St. Louis Regional ITS Strategic Deployment Plan

December 2021

Introduction

In the Fall of 2020, East-West Gateway Council of Governments began the process of updating its ITS Architecture and Strategic Deployment Plan (SDP). The original Plan was developed in 2015.

Over a period of one year, staff from the Council communicated with regional partners through email and in virtual meetings. A significant amount of verbal and written information was collected in this phase which consisted of partners' inputs on the status of the projects included in the 2015 SDP and future projects. Staff then analyzed the collected information with the goal of consolidating them into a structured format.

This document summarizes the ITS projects which the region hopes to accomplish in the future. The tables that contain the description of the projects are in a format which is clearer and more concise than what was outlined in the 2015 Strategic Deployment Plan.

In this document, the projects are categorized in tables based on their tier and can be viewed in the following sections:

1. Tier 1: Regional Integration Projects
2. Tier 2: Integrated Corridor Management Projects
3. Tier 3: Basic System Operations and Infrastructure Projects

Project sequencing

Projects in SDP are designated time frames which signify their anticipated start date and their relative priority. These time frames are defined in the following table.

Time frame	Definition
Early start	Current to 2 years
Short term	1 to 3 years
Medium term	3 to 5 years
Long term	5+ years

It is worth mentioning that the time frames are only set as a guide, and are flexible.

1. Tier 1: Regional Integration Projects

Project Name	Purpose	Objectives	Lead stakeholder	Supporting stakeholders	Estimated Cost ($000)	Time Frame
Regional ITS Data Sharing Initiative (RIDSI), phase 2	Expand RIDSI to all regional partners; develop predictive analytics for incident management; integrate connected vehicle data and available regional traffic probe data for analysis	Improve and expand the availability of data; engage regional stakeholders; utilize emerging technology	MoDOT, St. Charles County, Metro St. Louis	St Louis County, City of St Louis, IDOT	TBD	Medium term
Regional Probe Data Sharing (RPDS)	Develop and deploy a regional strategy for obtaining and sharing probe traffic data, including either GPS-based probe data or Bluetooth-based data	Identify common technology and technical approach for accessing regional probe data including installation of Bluetooth readers, procurement of GPS data from private sector, etc	MoDOT	IDOT, City of St Louis, St Louis County, St. Charles Co	830	Early start

2. Tier 2: Integrated Corridor Management Projects

Project Name	Purpose	Objectives	Lead stakeholder	Supporting stakeholders	Estimated Cost ($000)	Time Frame
Post real-time travel times on DMS using probe data sources	Provide real time information to motorists	Enhanced traveler experience	IDOT		TBD	Short term
Leverage RIDSI to provide bridge emergency alerts and monitoring for Mo/Il Mississippi River Bridge Crossings	Provide alerts to emergency services and motorists of incidents and congestion on highways	Reduce emergency response time, reduce congestion	MoDOT, IDOT, City of St Louis, St. Louis County	St Louis Metro Police, MSHP, ILSP	1,320	Short - medium term
Metrolink AVL integration with bus AVL	Enable tracking and coordination of bus and rail schedules and estimation of travel times	Improve Metrolink on time performance; Improve level of information to travelers and transfer connection protection; facilitate the implementation of real-time information system and transfer connection protection	Metro		5,000	Medium term
Travel time real-time information system - Missouri & Illinois Stations	Provide real-time train departure information	Improve reliability of departure information	Metro	MCT	See above	Medium term
Transfer Connection Protection at MetroLink stations (Civic Center to Shiloh-Scott, Clayton to Grand, North Hanley, Maplewood, and Shrewsbury)	Enable bus services to coordinate arrival / departure with rail arrival to improve connections	Reduce transfer wait times for riders transferring between rail and bus services	Metro		See above	Medium term
Transfer Connection Protection at Future BRT	Enable bus services to coordinate arrival / departure with rail arrival to improve connections.	Reduce transfer wait times for riders transferring between BRT and other bus services	Metro		60	Long term
Transit Signal Priority	Identify and study several key St. Louis City/Illinois corridors for the feasibility of implementing TSP	Reduce travel time and signal delay	Metro	City of St. Louis, MoDOT, IDOT	2000	Medium term
I-64 Ramp Metering	Manage entrance ramp traffic flow at 1 or more locations	Reduce congestion at ramp junction, reduce accidents	MoDOT	City of St. Louis	TBD	Medium term
Queue and Hazard Warning Management	Leverage RIDSI to push out alerts to cell phones and connected vehicles	Reduce rear-end collisions,	MoDOT, St. Charles County	Participating Jurisdictions	TBD	Medium term
Traffic signal interconnection	Coordinate signal timings based on real-time traffic, between MoDOT, St Louis County and local signals using common interfaces	Reduce freeway and arterial congestion because of diversions or traffic incidents	MoDOT, St Louis County, City of Clayton, University City		120	Medium - long term

3. Tier 3: Basic System Operations and Infrastructure Projects.

Project Name	Purpose	Lead Stakeholder	Supporting Stakeholder	Unit	Quantities	Estimated Cost ($000's)	Time Frame
Signal system upgrade	Update current ATMS platform	City of St. Louis		Each	Lump sum	TBD	Short term
Controller upgrades	Upgrade controllers not on current system	City of St. Louis		Each	TBD	TBD	Short term
Upgrade intersections to full actuation	Expand actuation at key intersections	City of St. Louis		Each	TBD	TBD	Medium term
CCTV expansions	Add cameras on key corridors	City of St. Louis		Each	TBD	TBD	Short term
Fiber optics extension	Add remaining signals to system	City of St. Louis		Each	TBD	TBD	Medium term
Update website to show live video	Expand functionality and coverage for IDOT website	IDOT		Lump sum	Lump sum	500	Short term
Upgrade traffic signals to adaptive control	Add adaptive traffic signal systems on IL 159 and other corridors to be identified	IDOT		Lump sum	Lump sum	2500	Short - medium term
Expand CCTV	Add CCTV south on I-255 to JB Bridge and other locations to be identified	IDOT		Each	20	120	Medium term
Expand traffic detection to support 23 CFR 511 requirements	Standard detection as well as Bluetooth readers to provide speed and travel time data	IDOT			20	300	Medium term
Expand DMS: upgrade all existing DMS	Upgrade all existing DMS; add DMS on IL I-255 approaching JB Bridge	IDOT		Each	20	3400	Medium term
Add fiber to support ITS expansion	Improve traffic signal coordination and ITS device connectivity	IDOT			TBD	TBD	Short - long term
Install fiber links between transportation and law enforcement agencies	Expand sharing of CCTV video with Police	IDOT			TBD	TBD	Short - long term
Install Truck Parking Management System at D8 I-64 Rest Area	Includes cameras to measure parking space availability and communicate it with truckers.	IDOT			TBD	TBD	Short term
Establish fiber connection with MoDOT	Provide connections across PSB and new I-270 bridge	IDOT	MoDOT	Each	TBD	TBD	Short - long term
Deployment of additional ITS field devices (statewide)	Serve traffic management, incident management, or traveler information services	IDOT		Each	TBD	TBD	Short - long term
Implementation of a new electronic payment system across region	Enable user-friendly payment options including smart cards and mobile payment; improve rider experience	Metro	MCT	Lump sum	Lump sum	3000	Short term
Implementation of on-board Wi-Fi on call-a-ride vehicles and transit stations	Support traveler info, emergency data communications, and customer convenience	Metro		Vehicles	TBD	TBD	Short term

St. Louis Regional ITS Strategic Deployment Plan

Project Name	Purpose	Lead Stakeholder	Supporting Stakeholder	Unit	Quantities	Estimated Cost ($000's)	Time Frame
Implement BRT Route	Provide faster bus service; Increase capacity and reliability	Metro	City of St. Louis, St. Louis County		TBD	TBD	Medium term
Upgrade existing CCTV to HD	Improve video quality	MoDOT		Each	650	4,000	Short - medium term
Expand Bluetooth Readers on two additional routes	Improve travel time accuracy	MoDOT		Each	36	500	Short term
Deploy 15 dynamic trailblazer signs on the I-270 North project	Route traffic around incidents	MoDOT		Each	15	500	Early start
Enhance freeway and arterial DMS (full matrix color)	Expand level and quality of information provided, supporting MUTCD-type messaging displays	MoDOT		Each	150	20500	Short - medium - long term
Implement Automated Traffic Signal Performance Measures (ATSPM)	Reduce arterial congestion through ongoing real time corridor optimization capability	MoDOT		Corridors	970	46560	Short - medium - long term
Deployment of PTZ cameras	Increase camera coverage, add video analytics software and LPRs	St. Charles County		Cameras	125	1,875	Early start
Deployment and upgrades of travel time detectors	Increase detection coverage	St. Charles County		Sensors	100	2,500	Early start
Deployment of count stations	Increase traffic count coverage	St. Charles County		Count stations	200	5000	Early start
Initial deployment of travel time DMS on key county arterials	Use color DMS	St. Charles County		Signs	50	5,000	Early start
Deployment of weather stations	Increase weather station coverage at strategic locations	St. Charles County		Weather stations	50	990	Early start
Emergency signal pre-emption deployment	Implement county-wide system	St. Charles County	First responders in St. Charles County	Signalized intersections	100	1,500	Early start
Probe data expansion	Implement county-wide system	St. Charles County	MoDOT		TBD	TBD	Early start
Future fiber expansion (48 strand)	Implement in various locations in County	St. Charles County		Signalized intersections	16	4,700	Early start – medium term
Adaptive signal system upgrades	Add detection, other modifications	St. Charles County		Corridors	10	3,750	Short – medium – long term
Integrate State, County and Metro sensors to support expanded TT DMS	Add detection, other modifications	St. Charles County	MoDOT, Metro	Miles	1000	4,000	Medium term
Weather data sharing with MoDOT	Install road weather information stations at strategic locations	St. Charles County	MoDOT	lump sum	lump sum	990	Short – medium term

St. Louis Regional ITS Strategic Deployment Plan

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Implement Automated Traffic Signal Performance Measures (ATSPM)	Includes signal controller and detector upgrades	St. Charles County		Corridors	8	10,000	Short - medium - long term
Upgrade or replace existing ATMS Systems	Improve functionality of ATMS	St. Charles County		Each	1	TBD	Early start
Deploy Smart Work Zone Technology	Real-time update of work zone conditions and activities through smart software and mobile application	St. Charles County		Work zone		750	Short term
Implement Asset Management System	Plan for and procure a system that documents and stores ITS and communication asset information and monitors and manages the health and performance of the ITS devices and communications network for the GGL program.	St. Charles County		Each	TBD	250	Medium term
Implement Smart Corridor (V2I)	Allow data transfer between connected vehicles and infrastructure	St. Charles County		Corridor	1	4,670	Short - medium term
Smart Parking	Implement in area of lower parking availability	St. Charles County		Areas	3	3,000	Short term
Travel Information Program	Implement in non MoDOT routes throughout the County	St. Charles County		Work zone		750	Short term
Maryland Heights & Olive Blvd ITS Segments	Upgrade signals	St. Louis County		Signalized intersections	13	TBD	Short term
Upgrade or replace existing ATMS System	Improve functionality of ATMS	St. Louis County		Each	1	TBD	Short term
Advanced Loops/ITS components - 8 projects	Upgrade ITS infrastructure	St. Louis County		Locations	TBD	TBD	Short term
Clayton Rd ITS	Upgrades signals	St. Louis County	MoDOT, Ladue, Frontenac, Town and Country	Signalized intersections	TBD	TBD	Short term
School Zone ITS	Upgrade existing ITS infrastructure	St. Louis County		Locations	TBD	TBD	Short term
Weidman Rd ITS	Upgrades signals	St. Louis County		Signalized intersections	TBD	TBD	Medium term
Forsyth Blvd ITS	Upgrades signals	St. Louis County	Clayton, University City	Signalized intersections	TBD	TBD	Medium term
System-wide CCTV / PTZ upgrade	Upgrade all to HD video; provide counts by lane and origin/destination capability	St. Louis County		Locations	TBD	TBD	Medium term
Seven Hills Dr ITS	Upgrade ITS infrastructure	St. Louis County		Signalized intersections	TBD	TBD	Medium – long term
Upgrade lower-count fiber	Upgrade ITS infrastructure	St. Louis County		Miles	TBD	TBD	Short – medium term
Ballas Rd ITS	Upgrade ITS infrastructure	St. Louis County	MoDOT, Creve Coeur		TBD	TBD	Medium term

St. Louis Regional ITS Strategic Deployment Plan

Project Name	Purpose	Lead Stakeholder	Supporting Stakeholder	Unit	Quantities	Estimated Cost ($000's)	Time Frame
Provide County-wide video surveillance (MO 180, Hanley to Kienlen, Page Ave., Ashby to Woodson, Halls Ferry Rd., Parker to W Florissant)	Provide County fiber connectivity on State routes	St. Louis County	MoDOT		TBD	TBD	Medium term
Install 10 count stations (5 projects)	Upgrade ITS infrastructure	St. Louis County			TBD	TBD	Medium term
ITS gap closure Projects (Weidman Rd: Carman Rd to MO 100, Barrett Station Rd: Barret Pky. To Dougherty Ferry Rd, Mason Rd: BJC West Hospital Entrance to Ladue Rd, Gephardt Dr to Heintz Rd)	Closes interconnect gaps; Upgrades signals and ITS infrastructure	St. Louis County		Corridors	TBD	TBD	Short – medium term
Bennington/Amerling/McKelvey ITS	Upgrade ITS infrastructure	St. Louis County			TBD	TBD	Medium term
South County ITS Segment III	Upgrade ITS infrastructure	St. Louis County			TBD	TBD	Medium term
Old Halls Ferry Rd ITS	Upgrade ITS infrastructure	St. Louis County			TBD	TBD	Long term
Barrett Station ITS	Upgrade ITS infrastructure	St. Louis County			TBD	TBD	Long term
Lucas-Hunt ITS	Upgrade ITS infrastructure	St. Louis County			TBD	TBD	Long term
Ladue Rd ITS	Upgrade ITS infrastructure	St. Louis County	MoDOT, Creve Couer, Ladue		TBD	TBD	Long term
Brown Rd / JS McDonnell Blvd ITS	Upgrade ITS infrastructure	St. Louis County			TBD	TBD	Long term
Conway / Woods Mill Rd ITS	Upgrade ITS infrastructure	St. Louis County	MoDOT, Creve Couer, Chesterfield		TBD	TBD	Long term
South Florissant Rd / Paul Ave ITS	Upgrade ITS infrastructure	St. Louis County	MoDOT, Ferguson		TBD	TBD	Long term
Manchester Rd / JJ Kelley ITS	Upgrade ITS infrastructure	St. Louis County	MoDOT		TBD	TBD	Medium term
Roadside weather monitoring pilot	Implement road weather systems	St. Louis County		Locations	TBD	TBD	Long term