highway traffic signal improvement project

Regional Transportation Operations Coalition | 1/7/2020

Traffic signal improvement project goals

- Develop a Vision for the desired future of the system
- Develop an understanding of the state of the region's traffic signal system
- Identify gaps and priorities
- Recommend a program to fund investments that move the region towards the desired system

Project schedule

The schedule is oriented around the RTOC schedule. RTOC should be introduced to the subject and also be able to review and provide input on the draft and final reports.

	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20
RTOC Meetings				X			X		X			X
Scope and Schedule												
Existing Conditions Report				Draft			Final					
Vision Development				Discuss			Draft		Final			
Signal Investment Plan							Discuss		Draft			Final
Signal Program Design									Draft			Final

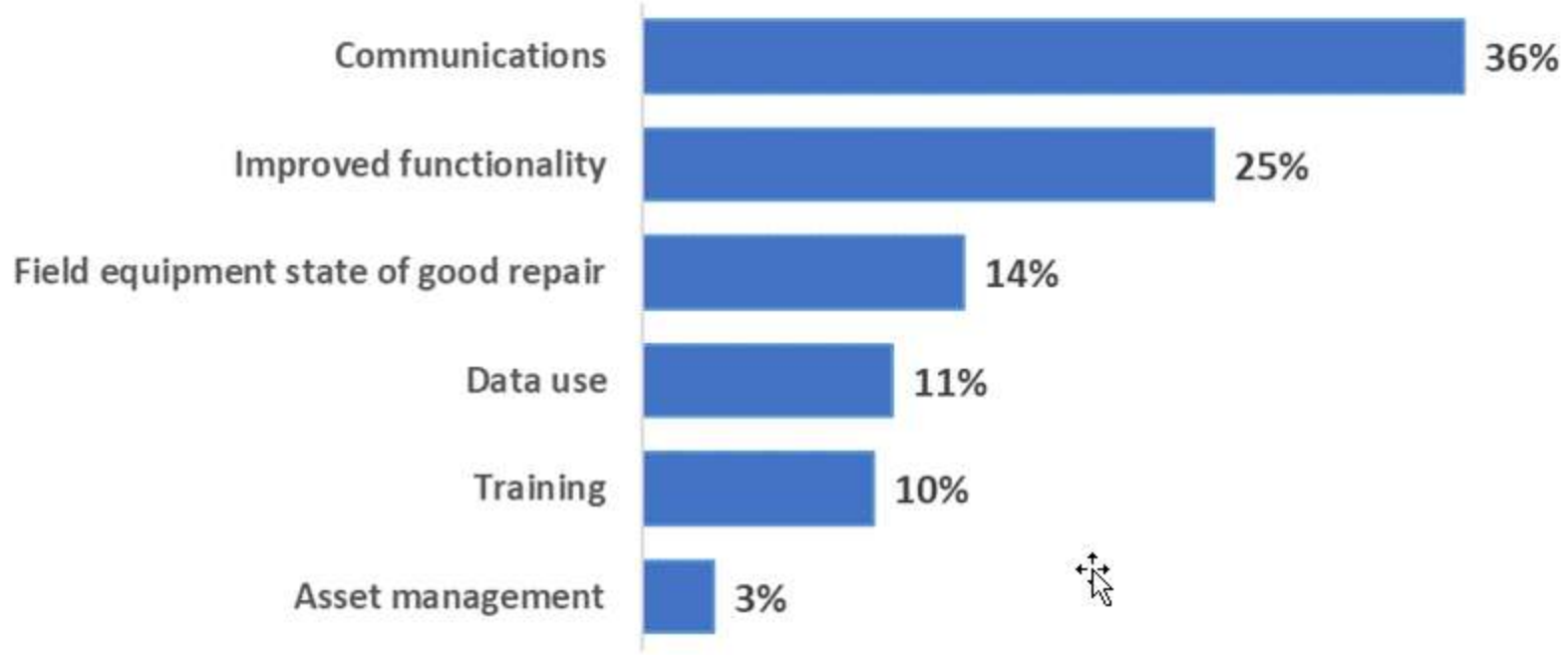
Existing conditions report feedback

- Chicago DOT, County, and IDOT signal engineers
- Meade Electric
- EJM

Vision

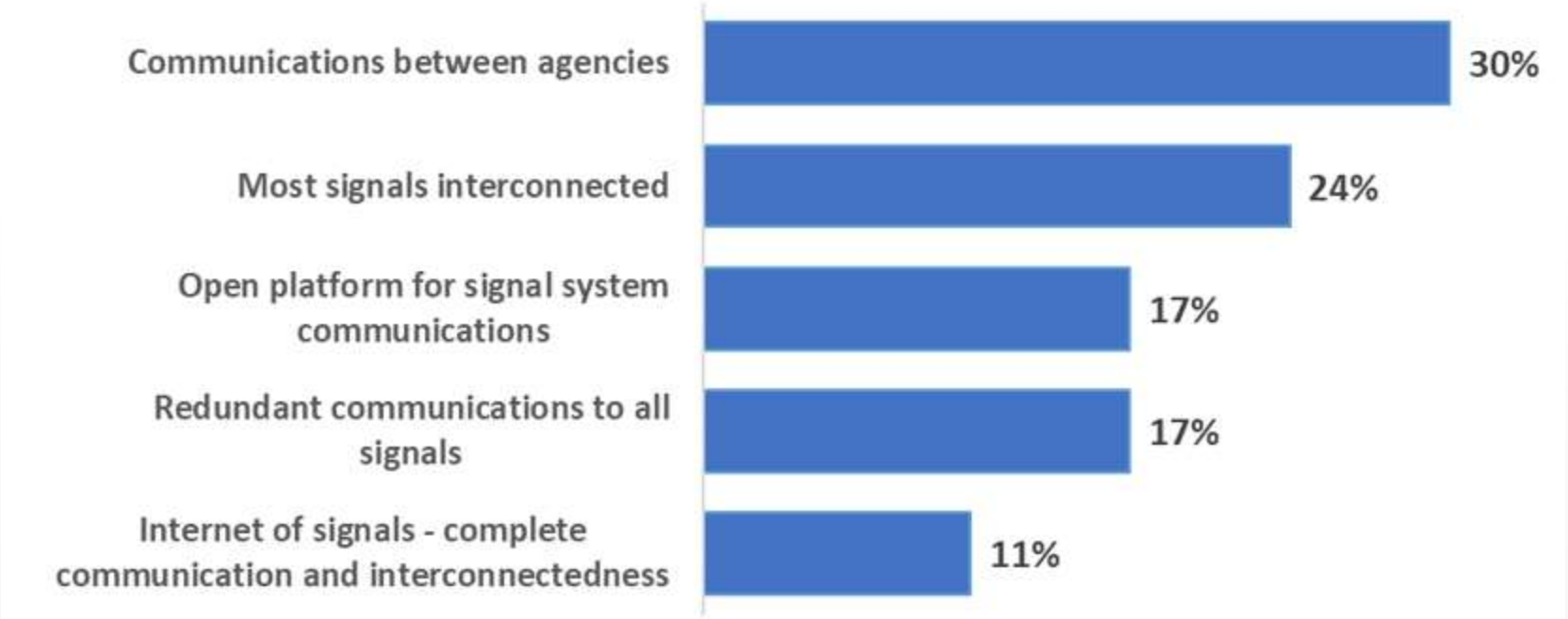
Desired system attributes – goal areas

Figure 1: Overall priorities



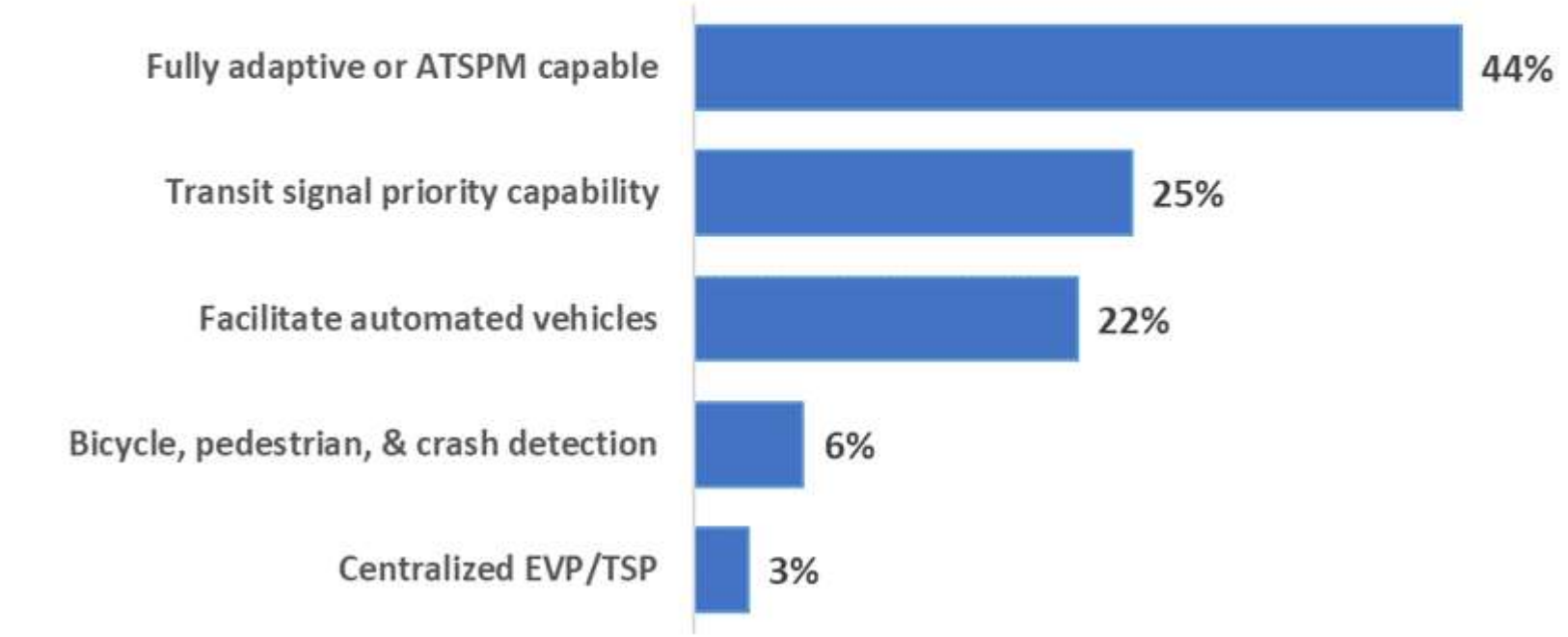
Desired system attributes

Figure 2: Communication priorities



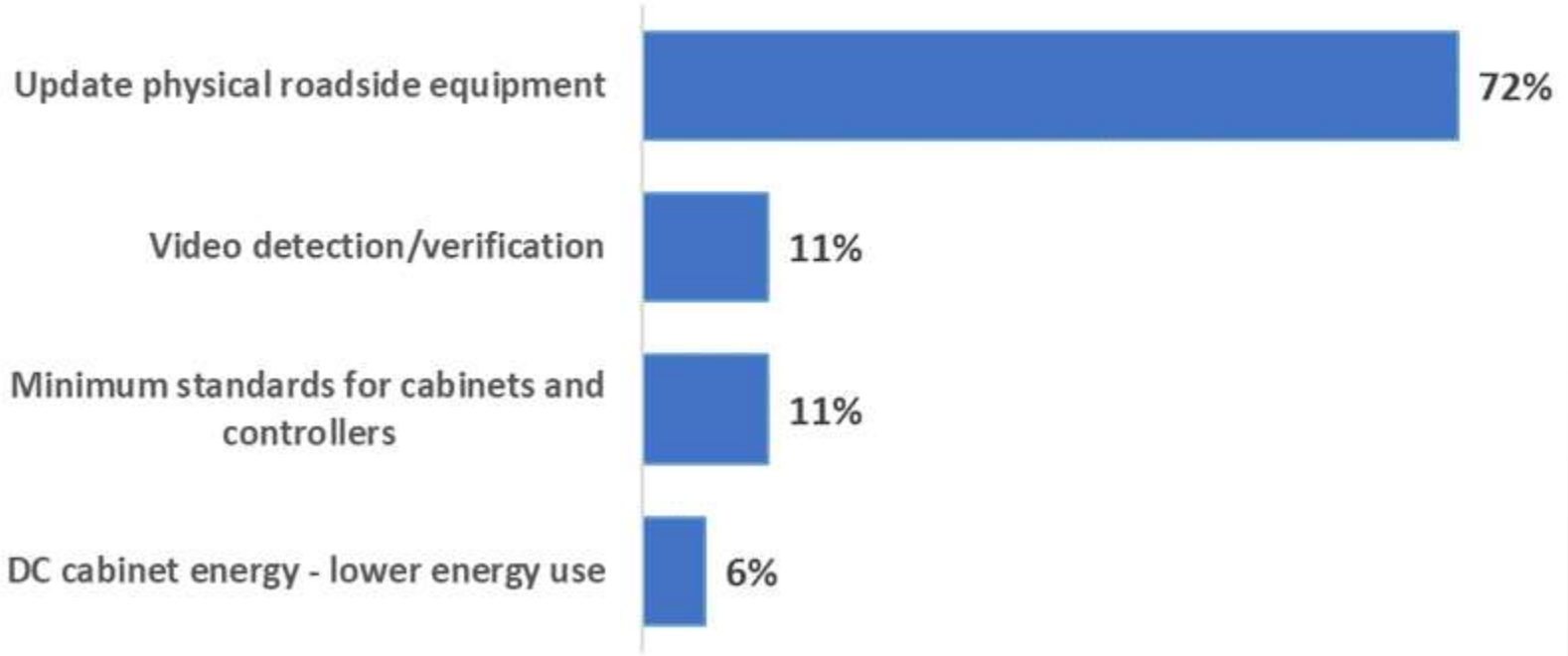
Desired system attributes

Figure 3: Functionality priorities



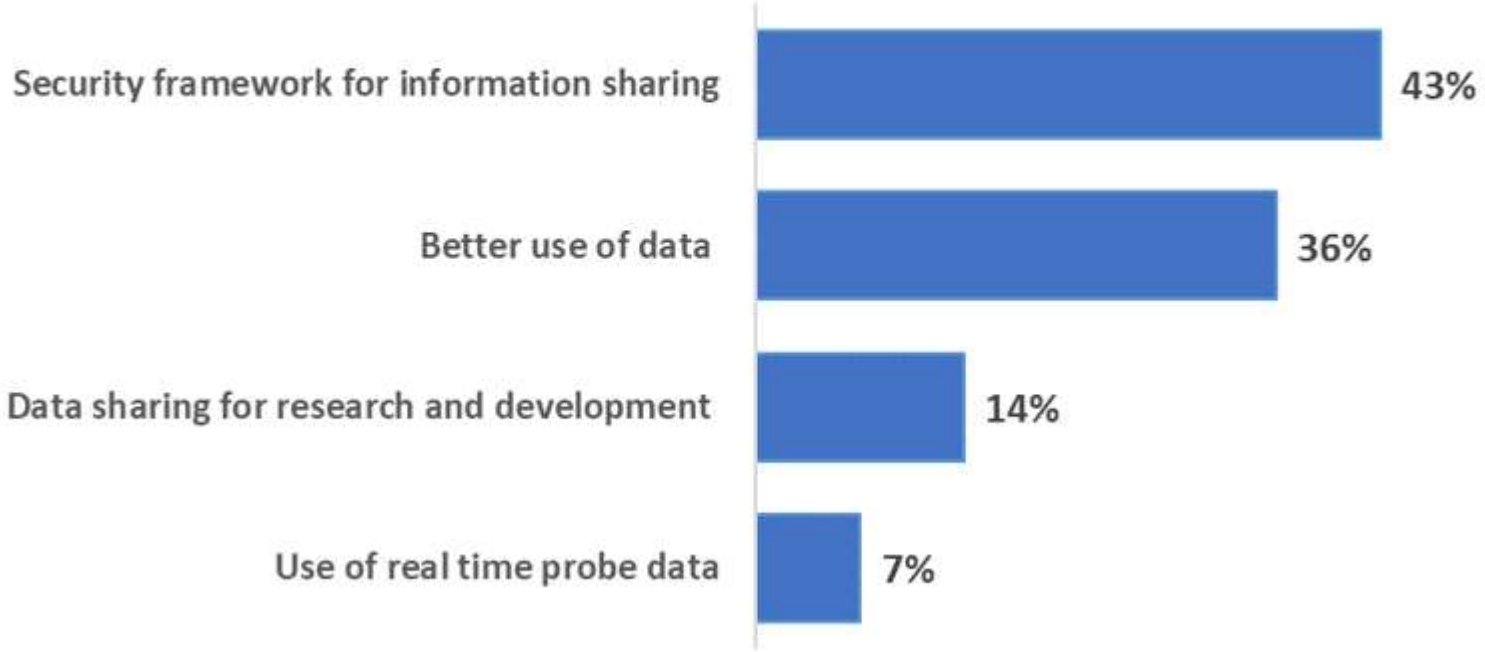
Desired system attributes

Figure 4: State of good repair priorities



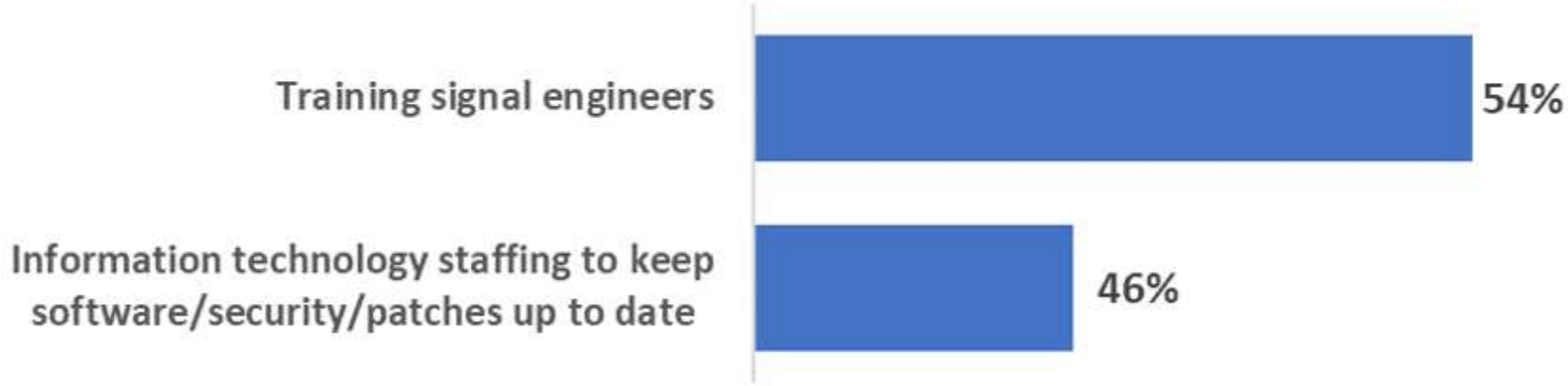
Desired system attributes

Figure 5: Data use priorities



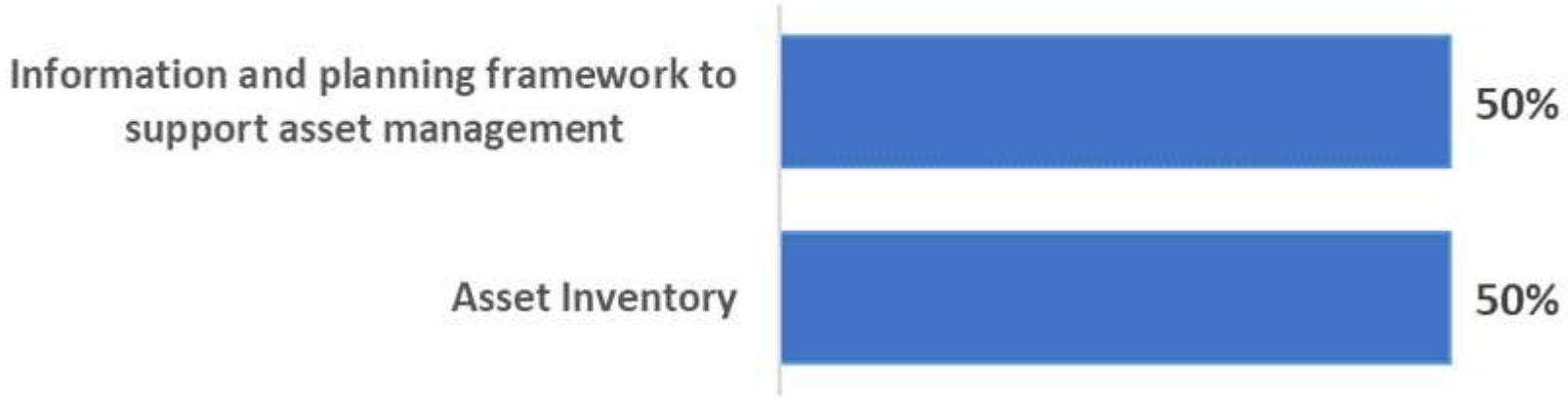
Desired system attributes

Figure 6: Training priorities



Desired system attributes

Figure 7: Asset management priorities

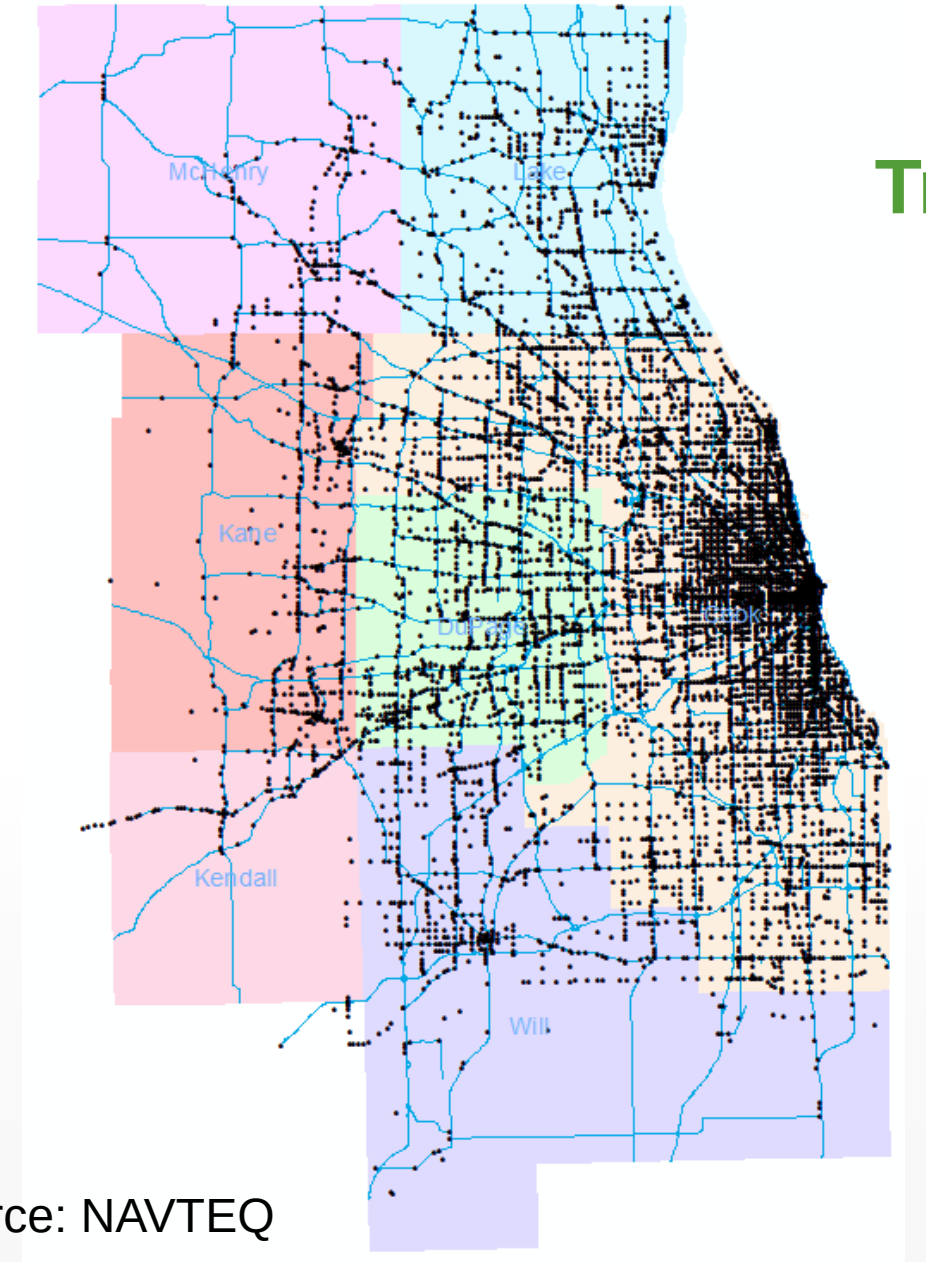


Signal System Vision

A modern traffic signal network providing for a well-integrated, multimodal transportation system that seamlessly moves people and goods within and through metropolitan Chicago safely and reliably, with minimized delay.

Recommendations and priorities

Traffic signals and the National Highway System



- County, IDOT & CDOT

  7,000 signals

- Other municipal

  1,000 signals

Source: NAVTEQ

Initial recommendations

- No signal retiming program
- Replace most controllers (# cabinets unknown)
- Connect interconnects to form system
- Central communications to interconnects
- Expand central signal capacity and coverage
- Jurisdictional transfer of some municipal signals to counties

Back of the envelope

- RTA TSP Project $40,000 per intersection

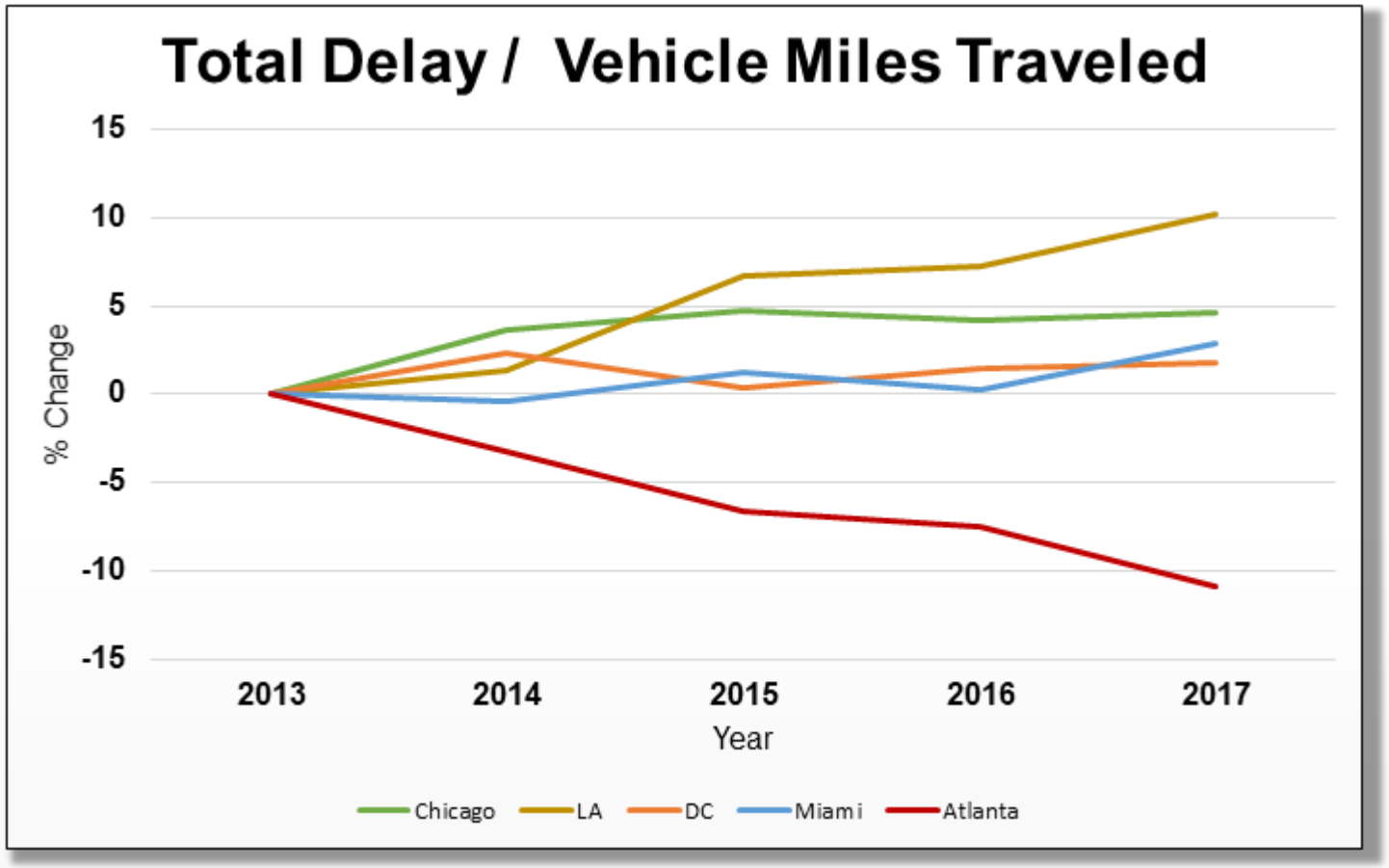
  $10k for controller + $30k for communication
- Starting with $40,000 * 8,000 intersections = $320 million
- 10 year program, $32 million/year, 800 intersections

- CMAQ = $112 million per year,
- CMAP STP Shared fund = $40 million per year

- Programmed arterial projects
- Communications to existing signal interconnects
- Signal interconnect gaps
- Smart corridors
- Arterials that serve interstates
- National Highway System
- Transit signal priority planned locations
- Freight bottlenecks
- Economically disconnected communities

Priorities?

Expected Benefits?



Source: Georgia Department of Transportation
Georgia Regional Traffic Operations Program

Next Slide: Recent Signal Optimization Benefits

General vehicle travel time change

Source: RTA
Regional Transit Signal Priority Implementation Program Evaluation Report

	AM Peak		Midday		PM Peak		
	N/E	S/W	N/E	S/W	N/E	S/W	
South Ashland	-5%	-1%	-10%	-7%	-4%	-2%	Cermak to 95th
Cicero	-10%	-13%	-2%	-9%	-9%	-17%	87th to US 6
Milwaukee Ave	-14%	-9%	-16%	-12%	-15%	-15%	Golf Mill to Jefferson Park CTA
Cermak	-12%	-17%	-14%	-12%	-28%	-6%	IL56-54th Ave
Dempster	-10%	-16%	-22%	-15%	-14%	6%	Mannheim to Dodge
Grand Avenue	-13%	-13%	-13%	-1%	-8%	-4%	Dilleys to Sheridan (Lake County)
95th Street	-19%	-12%	-14%	-18%	-26%	-28%	Roberts Road to Western Avenue
147th Street	-25%	-19%	-22%	-20%	-22%	-20%	Halsted Street to IL 83
159th Street	-1%	1%	-6%	-11%	-14%	-14%	Park Center Drive to IL 83

Source: RTA
Regional Transit Signal Priority Implementation Program Evaluation Report

Thank you.

Send any questions, comments, or suggestions to

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- Or call 312-386-8744