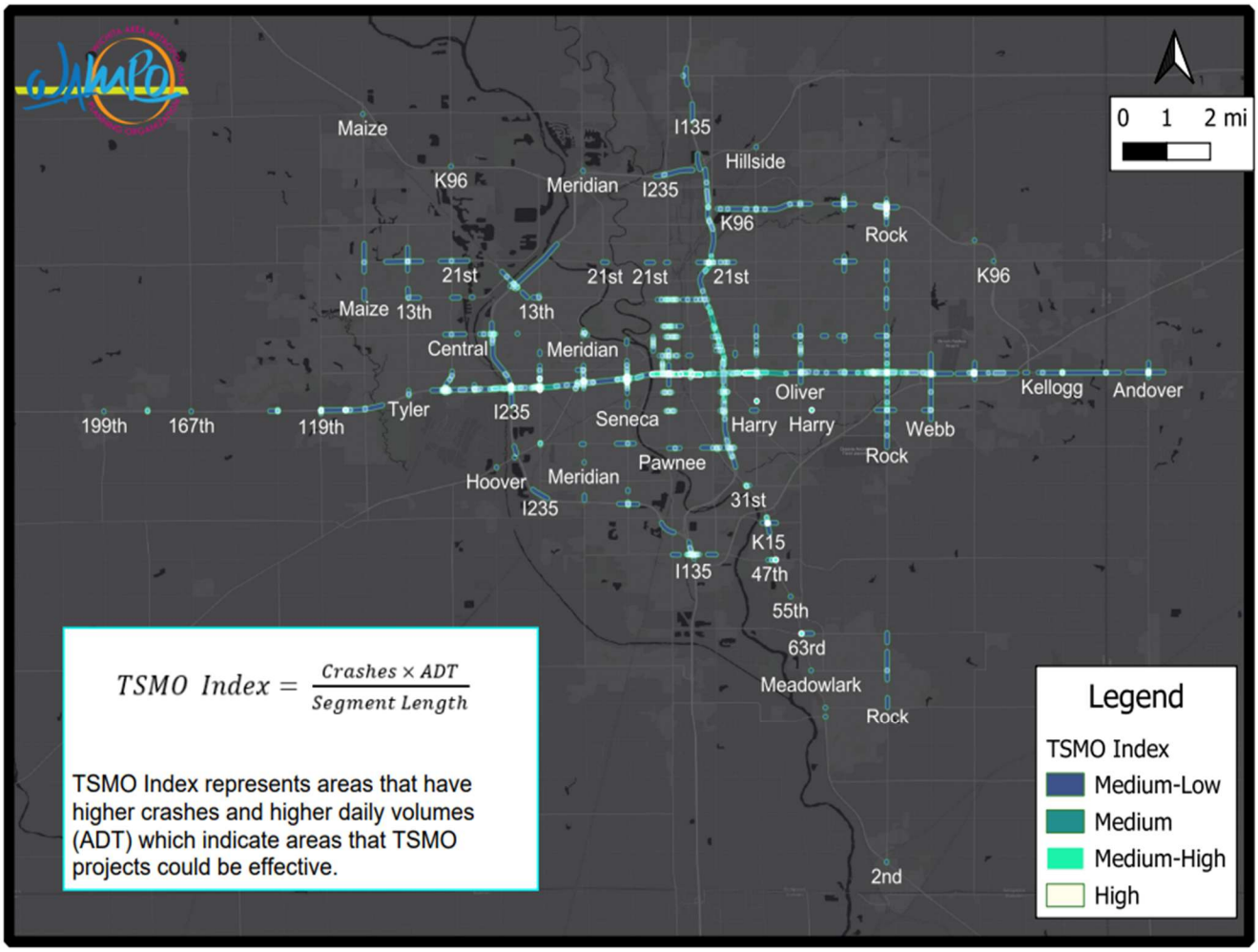


Figure 1 TSMO Index

5. Stakeholder Engagement

Involvement of a diverse set of stakeholders is essential during the development of the deployment plan and the ITS architecture update. Typical ITS stakeholders can include project planners, maintenance and operations

staff, elected officials, other adjacent ITS systems, taxpayers, and end users such as drivers, pedestrians, and bicyclists. Engaging local governments, transportation agencies, and public safety organizations and ensuring their participation is also essential in the development and implementation of the ITS architecture. Starting in 2024, WAMPO held a series of four steering committee meetings, stakeholder meetings, and a stakeholder event, in an effort to solicit input from all participating stakeholders throughout the process.

The following key areas were identified and discussed during the WAMPO ITS Architecture Update steering committee meetings.

Traffic Management

- Regional control of traffic signals: Establish regional standards and control mechanisms.
- Traffic Management Center (TMC): Update and implement diversion plan guides and consider a TMC backup site.

ITS & Communications

- Network design and sharing: Develop a comprehensive regional fiber network with cross-jurisdictional sharing.
- Connected Vehicle technology: Pilot projects on connected vehicle technology, especially on Wichita's east side.

Traffic Incident Management (TIM)

- Adoption of TIM techniques: Continue and expand traffic incident management techniques and training.
- Performance measurement: Measure trends and provide feedback to demonstrate future needs.

Work Zone Management

- Smart Work Zone management: Coordinate maintenance between cities and Kansas Department of Transportation (KDOT) and implement Smart Work Zone management. Incorporate KDOT equipment in the new architecture.
- Work zone data exchange: Incorporate lessons learned from the pilot project on US-83 corridor into the WAMPO region.

Public Communications

- Performance measures: Publicize performance measures and the costs of delay.
- Dashboard creation: Develop a dashboard for public communication.

Connected and Autonomous Vehicles (CAV)

- Develop and implement a strategic plan for connected and autonomous vehicles.

Automated Traffic Signal Performance Measures (ATSPM's)

- Continue to identify and deploy ATSPM technology to help identify delay and performance issues for signalized intersections through ATSPM technologies.

Multi-Modal Transportation

- Include transit, freight, bicycle, and pedestrian transportation in ITS deployments.

Performance Measures

- Include arterials and provide better data to the public.

Training

- Increase outreach and develop partnerships with other ITS groups.

In concert with the steering and stakeholder meetings, a survey regarding transportation issues, needs, and implementation status of ITS/technology projects among WAMPO ITS Architecture stakeholders was conducted from February 12 to April 23, 2025. Seven responses were received. The survey allowed respondents to drop pins on a map to identify locations where they thought ITS deployments were needed. Two respondents made comments without plotting a location on the map, their concerns were more general. The map and corresponding comments are found in Appendix C.

Respondents also rated the importance of addressing transportation issues in seven categories:

- Information for Travelers
- Major City Street: Travel and Traffic Management
- Freeway and Expressway: Travel and Traffic Management
- Public Transportation
- Security and Incident Response
- Commercial Vehicle Operations
- Other

Each issue was rated from 1 (Not a Problem/Need) to 5 (Very Significant Problem/Need). The responses varied widely depending on the type of organization and size of jurisdiction, but only one respondent rated any issue as a 5. In addition, the survey also asked respondents to list planned deployments by title and description. Five of the six responding jurisdictions listed deployment projects. Details related to these questions and projects can be found in Appendix C.

Finally, to complement the broader stakeholder engagement efforts and gain a deeper understanding of each jurisdiction's unique challenges and priorities, a series of meetings with individual stakeholders occurred in March, April, and May of 2025 to help guide the deployment plan in the WAMPO area. These stakeholders included representatives from the following agencies:

- City of Andover
- City of Bel Aire
- City of Derby
- City of Goddard
- City of Haysville
- City of Maize
- City of Park City
- City of Wichita
- Sedgwick County
- Kansas Department of Transportation

An overview of each responding agency and jurisdiction is presented below, but more detailed meeting minutes are included in Appendix B.

City of Andover

The main area of concern in Andover is the US-54 corridor. In the near future, significant improvements to US-54, including grade separation, will be implemented in a multi-year, multi-phase project. Phase 1 of the US-54 freeway construction begins at the US-54/K-96 interchange in east Wichita and enters the west side of Andover at the Butler County line and ends at Onewood Drive. The project will begin soon and will cause significant and variable changes to traffic conditions so there is a need for advanced warning using Smart Work Zone technologies, as well as KDOT's permanent ITS infrastructure. Phase 2 continues east to Prairie Creek Road and is in the planning phase. Additional ITS needs are also anticipated. In parallel, increases in fiber installation are occurring now with even more expected in the future. The City plans to begin connecting signals using fiber in the near future. Other areas of concern are located near schools, mostly in the north part of the city. Signal optimization is needed. Andover is assuming maintenance and operation of several areas along the county line with Sedgwick County, mostly at 159th St and 21st St. Growth in these areas may require more ITS technologies. New business and residential development in many areas of Andover will require traffic control and other technologies. Data needs include traffic counts, including in residential areas, but especially for business development along major arterials.

City of Bel Aire

The City of Bel Aire has three main areas of concern: 45th St and Woodlawn Ave, 37th St and Woodlawn Ave, and especially K-254 where drivers have difficulty judging the speed of traffic as they attempt to cross or merge onto the highway, causing catastrophic crashes. Another concern is the intersection of 53rd St. and Woodlawn,

located near a school. There is congestion at the intersection, especially at school dismissal times. Many issues at certain intersections in the city occur during peak traffic times. Bel Aire has a need for safety analytics data.

City of Derby

The City of Derby plans to focus on the Rock Road corridor from the City of Wichita to the City of Mulvane (this area also includes part of Sedgwick County's jurisdiction). Dan Squires estimated 30% – 40% of the crashes in Derby occur along Rock Road, making it a logical area for expansion of ITS in the region. The 63rd and Rock Road intersection has issues but is not in the Derby jurisdiction. Also, K-15 shows up as an area of concern as a high-volume, high-crash area. This highway is under KDOT's jurisdiction, but is in Derby city limits, so it will require a joint effort. The City of Derby has plans for continued fiber sharing and additional fiber deployment. The main data need is accurate volume data to aid in signal timing adjustment, especially on K-15.

City of Goddard

The City of Goddard plans to improve several intersections in their jurisdiction. They are experiencing a high level of development and expect traffic volumes to increase. They are looking at options such as ITS that will aid in improvements to three arterials that intersect with US-54: 183rd St, 199th St, and 215th St. Other areas receiving attention are Crowne Dr. as well as the intersection at Maple St. and 199th St. They are looking at installing roundabouts at some intersections. Signal timing for intersections near schools is planned. Current speed data and signal analytics are needed. Goddard has readied plans for ITS deployments; in case ITS funding becomes available.

City of Haysville

The City of Haysville's highest traffic volume is in the mornings as drivers head to Wichita, mostly using the Kansas Turnpike and Meridian Avenue. Congestion is likely since Derby residents are also using the same corridors at the same time. It is anticipated that the traffic volume will increase over time. Further enhancements of KDOT's ITS may alleviate some of the congestion. Haysville is interested in data sharing and tracking, especially for economic development.

City of Maize

The main priority of the City of Maize is investment in existing thoroughfares and making existing travel areas safer. Efforts are underway to monitor speeds and travel counts. They would like to connect traffic signals using fiber technology. As the intersection at 45th St and Tyler Road is improved, there will be a need for additional ITS. Higher needs for connectivity are anticipated as the population and development expands. As Maize continues to grow, they anticipate a need for more accurate traffic data to minimize congestion and aid in safety.

City of Park City

Park City's most pressing traffic issues are due to major entertainment venues along I-135, some currently in operation and others in the development stage. Retail developments to support visitors are also in the works.

Future issues will be the high volume of traffic at peak times for events. Additional ITS to aid in traffic control will be needed for diverting traffic, alerting drivers of wait times, and other messaging to enhance traffic flow before and after scheduled events. Deployments on arterials accessing these developments may also be needed. Park City would be interested in data on the number of people in attendance at the venues in their community.

City of Wichita

The City of Wichita currently has plans to expand its fiber network and to continue to partner with KDOT on projects where they can share fiber or other resources. Good examples include the Greenwich and 21st Street fiber corridors which were chosen to conduct a pilot deployment of RSU technology as well as connect signals along a key diversion route for an upcoming freeway expansion project along K-96. This will allow a more dynamic response to key diversion routes during the freeway expansion construction, which will hit all of the key focus areas including ATSPM's, Work Zone Management, TIM, ITS and Communications, etc. Finishing the K-15 joint corridor, further joint projects along the Rock Road corridor, as well as possible projects along 21st /Zoo Blvd., Central Avenue and Pawnee Avenue were mentioned in the meetings.

Sedgwick County

Sedgwick County would like to expand its use of fiber, mainly for traffic signal coordination and control, and is interested in learning about the current fiber network and the potential for fiber sharing. Regional standardization of signal hardware is supported by the County, but their system is relatively small and traffic, while it is increasing, is not a major issue at this stage. This is not to suggest that improvements are not warranted – on the contrary, they would be welcomed – but the budget is not adequate at this time. Grant money has been awarded for some traffic signal improvements along the Rock Road corridor adjacent to the Air Force Base.

Kansas Department of Transportation (KDOT)

KDOT freeway and highway systems are the most developed ITS elements in the region. The WICHway system has gone through its entire initial deployment plan and subsequently has and will continue to expand as the freeway network is expanded, or where spot issues occur. The current activities include active freeway management, TIM training and local TIM meetings as well as spot ITS improvement such as Smart Work Zones and systems such as the Truck Overturn Prevention System (TOPS) located on south K-96. Pilots and other fiber sharing initiatives are high on the current lists. No new deployments outside of the current project expansions are currently programmed, but KDOT ITS group is very responsive to any demands in the area as they develop.

6. Engagement Summary and Deployment Matrix

Stakeholder meetings and engagement activities revealed both unique and shared transportation needs across the region. While the survey and steering committee meetings helped identify broader regional priorities, the individual stakeholder meetings were well-structured to gather input on deployment locations or locations that ITS elements might help alleviate issues. Some jurisdictions had very specific projects and timelines identified for implementation, where others may have identified problem areas but not an exact solution. Common themes

included interest in expanding fiber networks, improving traffic data and signal timing, and addressing safety near schools, crash corridors, and growth areas.

Based on this engagement and research, a set of projects and initiatives was developed. These were then sequenced into Short Term (0-5 years), Mid-Term (6-10 years) and Long-Term (10+ years) deployment timeframes. Further efforts culminated in this deployment plan and the sequenced project matrix that forms Appendix A.

Appendix A

ITS Deployment Matrix

	Short-term (0-5 years)	Mid-Term (6 -10 years)	Long Term (10+ years)
Andover	● Continue fiber installations with outside providers. ● Consider fiber-sharing agreements. ● Include fiber connection ability at new traffic signals.	● Connect high volume intersections via fiber. ● Coordinate signals on corridors (e.g. Andover Rd.) ● Consider message signs on arterials near US-54. ● Include ITS solutions on road improvements near schools.	● Continue coordination of various corridor signals. ● Continue to provide fiber links to all City facilities.
Bel Aire	● Install Woodlawn fiber link, 37th St. to 45th St. ● Work with KDOT to identify technologies for safer access to K-254. ● Develop a Safe Routes to School plan (include ITS).	● Address congestion during peak school traffic hours at 53rd St./Rock Rd. ● Include ITS solutions on road improvements near schools.	● Participate in planning and design of new interchange for K-254.
Derby	● Install Rock Rd. corridor ITS. ● Expand fiber sharing with school district and KDOT. ● Continue K-15 interagency project.	● Continue Rock Rd. ITS. ● Link Rock Rd. ITS with adjacent jurisdictions. ● Consider message signs on arterials near K-15 and Rock Rd. corridors.	● Continue fiber installation as development occurs.
Goddard	● Continue traffic signal optimization for 183rd St. and 199th St. on US-54. ● Improve signal timing east of 167th St. on US-54. ● Improve signal timing during peak school traffic times.	● Consider ITS solutions as development occurs. ● Incorporate ITS into plan development. ● Include ITS solutions on road improvements near schools.	● Consider fiber-sharing agreements with KDOT and others as US-54 expands west.
Haysville	● Improve signal timing for peak traffic times.	● Consider message signs on arterials near US-81 and other corridors.	
Maize	● Install radar-detected traffic signals. ● Consider fiber connections with outside providers. ● Consider fiber-sharing agreements.	● Connect high traffic corridor traffic signals via fiber. ● Include ITS on 45th St./Tyler Rd. improvements.	● Consider message signs on arterials near the Northwest Bypass.

Park City	● Consider message signs on arterials near I-135 for event venue traffic. ● Encourage KDOT to install DMS on I-135 at 77th St.	● Include ITS at 61st St./I-135 and 85th St./Broadway.	● Use ITS to relieve congestion as development occurs.
Wichita	● Continue fiber-sharing partnership with KDOT. ● Continue fiber network expansion. ● Joint ITS projects on Rock Rd.	● Connect signals for diversion routes during K-96 expansion. ● Finish the K-15 corridor project. ● Continue projects at 21st St/Zoo Blvd. and Central Ave./Pawnee Ave.	
Sedgwick County	● Investigate metro fiber network for possible agreements.	● Connect high traffic corridor traffic signals via fiber.	
Kansas Dept. of Transportation	● Continue freeway management ● Traffic Incident Mgmt. training. ● Create WICHway TMC back-up site.	● Continue fiber-sharing agreements. ● Continue deployments.	● Upgrade and replace equipment.

Appendix B

Individual Stakeholder Meeting Minutes

WAMPO ITS Architecture Update - Andover

Tuesday, March 18, 2025

Rick Lanzrath, City of Andover

Slade Engstrom, TranSystems

Tom Hein, TranSystems

Peter Mohr, WAMPO

Matthew Baker, JEO

Patrice Hein, PJDunnCo

Slade Engstrom welcomed everyone and described the purpose of the meeting.

He presented the TSMO map and explained the volume and crashes formula. He said the freeway project may solve some of the issues.

Rick Lanzrath said that, in the short term, Phase 1 of the East Kellogg project is causing issues, and it might be a while before Phase 2 starts. He anticipates a heavier concentration of issues before the project is completed. He said advanced warning would be helpful.

Slade said that there will be a permanent Westbound US-54 sign installed for that project. A Smart Work Zone designation has been proposed for this project, which will include advanced warning signs for Central and Harry.

There is a Traffic Management Plan (TMP) for Phase 1.

Slade mentioned that IdeaTek is laying fiber and asked if Rick wanted to include language about using fiber in the deployment document.

Rick said that conduit is being laid along arterial roads and Andover is having discussions with internet providers. He said they are a few years out from connecting signals using fiber.

Peter Mohr said that if Andover has any problem areas, they can be studied to see if there are any ITS solutions.

Rick said that Andover experiences congestion during school dismissal times on North Andover Rd. Signal optimization might be good to have in the plan.

Rick also said that Andover may be taking over some areas along the county line with Sedgwick County, mostly at 159th St and 21st St, and perhaps all along 159th St.

Slade said the new subdivision near the 21st St and K-96 interchange will greatly increase traffic.

New business and residence development near 21st St and Prairie Creek Rd will probably need traffic control.

Discussion of big data providers. Rick was asked if Andover has any specific data needs. He said they always need traffic counts and that speed and counts on residential streets would be helpful. They also need traffic studies for businesses, driveway approaches, etc. Rick asked if the data from these providers was high enough quality for planning purposes.

Peter said that the data can be helpful but that he wouldn't recommend reliance only on these data sources for planning purposes.

Discussion of how data is collected from cell phone locations, cell phone apps, and other methods. Some data may be doubled up by people who have multiple methods of data collection on their phones and other issues with accuracy of data collected.

Rick said he's not sure how they would use this data, he would have to know more about it.

Slade asked Rick to contact him if he thinks of anything else that should be included in the deployment plan and thanked everyone for their time.

WAMPO ITS Architecture Update - Bel Aire

Monday, March 17, 2025

Anne Stephens, City of Bel Aire

Slade Engstrom, TranSystems

Tom Hein, TranSystems

Peter Mohr, WAMPO

Matthew Baker, JEO

Patrice Hein, PJDunnCo

Slade Engstrom welcomed everyone to the meeting and thanked Anne Stephens for meeting with the team. He said the steering committee wanted to make sure that representatives from WAMPO jurisdictions all had the opportunity to be included in the deployment plan. He said with companies expanding fiber into towns, this is a good time to think about the use of fiber in deployments and see if there are some opportunities out there to make ITS improvements.

Anne said that Bel Aire is thinking about linking 45th St and Woodlawn to 37th St and Woodlawn.

Slade shared the TSMO map that shows high volume/high crash areas in the Wichita metro. There was discussion that while the map doesn't show high traffic volume or high crashes in the Bel Aire area, it's a starting point for looking at areas where there are concerns. ITS could be utilized for diverting traffic due to crashes, railroad-related delays or general warnings to drivers of incidents/issues.

Anne asked about looking at K-254 because it doesn't appear as a hot spot on the map. Discussion about these areas to look at: 45th St and Woodlawn, 37th St and Woodlawn, K-254.

Slade said this doesn't necessarily mean there aren't issues there. KDOT installed a Dynamic Message Sign (DMS) on westbound K-254 at Webb. The Rock Rd, Webb, K-254 interchange may create more need for ITS. He said there is fiber along K-254 (dark now) so signs can be added.

Slade asked Anne to think about traffic issues in Bel Aire for which they haven't yet come up with a solution. He gave an example of a problem at K-96 southbound where trucks were turning over on the ramp to US 54 about once per month. They came up with a solution: a Truck Overturn Protection System (TOPS) that has been successful - no turnovers since it was installed 3 years ago.

Anne discussed a Transportation Energy Efficiency Program (TEEP) study at 53rd St and Rock Rd which resulted in a four-way stop. She said there are issues at the intersection of 53rd St and Woodlawn, especially when school is dismissed, as the road does not have enough holding area for traffic. She said 53rd St was reconfigured

to improve site distance. They've discussed having a four-way stop there, but she said a safety officer at the intersection during peak traffic times would be beneficial - the school has said it does not have funding for that.

Slade said he had a useful resource from Texas that addresses safety considerations for new schools. He will send it to the group.

Anne said that they had looked at Safe Routes to School (SRTS) but couldn't qualify due to crash data requirements.

Peter Mohr stated that WAMPO is looking at SRTS for other districts, so Bel Aire may be able to be included in the project. WAMPO is pursuing more safety data from data providers.

Slade asked Anne to let us know what data features are most important so they can include that information as they look at what data brokers are offering.

Anne said Bel Aire has their own speed counters but that the Woodlawn project skews the data. She said any help with safety analytics or other data to help them with grant applications would be beneficial. She added that some of the safety issues at certain intersections last only for one hour per day, during peak traffic times.

Anne also pointed out that drivers have trouble judging the speed of oncoming traffic when entering K-254. She said drivers do stop before entering, but crashes happen when they can't tell how fast a car is approaching.

Slade said there are also curves on K-254 that add to the difficulty in judging the speed of traffic.

Anne mentioned that some larger cities use metering to help drivers judge when to enter the highway and asked if that would be useful in this situation.

Slade said he would note that, and it would be considered when looking at ITS solutions. He said the document will identify issues such as this, and while they may not come up with a solution right away, as technology evolves, they may find a solution.

Tom Hein asked Anne how the new stoplight at Woodlawn was working. Anne said there have been a few glitches with the signal but overall has been working well. Tom asked if there were many pedestrians at that intersection. Anne said not many, but there are a lot of pedestrians and bicyclists on the path that was installed on the west side of Woodlawn.

Anne said she had been working on the 45th St and Woodlawn project since 2018 and she'll be very glad when it is completed.

Slade asked Anne if she would make a presentation about the project when it is finished. She said she is already making preparations for a presentation about it. She also noted that the community has been very supportive throughout the project.

Slade thanked everyone for their input and the meeting was adjourned.

WAMPO ITS Architecture Update - Derby

Tuesday, April 2, 2025

Dan Squires, City of Derby

Alex Lane, City of Derby

Slade Engstrom, TranSystems

Tom Hein, TranSystems

Peter Mohr, WAMPO

Matthew Baker, JEO

Patrice Hein, PJDunnCo

Slade Engstrom welcomed everyone to the meeting and thanked Dan Squires and Alex Lane for meeting with the team. He said the steering committee wanted to make sure that representatives from all WAMPO jurisdictions had the opportunity to be included in the deployment plan.

Slade shared the TSMO map that shows high volume/high crash areas in the Wichita metro. He said it's a starting point for looking at areas where there are concerns. ITS is usually utilized for diverting traffic or general warnings to drivers of incidents/issues.

The TSMO map shows issues on Rock Road and K-15 also shows up as an area of concern.

Dan Squires commented that 63rd St intersection has issues, but it is not within the City of Derby. He said they have GPS clocks, and they have done a corridor study on Rock Road for an SS4A project. He said 30-40% of the crashes in Derby occur on Rock Road.

WAMPO is involved in the reconstruction of Rock Road to 55th St.

Dan said the entire Rock Road corridor is a logical extension of the IT system in the region.

Slade mentioned the fiber installed to 55th St. and Dan said Derby has fiber sharing plans.

Peter Mohr explained the inquiry about data needs that WAMPO is conducting. WAMPO wants to ensure that the ITS plan is reflective of all the WAMPO jurisdictions. Peter explained some of the different offerings of some of the data providers they've met with.

Alex Lane said that they need turn data and that the speed data they have on residential streets appears skewed lower due to low volume and drivers stopping and turning out of driveways, etc. Discussion that it's hard to get accurate data with a small sample size so it probably would work better on arterial roads.

Dan said if they could get accurate volume data, it would be helpful in adjusting signal timing.

In summary, the items to be included in the deployment plan are Rock Road, K-15, fiber deployment and fiber sharing.

Slade thanked everyone for their time and the meeting was adjourned.

WAMPO ITS Architecture Update - Goddard

Wednesday, March 19, 2025

Tina Palmer, City of Goddard

Slade Engstrom, TranSystems

Tom Hein, TranSystems

Peter Mohr, WAMPO

Matthew Baker, JEO

Patrice Hein, PJDunnCo

Slade Engstrom welcomed everyone and explained the purpose of the meeting. He showed the TSMO map and called attention to the area that included the City of Goddard. The traffic issues are mostly occurring at intersections along West Kellogg. He said signal improvements and an R-cut have had a positive effect. The 183rd St project will also solve some issues. He asked Tina Palmer if more signal-specific improvements might be needed with increased special events and new development going on.

He mentioned the TOPS installation at K-96 and East bound US-54. Tina said she was the inspector on that project.

Tina shared her screen to show a map of Goddard featuring traffic details. She said they had been working with Chad Parasa of WAMPO on some issues and evaluated hot spots. Their first goal is to improve intersections through road design. They have done frontage road realignment and added turn lanes on 183rd St, but they are experiencing a high level of development and expect traffic volumes to increase. They are looking at improvements for 199th St and have had a preliminary public meeting. They are looking at the options for that, as there are several possible solutions. She said 215th St does not have much congestion as yet, but they want to get ahead of the development that will occur.

They are thinking about extending Crowne Dr. Tina said they like roundabouts because there is no signal maintenance, they are traffic calming and make intersections safer. She said they did add a 4-way stop at 167th St that has significantly helped.

There is a high amount of development at 183rd St and another roundabout would be helpful there. She also mentioned sidewalk construction. North Park is planned for 183rd St and Maple and is expected to be a regional attraction.

Slade mentioned that the Goddard school district is large - going all the way to Wichita. He said signal timing for school traffic is being addressed. He said we can outline some of those geometric problems: DMS further out on

US-54, maybe at 183rd St eastbound, or near the proposed northwest by-pass right of way. He said there are opportunities for advanced warning of incidents and signal timing improvements can be included.

Discussion of signal timing plan east of 167th. Slade said there is a good coordination plan from west Wichita to Goddard so that drivers won't have to make so many stops.

Tina said she liked that idea. She would like to request timings to consider peak times, especially with school traffic, which would relieve congestion on 183rd St and 199th St. She said they are focusing on 183rd St, 199th St, and, in particular, Maple and 199th St.

Tina asked about the goal of the deployment plan. Slade said it basically will document current systems being used so future projects can follow the same kinds of common protocols. It's a synthesis of everything that's happening and what we would like to happen. It will describe in general terms, current and future possibilities. It will help with funding projects in the future. He said sometimes there are funds that have to be used in a short time frame, and this can help communities be ready with plans when the funds become available.

Peter Mohr said it is a federal requirement that the ITS Architecture Plan is updated every five years and WAMPO wants to make sure that they have communicated with all jurisdictions to include their needs and projects in the plan.

There was discussion of WAMPO's exploration of big data providers and asked Tina if Goddard had any specific data needs. She said they used a traffic study for a 183rd St speed reduction project by the high school. She said current data would be good to have - Goddard is growing so fast they need updated speed data and signal analytics.

Tina asked if there was data that could help with citizen complaints.

Peter said signal analytics may be helpful. He said the data came from connected vehicles and cell phone data, especially apps that require location disclosure.

Tina said they have crash data. She also said they can have plans for deployments ready in case a funding opportunity arises.

Peter said a WAMPO project selection committee put together a priority list so that they can reassign de-obligated funds. He said ready-to-go plans can be helpful, but they usually follow their list, although there are exceptions. He said the timing of reassigning de-obligated funds is different every year.

Tina asked about any variance in funding with the new administration.

Peter said funding obligation was delayed, then restarted and has been relatively normal, but not sure as we move into the future.

Slade thanked everyone for their time and the meeting was adjourned.

WAMPO ITS Architecture Update - Haysville

Tuesday, April 2, 2025

Tony Martinez, City of Haysville

Slade Engstrom, TranSystems

Tom Hein, TranSystems

Peter Mohr, WAMPO

Matthew Baker, JEO

Patrice Hein, PJDunnCo

Slade Engstrom welcomed everyone to the meeting and thanked Tony Martinez for meeting with the team. He said the steering committee wanted to make sure that representatives from all WAMPO jurisdictions had the opportunity to be included in the deployment plan.

Slade shared the TSMO map that shows high volume/high crash areas in the Wichita metro. He said it's a starting point for looking at areas where there are concerns. ITS is usually utilized for diverting traffic or general warnings to drivers of incidents/issues.

The Kansas Turnpike at 47th St was a highlighted area of concern, but there weren't any definite trouble spots.

Tony Martinez said the highest traffic volume is in the morning when people are leaving Haysville to go to work, heading for KTA or Meridian. He also said he thought a lot of people are leaving Derby at the same time to head into Wichita. He was not sure of any issues that would require an ITS solution.

Peter Mohr explained the inquiry about data needs that WAMPO is conducting. WAMPO wants to ensure that the ITS plan is reflective of all the WAMPO jurisdictions. Peter explained some of the different offerings of some of the data providers they've met with.

Tony said that because Haysville is a smaller city, the staff deals with a variety of management areas, such as economic development. He said developers are always asking for data. Any data sharing/tracking would be helpful.

Discussion of using AI on signals, Haysville has AI on one of its three traffic signals and Tony said it has improved traffic movement at the signal.

Tony said that Haysville has contracted with a data provider for a big annual event in the community and they plan to do that for several events planned for this year.

Slade thanked everyone for their time and adjourned the meeting.

WAMPO ITS Architecture Update - Maize

Friday, April 4, 2025

Nick Gregory, City of Maize

Nick Vestering, City of Maize

Slade Engstrom, TranSystems

Tom Hein, TranSystems

Peter Mohr, WAMPO

Patrice Hein, PJDunnCo

Slade Engstrom welcomed everyone to the meeting and thanked Nick Gregory and Nick Vestering for meeting with the team. He said the steering committee wanted to make sure that representatives from all WAMPO jurisdictions had the opportunity to be included in the deployment plan.

Slade shared the TSMO map that shows high volume/high crash areas in the Wichita metro. He said it's a starting point for looking at areas where there are concerns. ITS is usually utilized for diverting traffic or general warnings to drivers of incidents/issues.

The TSMO map shows a few spots of concern in the Maize area.

Nick Gregory said that Maize is starting to use technology programs to track traffic. They are using Stealth Stat System - a speed data collector used by the Wichita Police Department. He said as far as deployment, they are prioritizing investment in existing thoroughfares, sidewalks, etc. making existing travel areas safer. They are looking at speeds and traffic counts.

Nick Vestering said they are working with KDOT on funding for radar detected signals. They are replacing cameras with radar on signals.

Slade said that will lower maintenance costs. He also mentioned that some of the communities in the Wichita metro are using IdeaTek to install fiber. There may be some opportunities to partner with other communities installing fiber.

Nick Gregory said IdeaTek is deploying in neighborhoods now, but Maize has not talked with them yet.

Nick Vestering said City Hall is connected to City facilities and they would like to connect traffic signals.

Nick Gregory said there are no immediate plans, but as they improve 45th St and Tyler Rd they would consider ITS technologies.

There was discussion about taking advantage of opportunities for connectivity now that will be beneficial in the future. Slade said that the deployment plan can include general language, and the details can be added later.

Peter Mohr explained WAMPO's exploration of data providers and that they would like to know what kind of data would be helpful to the various jurisdictions.

Nick Gregory said that Maize has worked with a retail consultant and has data on unique travelers that uses cell phone data. He said it's not as accurate as a tracking system would be, but it is useful for economic development purposes. He was able to use the data to identify the top 10 employers in Maize by looking at traffic counts but can't determine what routes they take.

Several jurisdictions have mentioned using Placer. Peter said he would take a look at it.

Slade thanked everyone for their time and the meeting was adjourned.

WAMPO ITS Architecture Update – Wichita

Friday, March 7, 2025

Paul Gunzelman, City of Wichita	Slade Engstrom, TranSystems
Lee Carmichael, City of Wichita	Tom Hein, TranSystems
Mike Armour, City of Wichita	Peter Mohr, WAMPO
	Matthew Baker, JEO
	Patrice Hein, PJDunnCo

Slade Engstrom welcomed everyone to the meeting. He said that this meeting is to make sure that any areas for deployment are included in the report. He presented the TSMO Index which is "crashes multiplied by ADT, divided by segment length," which can help identify areas of concern. He said this works in higher volume and higher crash areas. He said the TSMO index develops a matrix that can be used to design ITS solutions. He also said that a safety study compared to segment links gives good information about areas that have issues.

One area from the TSMO study showed K-42, K-15 and Rock Road as three areas with consistent issues. Also 21st Street at Zoo Boulevard shows up.

Mike Armour said that there is a high number of pedestrian crashes near Via Christi near Broadway and Murdock.

Slade mentioned that Pawnee also shows up as an area of higher crashes.

Paul Gunzelman said that Derby is also looking at deployments for Rock Road; he said that could be a good multi-jurisdictional project.

Tom Hein asked if they would be interested in Dynamic Message Signs (DMS) on arterial streets.

Paul said that would be a good idea and that light medians could be used. He said Rock Road at Central may be a good location for DMS. He also thought that it would be useful at West Street and Maple.

Slade said the sign would have to be placed so that drivers have time to divert off.

Mike said Maize Road might be another good candidate for DMS deployment.

There was discussion of the possibility of tying into the new water plant conduit for sharing fiber as well as conduit along 21st Street.

Mike said that Pawnee becomes a major connection south of Kellogg. There is heavy traffic at Broadway and SE Boulevard, then I-135, with many driveways. With trains at Mead, some cars cut around other cars – this may be a rail-related issue. Near the Walmart at Pawnee and Broadway, Hydraulic backs up.

It was mentioned that 21st Street/Zoo Boulevard is already in the Transportation Improvement Plan (TIP). An area of 21st Street is located between two projects – need to look at filling in the gap.

Mike presented a Wichita Fiber map showing current locations of fiber. He identified some facilities that utilize fiber: police department, fire department, airport, water plant, etc. He said there is a lot more fiber going in now.

Peter Mohr said that WAMPO has been meeting with big data providers; it could supplement what we already have and that it could be shared with WAMPO members. He asked the group what kind of data they would like to have.

Mike said he would like to see performance data, operation report data, and data that can proactively show where the problems are.

Mike and Peter discussed a future TIP plan. Mike will provide Peter with the Wichita Fiber map to use.

Slade thanked everyone for their time and input. The meeting was adjourned.

WAMPO ITS Architecture Update - Park City

Tuesday, March 18, 2025

Sean Fox, City of Park City

Slade Engstrom, TranSystems

Tom Hein, TranSystems

Peter Mohr, WAMPO

Matthew Baker, JEO

Patrice Hein, PJDunnCo

Slade Engstrom welcomed everyone to the meeting. He presented the TSMO map and said there is a high benefit to cost ratio when deployments are made in high volume/high crash areas, so this map can be a starting point to discussing issues within the jurisdiction. He pointed out that something that showed up on the map was the ramps west of the I-135 interchange at 61st St. He said although that shows up on the map, there could easily be other areas of concern in Park City.

He said issues may not be crash-related or could be very specific. He gave the example of trucks overturning on the ramp from southbound K-96 to US-54. An ITS solution was found for this problem, which occurred about once per month, backing up traffic to Greenwich Rd and closing the highway for half a day. The Truck Overturn Prevention System is a warning to trucks that they are going too fast as they approach the ramp. It has proven very successful. This is an example of a very specific use of ITS to improve traffic safety.

Sean Fox said Park City's most pressing issues with traffic are due to major entertainment venues along I-135: Cross Winds Casino, Park City Arena, and nearby 81 Speedway. The soon-to-open Golden Circle Casino will be open seven nights a week. There are also plans in the near future to develop Champ Town, which will be eight baseball/softball fields where tournaments will be held and are expected to attract over 1.2 million visitors annually. Retail developments are planned to support those visitors. Also planned is an aquarium expected to draw over a million visitors per year. So, he said future issues will be the volume of traffic at peak times during events.

Slade said that these existing and anticipated issues would be identified in the deployment document and perhaps signal timing or other ITS solutions could be included. He said letting drivers know approximate wait times could be helpful if they can't be diverted to another route.

Sean also thinks that improvements to the roadway should be included in the deployment plan, such as a divergent diamond at 61st St. He said a five-legged roundabout was recommended. He said a WAMPO project

includes a roundabout at 85th St and Broadway. He said it is a problem intersection - especially since many Valley Center High School students use that intersection at school dismissal times.

Sean's number one concern is installation of message boards at 77th St.

Slade said we will include these concerns in the deployment document.

When asked about data needs,

WAMPO is looking at big data providers and would like to know if Park City has any specific data needs. Peter said they would like to be able to consider needs that the various jurisdictions have when looking at various data packages.

Sean said Park City could benefit from data that shows the number of people in attendance at the venues in their community. He said they use license plate readers and Placer AI to assist in economic development planning. It shows where drivers have come from and their destination. He said they do need data for a STAR bond project - not so much traffic volume as destination.

Peter said that it was good to know from a WAMPO standpoint, as there might be other jurisdictions that have similar needs.

Slade said the discussion has brought up some good information to include in the deployment plan. He said deployments can be based on future development and growth in event traffic in Park City. He said it can be referred to generally to leave room for technology improvements and changes to development in the future.

He thanked everyone for their time and adjourned the meeting.

WAMPO ITS Architecture Update - KDOT

Thursday, March 6, 2025

Shari Hilliard, KDOT	Slade Engstrom, TranSystems
Nick Squires, KDOT	Tom Hein, TranSystems
Duane Flug, KDOT	Peter Mohr, WAMPO
JB Wilson, KDOT	Matthew Baker, JEO
	Patrice Hein, PJDunnCo

Slade Engstrom welcomed everyone to the meeting and stated that it is near the end of the current ITS deployment plan. He said that typically, every October, he meets with KDOT District representatives to have discussions about the current status of deployments in each district. He said that signs and cameras have nearly full coverage in the Wichita metro but wanted feedback to see if there was anything else that needs to be addressed. He inquired about the district's data needs.

Peter Mohr said if there are issues that need to be addressed, WAMPO would like to help them determine if there is an ITS solution for them.

Slade presented the TSMO Index which is "crashes multiplied by ADT, divided by segment length," which can help identify areas of concern. He said this works in higher volume and higher crash areas. The group looked at the TSMO Index map and commented that it does appear to identify those areas they are aware of that have issues due to high volume/high crashes.

Nick Squires commented that ITS coverage seems to be functioning as it should. With the improvements coming to K-96, more deployments will be made.

In addition to K-96, East Kellogg ITS improvements are currently being designed and will be deployed as the project progresses.

Nick asked about plans for West Kellogg.

Slade said signal timing from Goddard to the east is in progress.

Shari Hilliard said that ramp metering was mentioned in the pre-deployment study but the metro engineer at that time did not think they were necessary, so it did not go forward.

Slade said many of the ramps are too short for ramp metering to work successfully; it tends to back up traffic onto the city streets.

An area with constant issues is westbound US 54 from West Street to the I-235 interchange. There is a high volume of crashes – one almost every day.

There was mention about the possibility of an additional overhead sign on westbound Kellogg that could be tied to queue detection technology.

Peter Mohr mentioned that this architecture could list future projects: short term, less than three years, five-year, and 10+ year initiatives.

Peter also mentioned that WAMPO has been talking with big data providers. He asked if big data would be helpful to KDOT.

Shari said that crash detection data may be helpful, but KDOT has a group that gathers data for specific projects.

Slade thanked everyone for their input and adjourned the meeting.

WAMPO ITS Architecture Update - Sedgwick County

Monday, May 5, 2025

Tia Raamot, Sedgwick County

Slade Engstrom, TranSystems

Tom Hein, TranSystems

Peter Mohr, WAMPO

Matthew Baker, JEO

Slade Engstrom welcomed everyone to the meeting. He said these one-on-one meetings were to look for areas where ITS might be deployed to help. The example given was the conversation with the KDOT Wichita Metro Engineer about a problem curve from EB K-96 to EB US 54. A Truck Overturn Prevention System was created using sensors and an automatically displaying message board if a truck is going too fast into the curve.

Next, he showed the TSMO map for the county and explained the formula used to create the hotspots shown on the map. He then asked Tia what concerns or ideas she has for possible inclusion in future ITS deployments that might help in the County.

Tia Raamot said that she'd really like to learn about the area's fiber backbone – where it is located, who owns it, how and if it can be used by the County.

Slade described the areas on I-135, I-235, K-96, and US 54. There is also a local grid within the City of Wichita and the City has projects to install more on Greenwich and 21st St., plus they are partnering with IdeaTek, a private provider. He said that there was a project in 2021 to document some of the fiber sharing agreements in the area and to encourage other jurisdictions to use spare fiber that is currently in the ground.

Tia asked if that information could be shared with her. She said the County has a long-term relationship with the City's traffic department.

Slade said most of the fiber use is by KDOT for WICHway and Statewide ITS. Most of the City's signals are not yet on fiber.

Tia said the County received an innovation grant for signal coordination near McConnel AF Base and is trying to move forward with that work.

Slade said that standardization of signals across the region would be a real benefit but currently there is little matching between jurisdictions.

Peter Mohr discussed the research he had done with six different Big Data providers to see if local cities and the county would be interested in using the data and asked what kind of data might be useful.

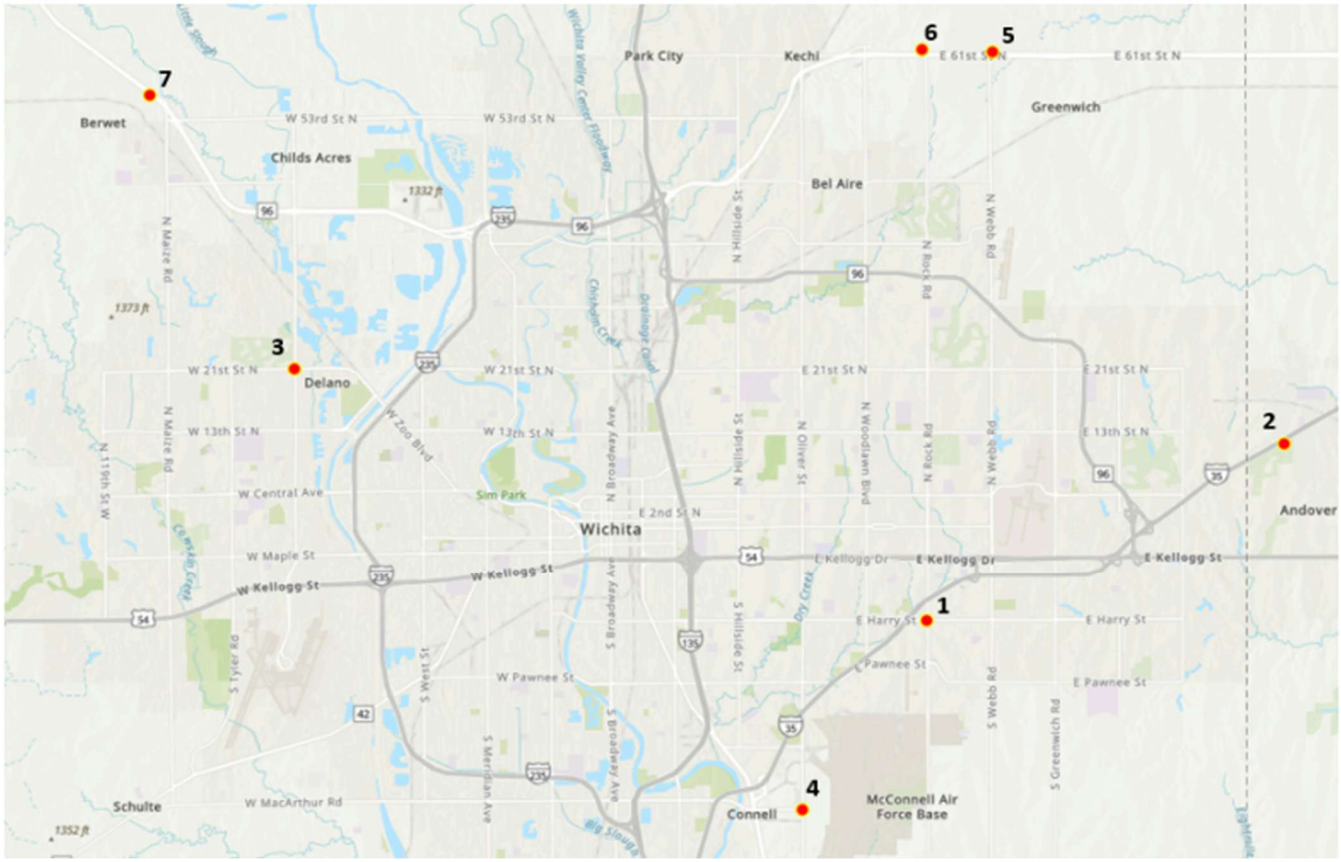
Tia has used some previously (Replica and Obsidian). She needs better crash data and accident histories especially. She stated that the County doesn't have much budget for traffic control, and she has been applying for grants. Traffic in the County is still growing but there's not enough yet to justify buying the data.

Slade thanked Tia for her comments and said if she thinks of other needs, let us know and we can include them in the report.

Appendix C

Stakeholder Survey Response Summary

Seven responses were received from six jurisdictions, (two responses came from KDOT personnel): City of Derby, City of Park City, Kansas Department of Transportation, Kansas Highway Patrol, Kansas Turnpike Authority, and Sedgwick County. Respondents were asked to drop a pin on locations within the WAMPO region where they felt ITS elements were needed.



These comments correspond to the pins on the above map:

1	Dan Squires	I would like to see ITS components including signal coordination and Wichway on Rock Rd from North Wichita thru Derby to Mulvane.
2	Glen Scott	Continue building out the system with priority to "dark" areas with highest volumes for DMS, PTZ cameras & speed detection. Work ITS elements into regionally significant projects as they are programmed and constructed.
3.	Lynn Packer	West 21st St corridor from I-235 to Maize Rd
4.	Lynn Packer	Oliver St between 31st and 47th St S
5	Duane Flug	More ITS further out K254 and K96 would be helpful for commuters to get information.
6.	Duane Flug	More ITS further out K254 and K96 would be helpful for commuters to get information.
7.	Duane Flug	More ITS further out K254 and K96 would be helpful for commuters to get information.

Not plotted:

Jason Hoffman	I think we should look at crash data with mid to long-term closures to see if additional message boards should be placed to best address those high frequency locations and provide better instructions to the public.
Shari Hilliard	ITS on the KDOT managed routes have been deployed, new locations are being identified through KDOT construction projects. No comments on City arterials.

Respondents were also asked to rate transportation issues as follows:

1-Not a Problem/Need

2-Occasional Problem/Need

3-General Problem/Need

4-Significant Problem/Need

5-Very Significant Problem/Need

Survey Questions	City of Park City	City of Derby	Kansas Turnpike Authority	Sedgwick County, KS	Kansas Highway Patrol	KDOT	KDOT
Lack of Travel Time Information	1	3	1	2	2	1	3
Lack of Road Condition Information	2	3	2	4	1	1	4
Lack of Weather Condition Information	2	2	4	3	1	1	3
Lack of Adequate Alternate Routes	3	3	1	2	4	2	4
Notification of Major Crashes to Travelers	2	4	2	4	4	2	4
Provide Up-to-Date Information	1	4	3	3	3	1	4

Survey Questions	City of Park City	City of Derby	Kansas Turnpike Authority	Sedgwick County, KS	Kansas Highway Patrol	KDOT	KDOT
Congestion (Recurring - rush hour traffic)	1	2	2	3	4	1	4
Congestion due to Incidents	2	4	3	4	4	1	4
Delays due to Traffic Signals	2	4	4	3	4	1	3
Congestion due to Road Construction	1	2	2	4	2	1	4
Congestion due to Special Events	2	2	2	3	4	1	3
Congestion due to Weather Events	2	2	2	2	3	1	3
Seasonal Congestion	1		1	2	3	1	3
Snow and Ice Removal/Control	2	3	2	2	1	1	4
RR Crossing Delay	1	2	2	4	2	1	4
Safety - Unsafe Roads and Intersections	1	3	1	2	1	1	2
Unfamiliar Travelers/Tourists	1	3	2	3	1	1	3
Emergency Response Time	1	3	3	2		1	4
Parking	1		2	1	2	1	3
Access to Freeways	1	4	3	1	1	1	4
Other (please specify after scoring)						1	

Survey Questions	City of Park City	City of Derby	Kansas Turnpike Authority	Sedgwick County, KS	Kansas Highway Patrol	KDOT	KDOT
Safety	1	4	3	3	1	2	5
Unexpected Delays	2	3	2	2	2	2	4
Unfamiliar Users/Tourists	1	2	2	3	2	2	3
Emergency Response Time	1	2	3	3	3	3	5
Construction and Maintenance Projects	2	4	2	3	4	2	5
Seasonal Congestion	1	2	1	2	2	2	3
Other (please specify after scoring)						1	
Please specify other						KDOT highway program handles	
Transit Vehicle Tracking	2			2		1	3
Ontime Performance	1			2		1	3
Safety/Security	1			3		1	5
Schedule and Route Information	2	4		3		1	4
Appropriate Stop Locations	2	4		3		1	4
Real-time Transit Information	2	4		3		1	4
Incident Identification	2		2	4	3	2	4

Survey Questions	City of Park City	City of Derby	Kansas Turnpike Authority	Sedgwick County, KS	Kansas Highway Patrol	KDOT	KDOT
Incident Response Time	1		2	3	2	3	5
Interagency Coordination/ Communication	2		3	4	4	3	5
Lack of communication in less populated areas	1		3	4	1	2	4
Hazardous Materials Response Procedures	2		2	1	3	3	4
Other (please specify after scoring)						1	
Please specify other						KDOT Freeway view	
Hazardous Materials Routing Information	1	3		2	3	3	4
Oversize/Overweight Permitting and Routing	1	4		4	5	3	5
Other (please specify after scoring)						1	
Deer/Animal Crashes	1	4	1	3		2	3
Data Storage and Management	1	4		3		1	3

The survey asked respondents to list planned deployments by title and provide a description:

City of Derby

- Signal Coordination of Rock Road
    - Hope to work with Sedgwick County and Wichita to facilitate more safe and efficient traffic flow on Rock Road
- Equipment Standardization
    - Would like to work with Wichita and Sedgwick County to standardize signal equipment, maintenance and operation in the MPO.

City of Park City

There were no plans listed.

Kansas Department of Transportation

- East Kellogg US-54
    - Road widening
- K-254 Expansion
    - Additional lane

Kansas Highway Patrol

- Update Portable Message Boards
    - As Motorist Assist Vehicles are replaced, we are replacing the message boards, signboard rotators, and controllers with newer versions of the same product.
- Drivewyze
    - Drivewyze can provide in-cab alerts to commercial motor vehicle operators. Very preliminary talks with KDOT and TMC operators to see about implementation of this product.

Kansas Turnpike Authority

- Phase 3 SMS/Camera
    - Additional DMS boards & supplemental PTZ cameras turnpike wide.

Information gathering and planning has just begun with no defined timeline for implementation.

- PTZ Camera Replacement
    - Replacing - reinstalling PTZ cameras at plaza locations where Cashless Demolition removed some/all capabilities. Should occur over the next couple years turnpike wide.

Sedgwick County

- HAAS Alert System
    - A transponder is installed and integrated with the lightbar on a law enforcement or first responder vehicle which sends digital alerts to other drivers to inform them of approaching emergency vehicles.
- Solar Radar Speed Feedback Signs
    - These are solar signs which can be installed either temporarily or permanently to discourage speeding.
- Advanced Roadside Units
    - An integrated suite of advanced traffic signal products featuring artificial intelligence that will provide real-time performance data, alerts, and comprehensive reporting on traffic signal operations