

Shane Schneider, P.E.
Director of Transportation/
County Engineer

Public Works and
Transportation Committee

April 25, 2018

Lake County Division of Transportation
Proposed 2018 - 2023 Highway Improvement Program

OVERVIEW AND PROGRAM PRIORITIES

Presentation Schedule

PWTC 2018 Meeting Date

Presentation Topic

April 25 • Overview and Program Priorities

June 6 • Funding and Projects / Draft Program Document

Improving transportation a top strategic goal for Lake County and regional partners



The County Highway Network



300-mile network of minor arterial highways operated by the Lake County Division of Transportation

3.5 million daily vehicle miles traveled on county highways



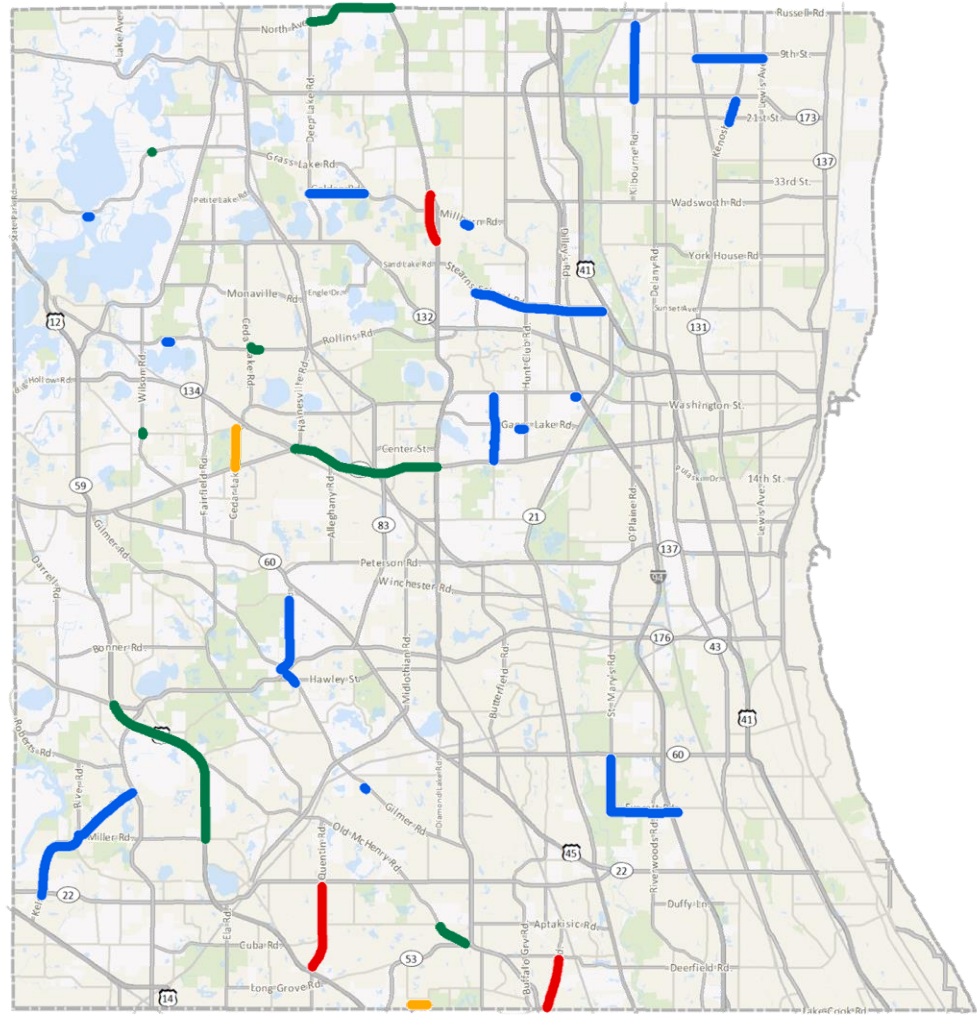
Efficient Transportation Contributes To:



- Quality of life
- Economic vitality
- Environmental value
- Improved safety

2018 Construction Program \$100 Million

- Continued from 2017
- Preservation
- Modernization
- Expansion



\$6.6M continued from 2017



Buffalo Creek

Des Plaines River Watershed
new wetland mitigation bank

Cedar Lake Rd

from IL Route 120 to Nippersink Rd
widen and reconstruct



\$94M in new projects

Quentin Rd, reconstruct and widen to four lanes from White Pine Ln to south of IL Route 22

Weiland Rd, reconstruct and widen to four lanes from Lake Cook Rd to Deerfield Pkwy

Millburn Bypass of US Route 45, realign and reconstruct north of Grass Lake Rd to south of Millburn Rd (*IDOT is lead agency*)

Operational and Safety Improvements:

- Intersection improvements
- Traffic signal work
- Nonmotorized travel accommodations
- Raised reflective pavement markers
- Street light upgrades to LED
- Expand PASSAGE coverage and signal interconnects through more corridors



\$94M in new projects *(continued)*

Resurfacing Projects:

Everett Road [3R]
St. Mary's Road [3R]
Kelsey Road
9th Street
Kilbourne Road
Kenosha Road
Almond road
Gelden Road
Fremont Center Road
Gilmer Road
Stearns School Road

Culvert, Drainage and/or Retaining Wall Projects:

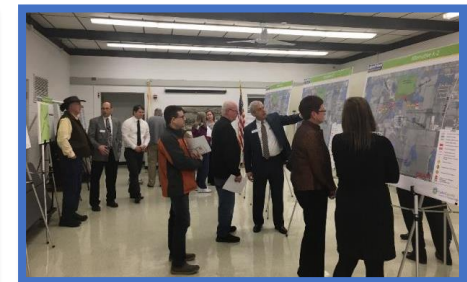
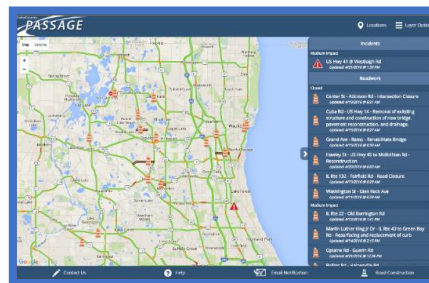
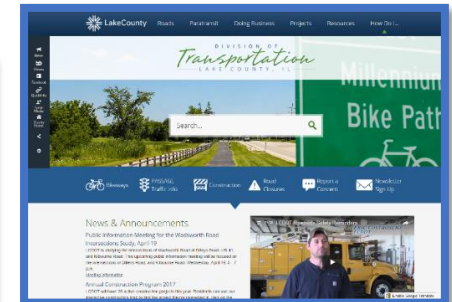
Washington St drainage channel at I-94
Gilmer Road at Sequoia culvert and retaining wall
Grass Lake Road at bridge retaining wall stabilization and repair
Rollins Road near Fairfield Rd culvert replacement
Gages Lake Road near Hunt Club Road concrete headwall
Millburn Road near Crawford Road culvert rehabilitation



Engagement Tools

Connecting residents, system users and partners

- LCDOT website
- *PASSAGE* website
- Email updates
- Social Media
 - Facebook
 - Twitter
- Public Meetings



2018 - 2023 Five Year Highway Improvement Program

LCDOT's management philosophy sets system priorities:

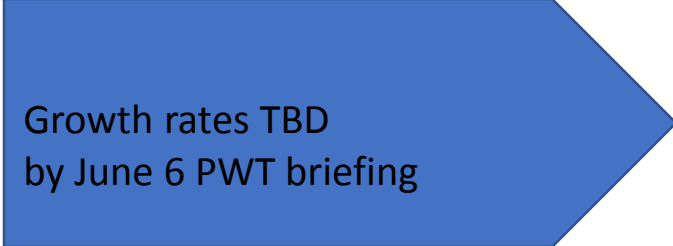
- 1. Preservation**
- 2. Modernization**
- 3. Expansion**

Funding and Revenue

4 LCDOT Capital Program

Revenue Streams:

- County Bridge Fund (CB)
- Matching Tax (MT)
- Motor Fuel Tax (MFT)
- Sales Tax (ST)



Growth rates TBD
by June 6 PWT briefing

Priority One: Preservation

Preservation projects:
approximately

25%

of program

Typically resurfacing, reconstruction, patching and
drainage improvements, maintenance activities

Tools in the Toolbox:

- ARGUS pavement management software
- Asset inventories
- Unit cost information
- Industry standards
- Innovative techniques

ARGUS Pavement Management System

For data-driven, cost-effective decisions:

- **Where** repairs are needed
- **What** repair strategies to use
- **When** the repairs will be most effective

Using these program components:

- County highway database
- Automated pavement testing
- Repair strategies with costs
- Pavement aging prediction
- Optimization program



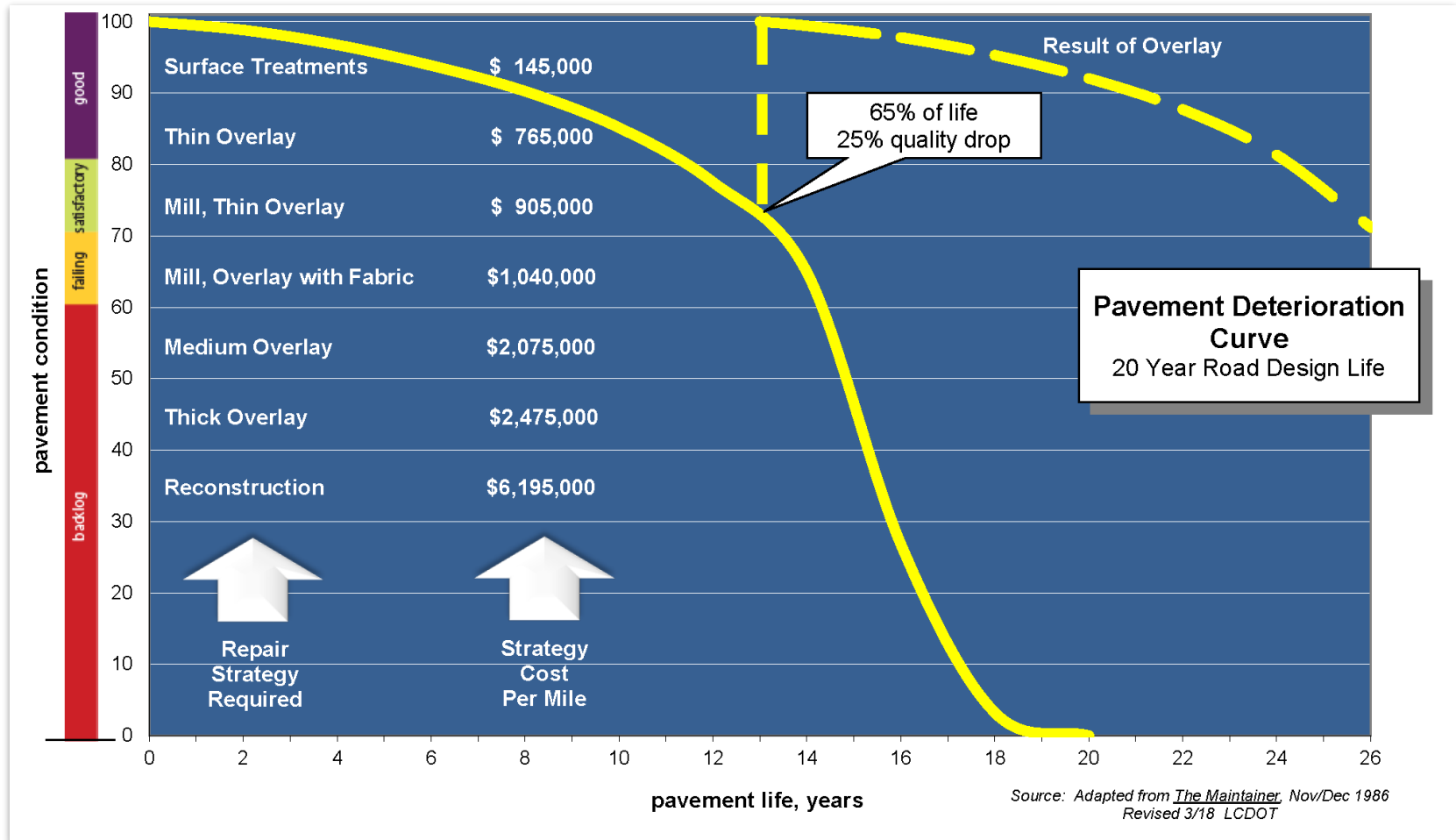
Laser surface testing



Dynaflect

Pavement Aging Prediction Costs

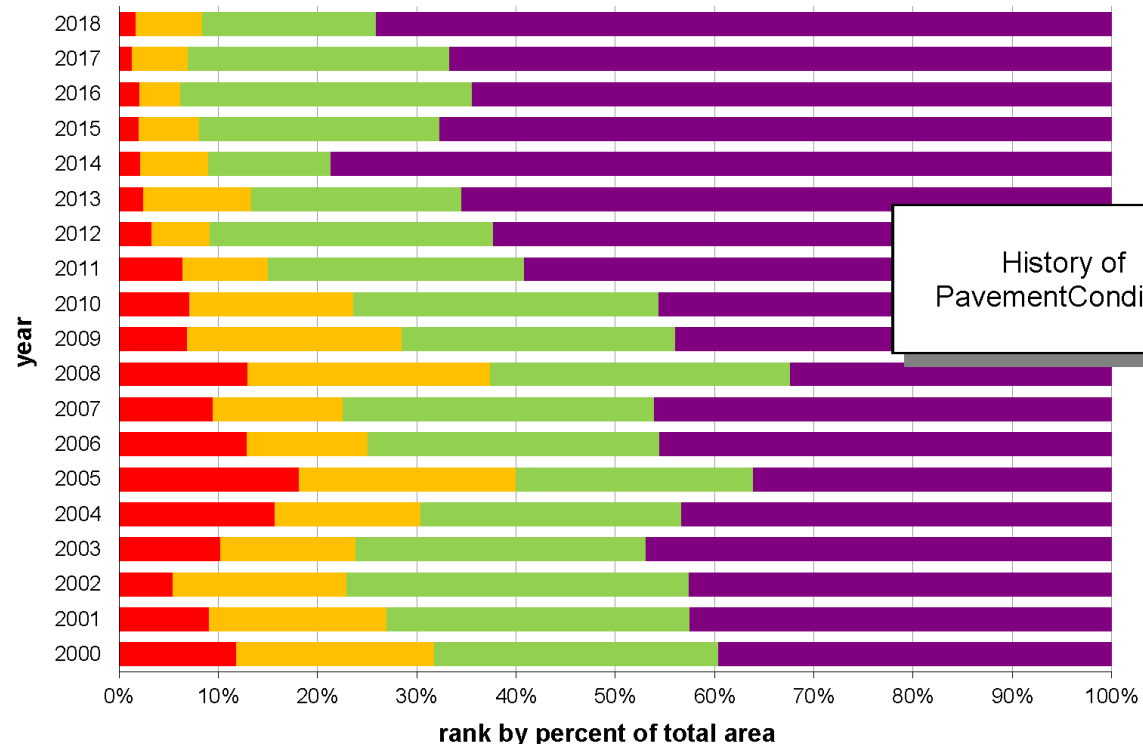
Repairs Made **at the Best Time** Maximize Return



LCDOT ARGUS results

- Implemented in 1986
- Condition rating has **improved from 68 to 82**
- Backlog/failing pavement area **reduced from 55% to 8%**

ARGUS System optimizes improvements

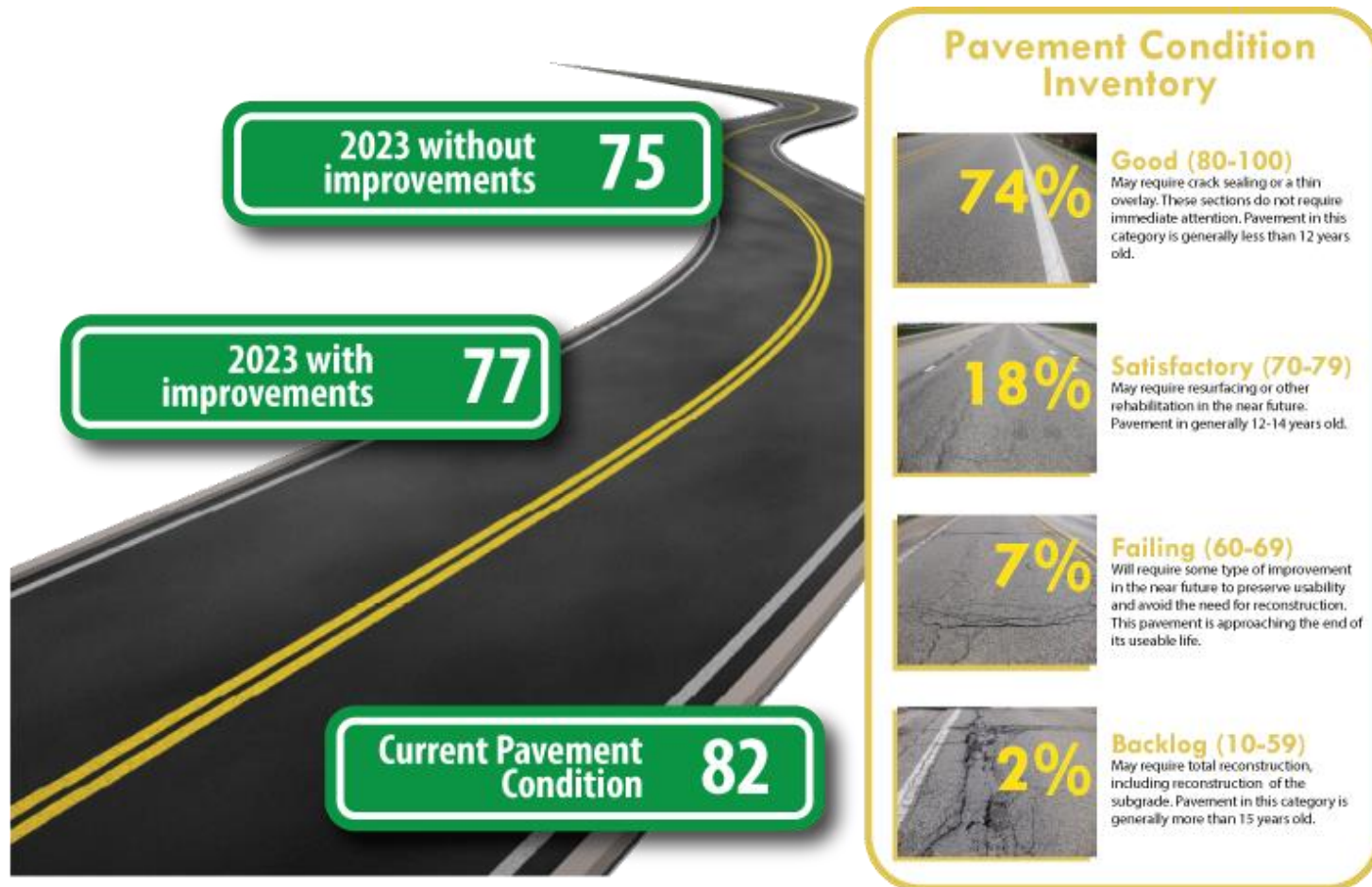


Note: Current year rankings are based on the previous year's testing.

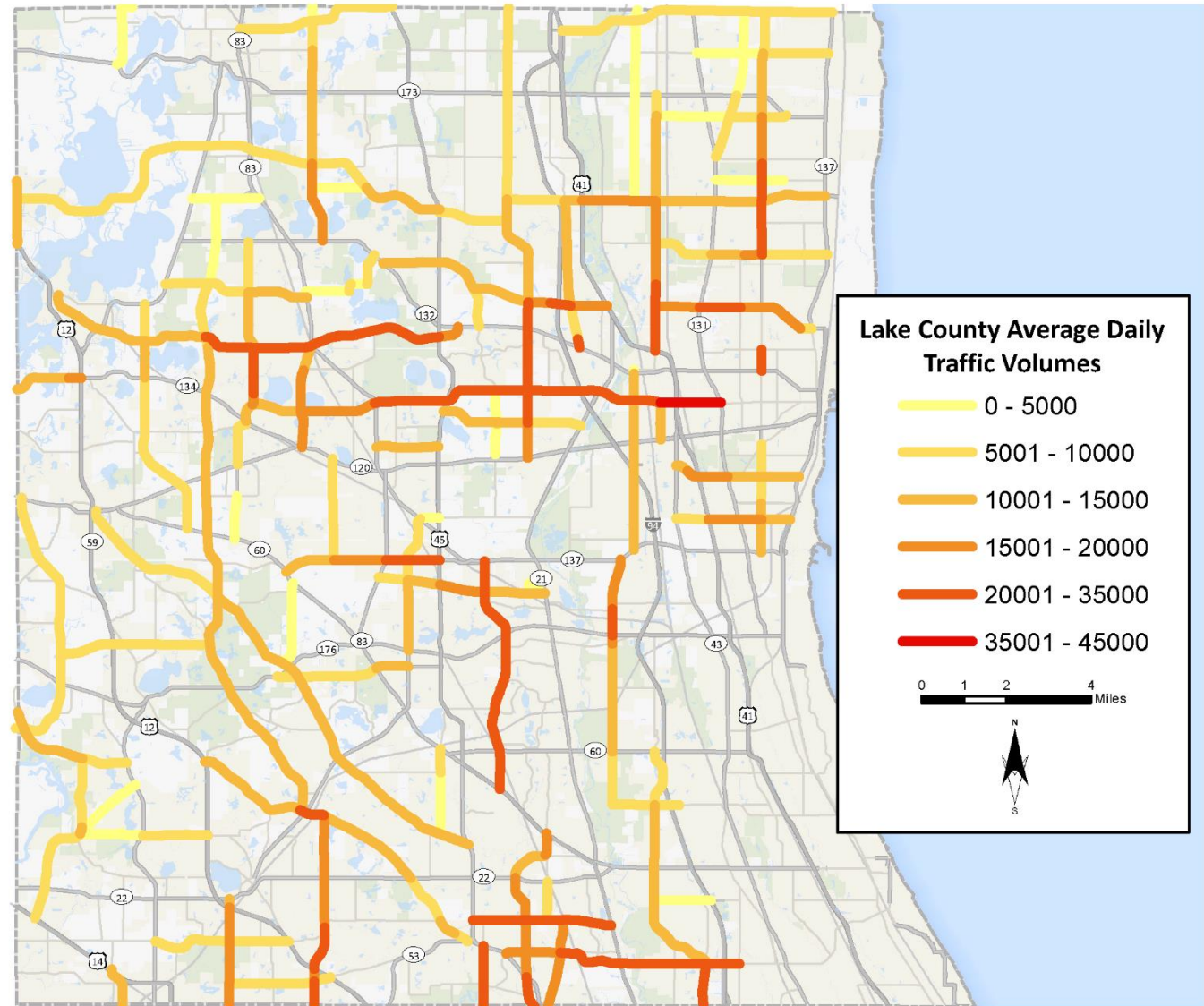
Backlog Failing Satisfactory Good

Prepared by LCDOT 3/18
Source: 2017 pavement testing

Current Pavement Rating is 82 (*Good*)



Traffic Volumes



Source: LCDOT Design Department 3/15/2018

ARGUS Summary

*Pavement Management System **does...***

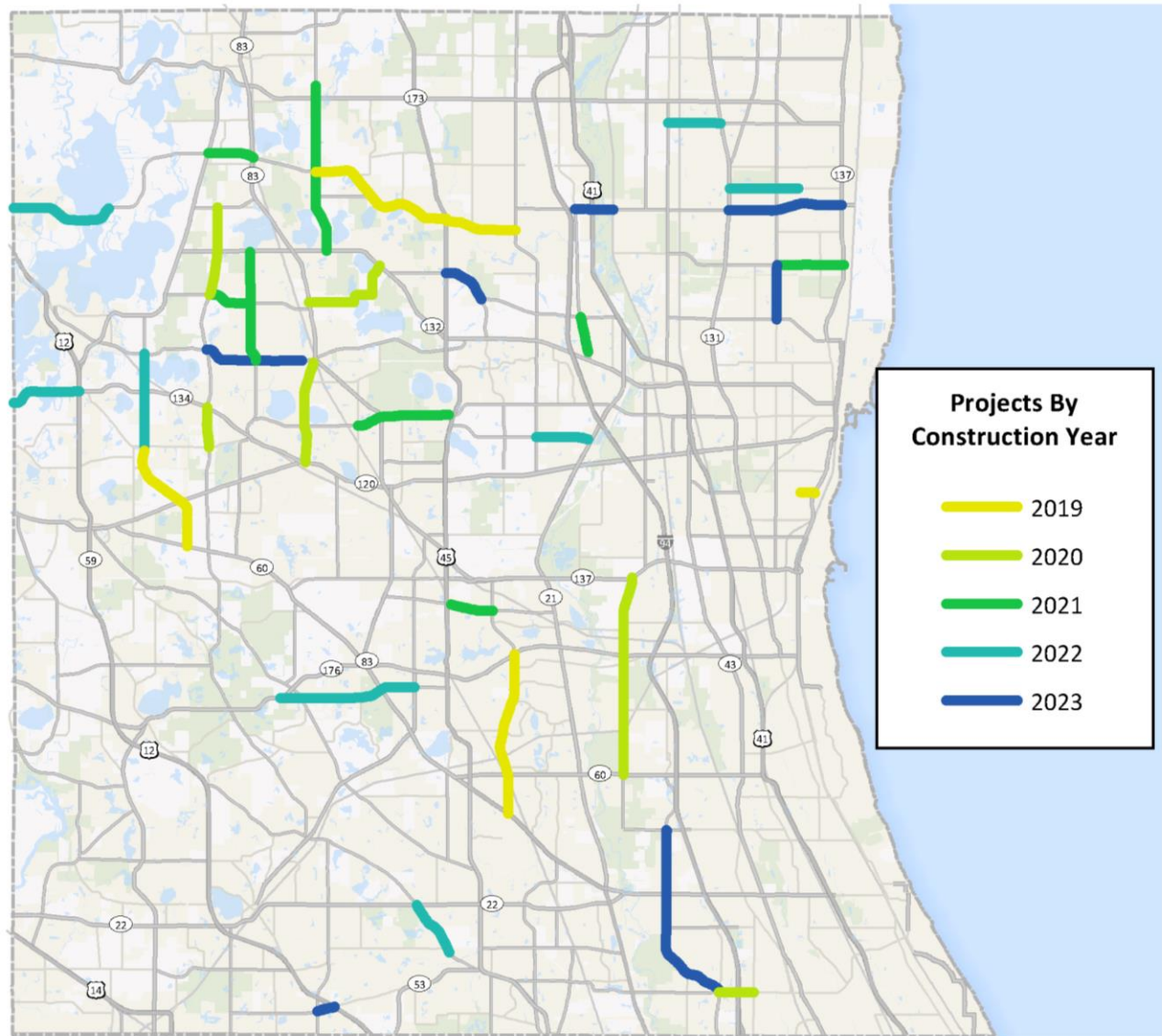
- Assess the present condition of the system
- Estimate future road conditions
- Identify and rank road projects
- Maximize the condition of the system within the given budget

*Pavement Management System **does not...***

- Replace professional judgment
- Provide certain detailed project-specific information
- Evaluate storm sewer and other roadway assets

2019 – 2023

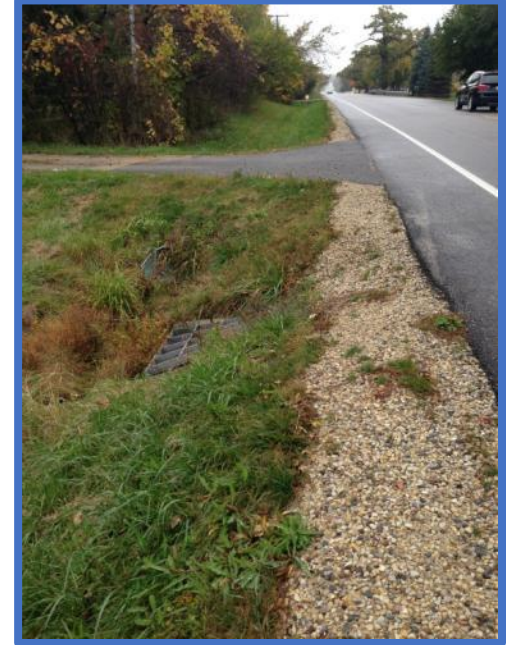
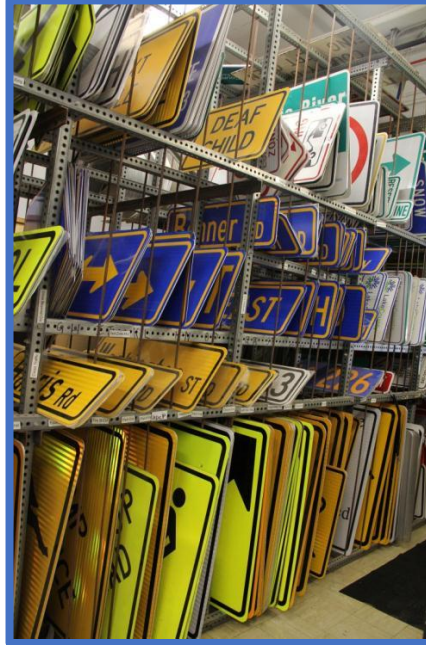
ARGUS System Preservation Projects



Source: LCDOT Design Dept. 3/16/2018

Keeping Tabs on the System: *Asset Inventories*

- Pavement and bike facilities
- Guardrail, bridges, railroad crossings
- Signals and signs
- Drainage and stormwater facilities
- Fencing
- *More...*



Pavement: Our most obvious asset



lane miles	889
centerline miles	299
miles bike facilities	63
miles paved shoulder	185
average age of roadway	49
average age of surface	12

Lake County's Bridges

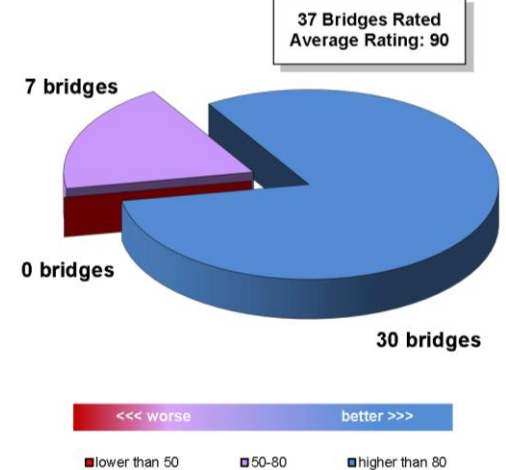
Highway Bridges:

number of bridges **43**
average age **27**
average deck age **16**

Bike and Pedestrian Bridges:

number of bridges **16**
number of tunnels **4**

Sufficiency Ratings:
Lake County's Bridges



Culverts

- Variety of culvert materials:
 - Concrete
 - Corrugated metal pipe (CMP)
 - Composite
 - PVC
- Culverts are routinely inspected

More than **50,000** feet
in LCDOT inventory



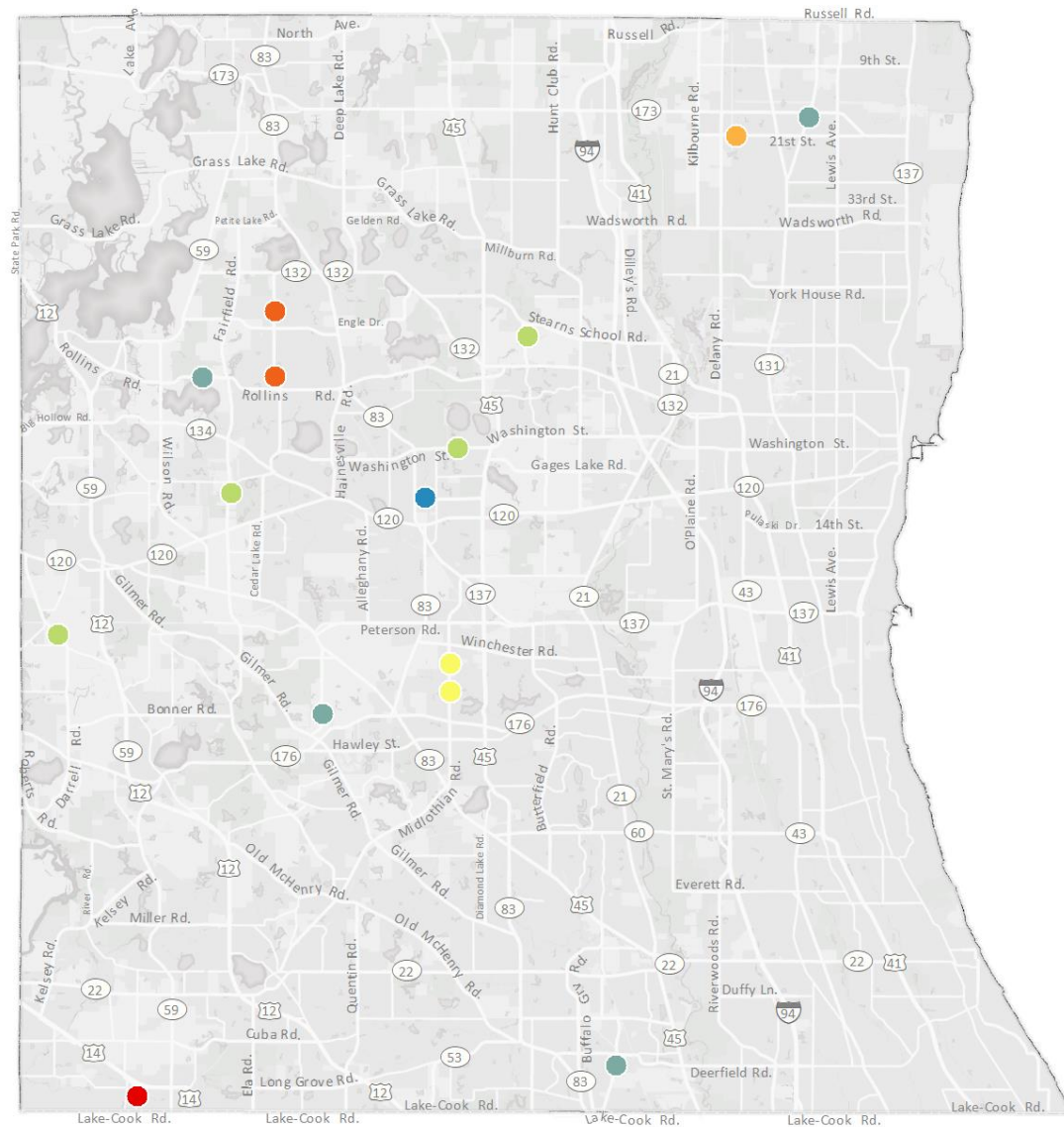
Identifying High Risk Culverts

Project set of 15 culverts:

- Greater than 35 years old
- Corrugated metal pipe
- 36" or larger

Replacement schedule:

● 2017	● 2021
● 2018	● 2022
● 2019	● 2023
● 2020	



Inventories: Non- Pavement Assets

16,747	Storm sewer structures
674	Culverts
188	Miles of storm sewer pipe
53	Stormwater basins
46,765	Feet of fencing
19,918	Feet of retaining wall
21	Miles of guardrail
35	Landscape areas (68 acres)

April 2018

Inventory: Signs



Sign Inventory*

Regulatory	8248
Guide/Destination	10579
Warning	4421
Information/Object Marker	3341
School	533

Total	27,212
--------------	---------------

** signs installed and maintained by LCDOT*

Source: LCDOT Sign Inventory, March 2018

Priority Two: Modernization

Modernization projects:
approximately

28%

of program

Typically intersection and safety improvements,
bike and pedestrian accommodations

Tools in the Toolbox:

- Traffic analysis
- Level of Service data
- Non-motorized policy
- 2040 bike and pedestrian priorities

2040 Non-Motorized Plan

- Currently more than **500 miles** of public bike facilities throughout the county
- 2040 Plan identifies approximately **300 additional miles**
- **“Policy on Infrastructure Guidelines for Non-Motorized Travel Investments”** for Lake County – December, 2010



Bike and Pedestrian Priorities

Lake County's 2040 Non-motorized Plan

LCDOT



existing



planned

LCFPD



existing



planned

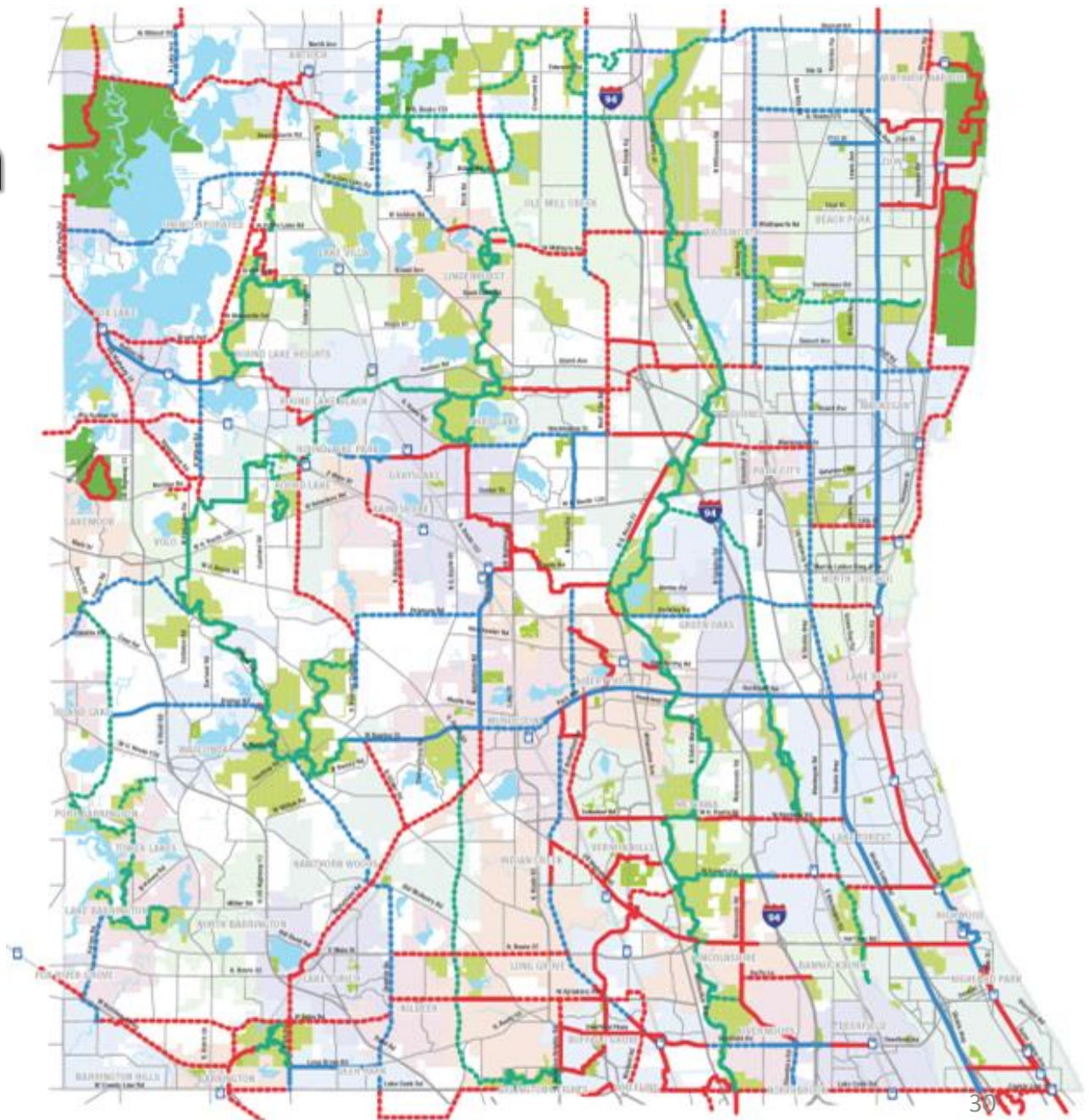
Other jurisdiction

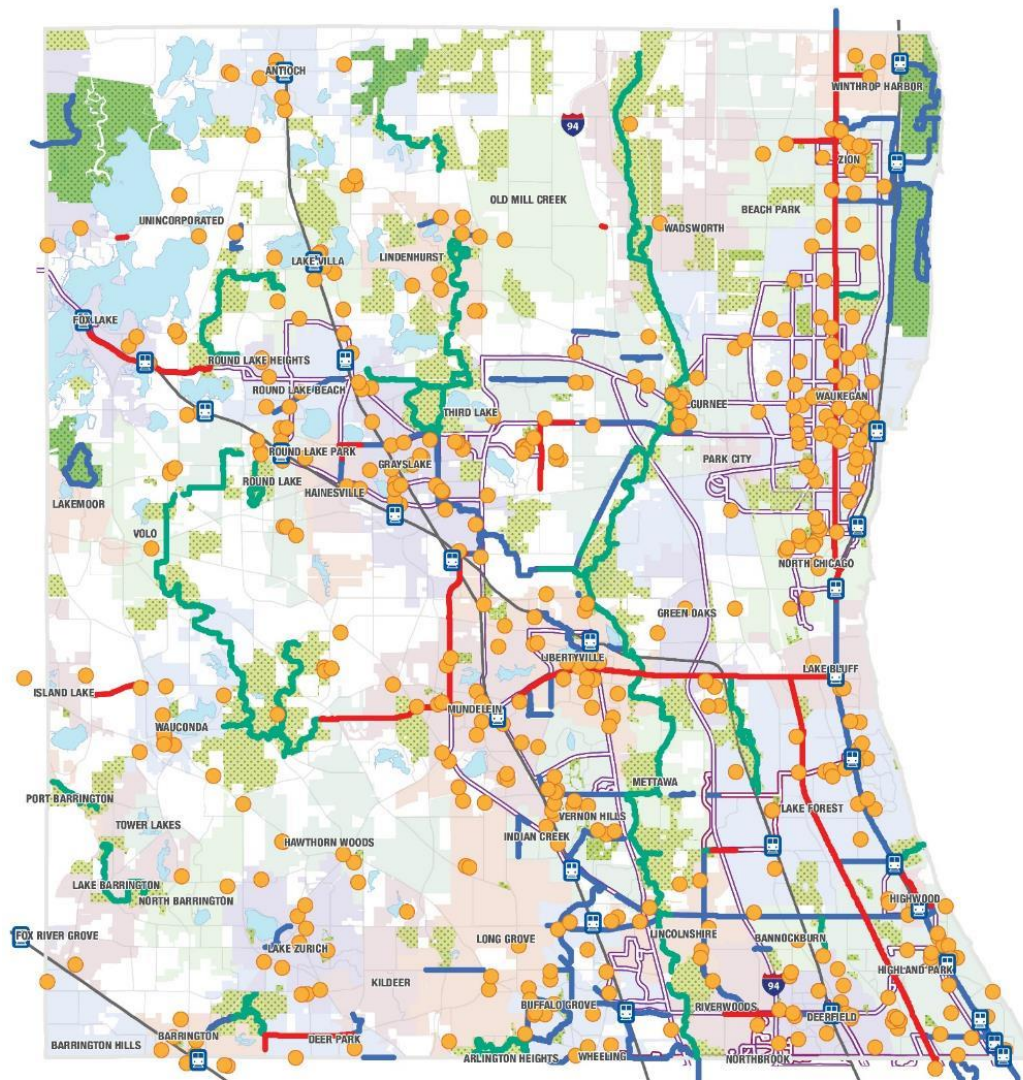


existing



planned





GAP ANALYSIS

LEGEND

GAP ANALYSIS

 Metra Stations

Microbial Life

EXISTING BIKEWAYS



Lake County Forest



Other Jurisdiction



ONS

Forest Preserve

EXISTING TRANSIT FEATURES



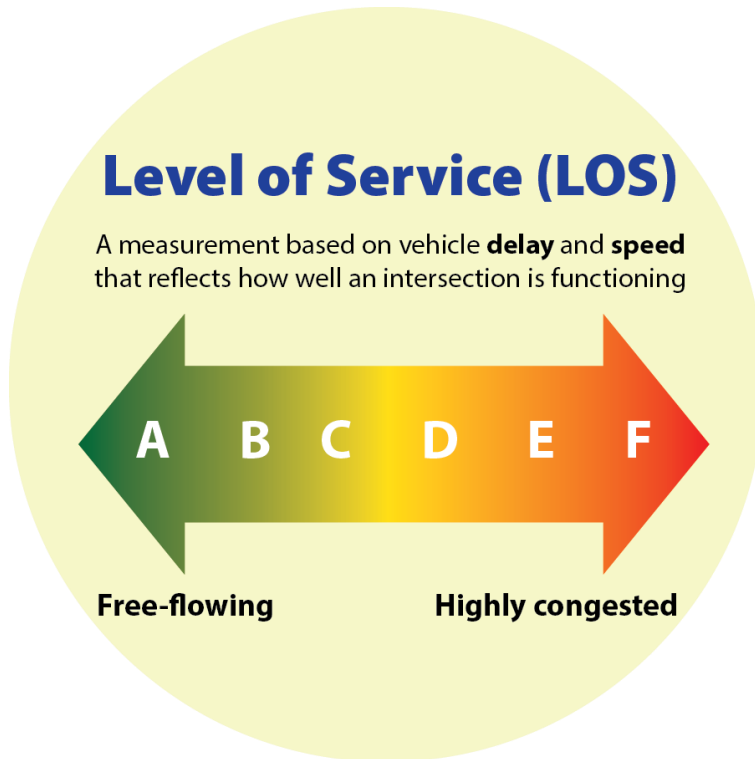
Metra Lines

Page Fixed Fee



Level of Service Data:

County-involved, signalized intersections and roundabouts



- LCDOT uses *Synchro* traffic analysis software to evaluate intersection operations and performance

• Roundabouts (5 total)

	Level of Service	AM Peak Hour	PM Peak Hour
(best)	A	2	1
	B	3	2
	C	0	2
	D	0	0
	E	0	0
(worst)	F	0	0

• Signalized intersections (301 total)

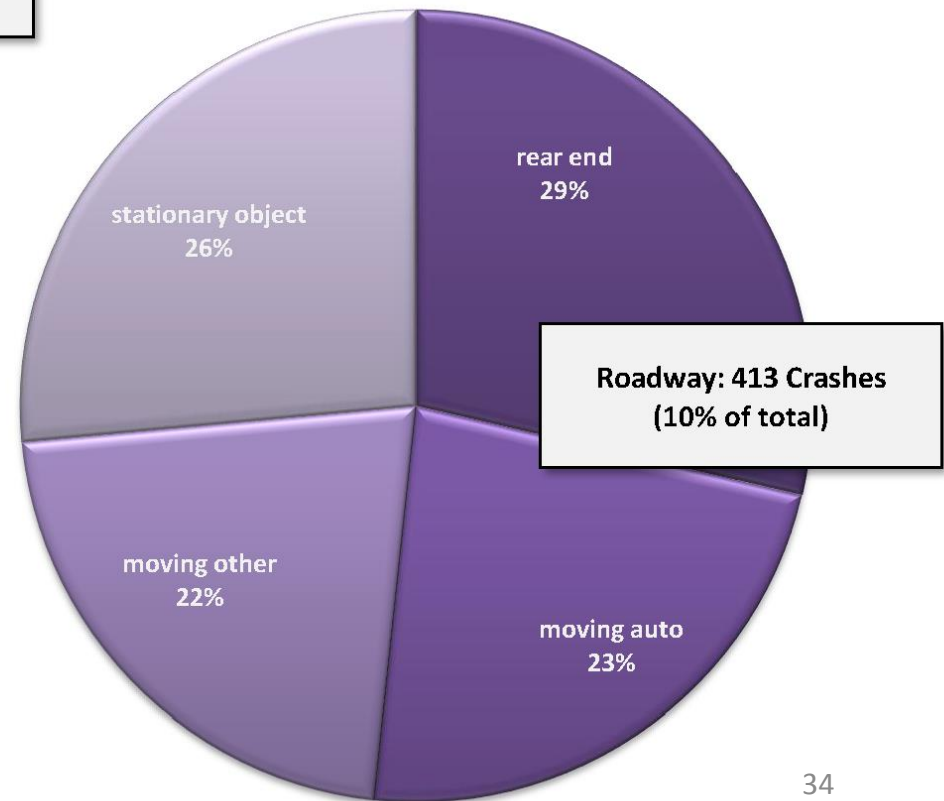
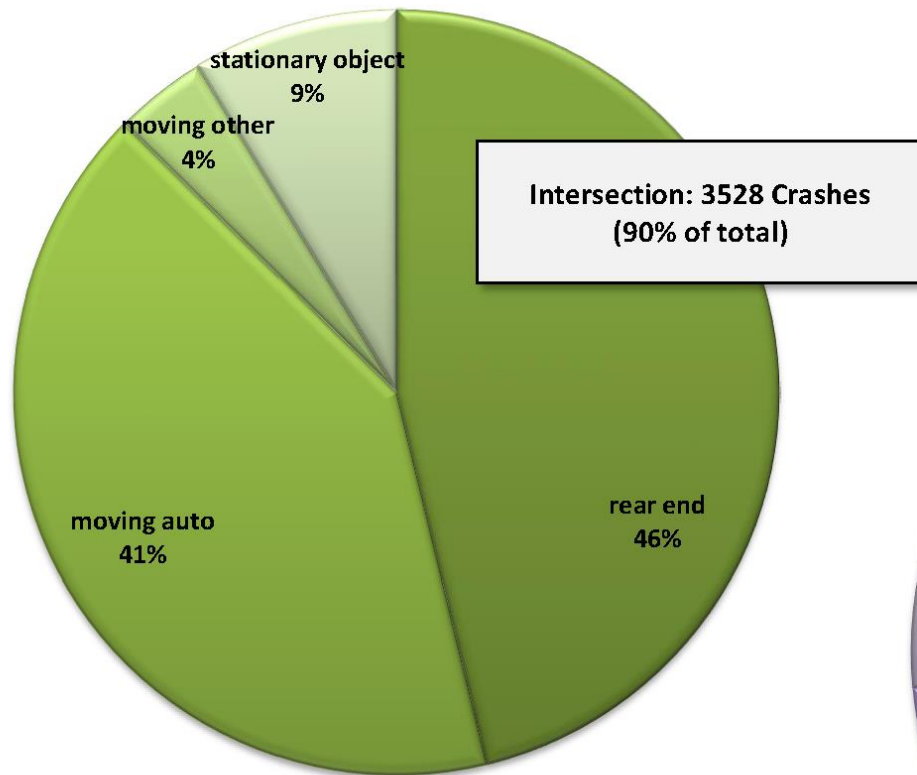
	Level of Service	AM Peak Hour	PM Peak Hour
(best)	A	90	53
	B	66	68
	C	90	85
	D	30	55
	E	10	20
(worst)	F	15	20

Source: LCDOT Traffic Department 2/2018

Historical Perspective: Crash Data

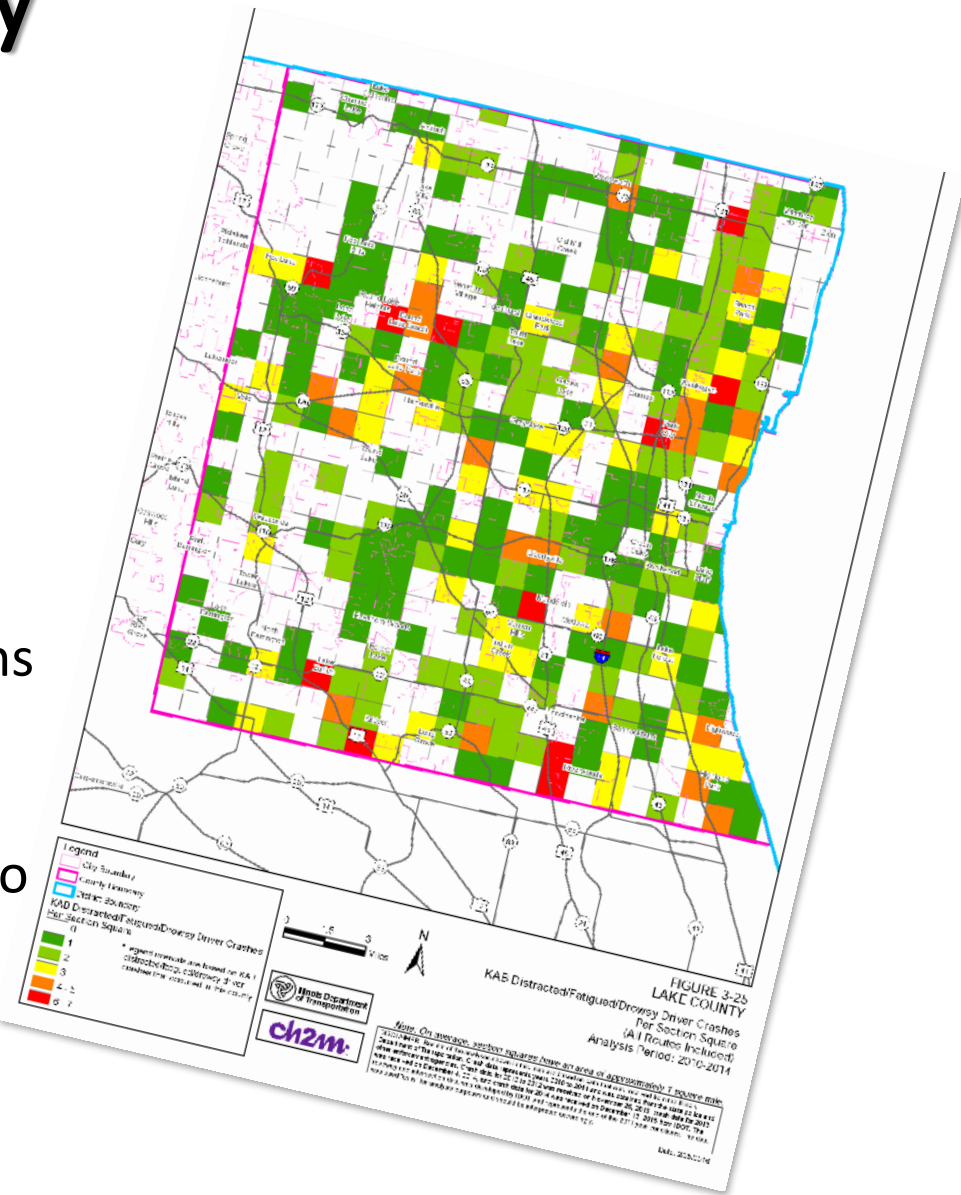
5 year averages	2006-2010	2007-2011	2008-2012	2009-2013	2010-2014	2011-2015
Number of crashes	4236	3994	3704	3485	3530	3673
Fatality	8	8	8	7	8	8
Crash with injury	942	931	952	974	978	1004
Property damage only	3286	3147	2744	2504	2544	2662

Crash Summary *(2015 TDMS Report)*

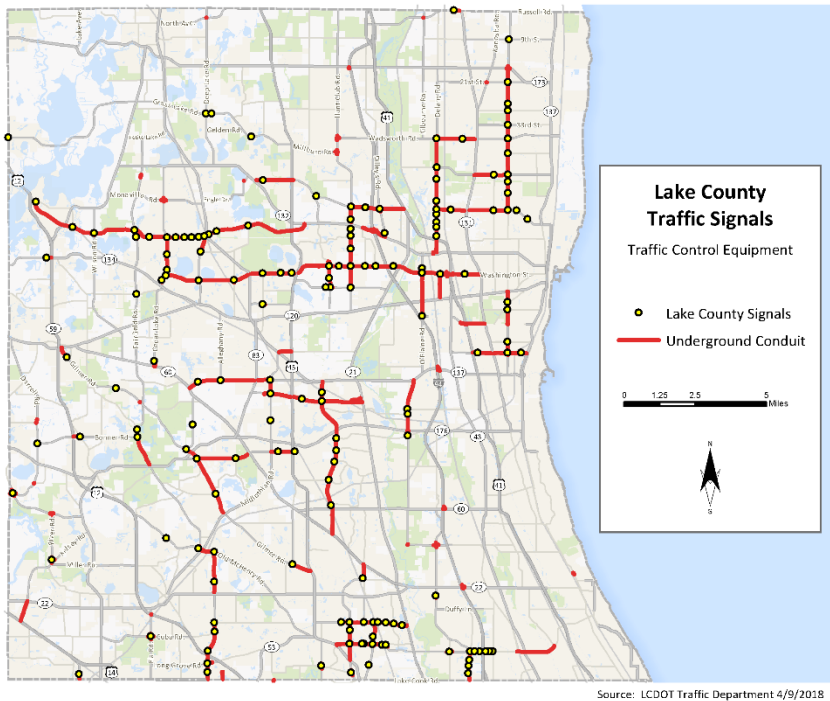


Strategic Highway Safety Plan

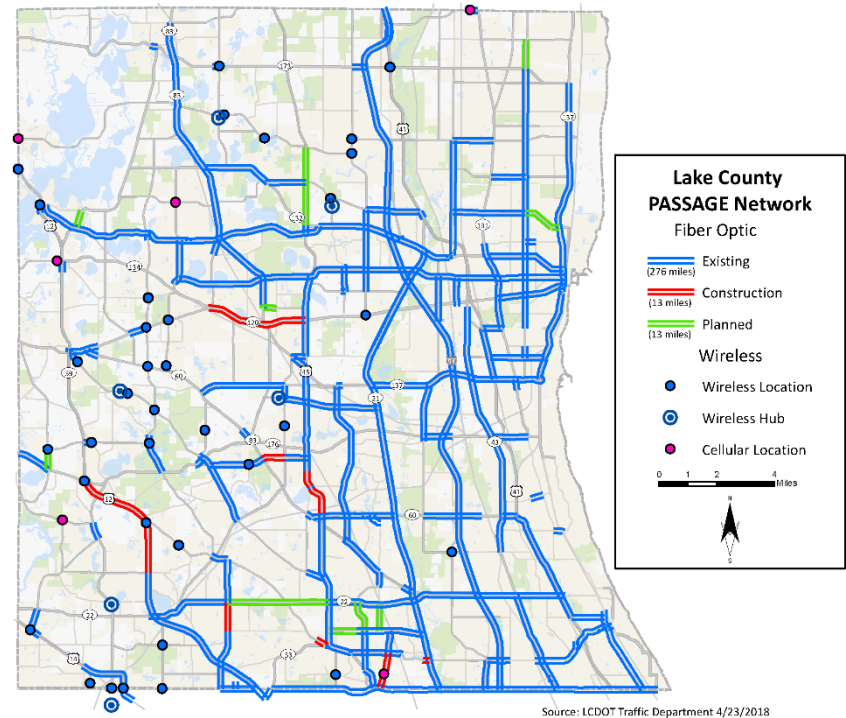
- Statewide effort to achieve **zero fatalities** on Illinois roadways
- **Data-driven plan** to reduce severe crashes by:
 - Documenting at-risk locations
 - Identifying effective safety improvement strategies
 - Better positioning counties to compete for available safety funds
 - Effectively partnering with agencies and communities



Lake County's Traffic Signal and Fiber Network



602 County-involved signals

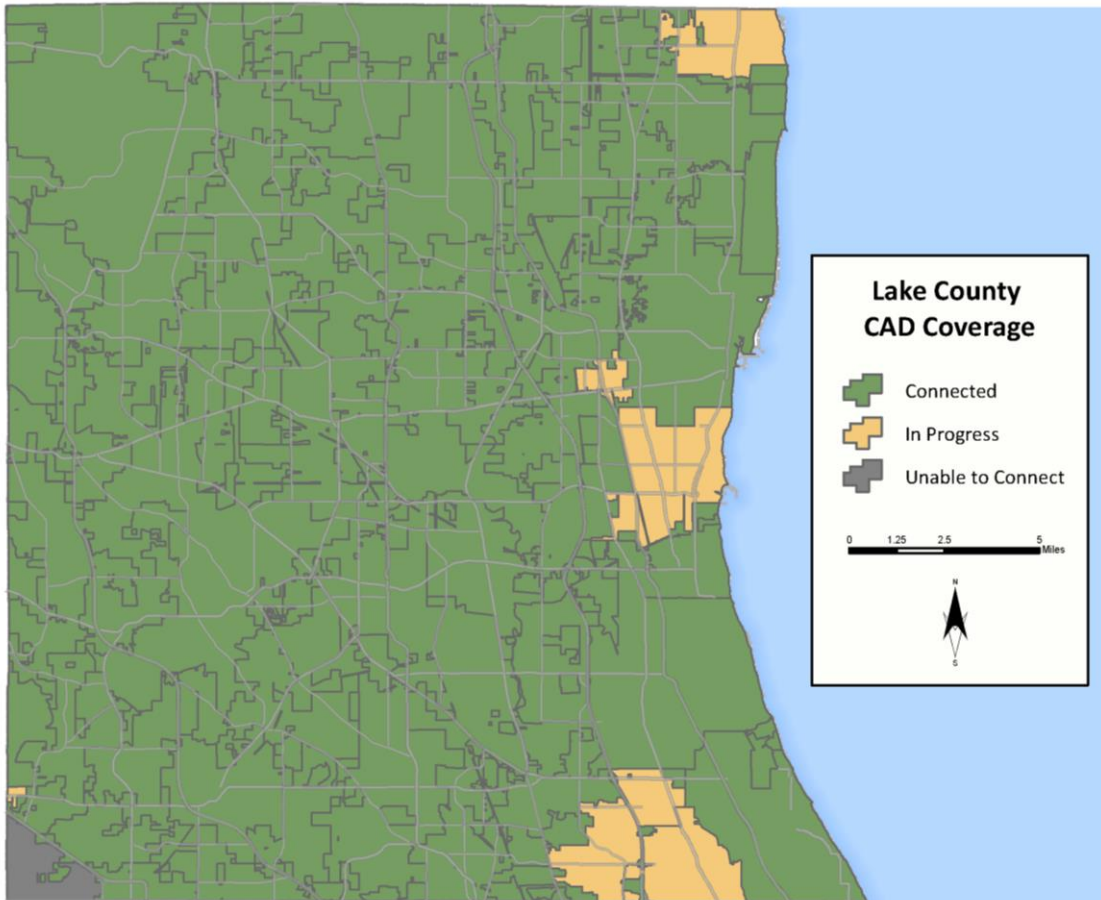


275 miles of fiber optic in place

4 miles under construction

19 miles planned

Expanding Computer Aided Dispatch (CAD) Coverage



Connected to **13**
dispatch centers
[via FATPOT]

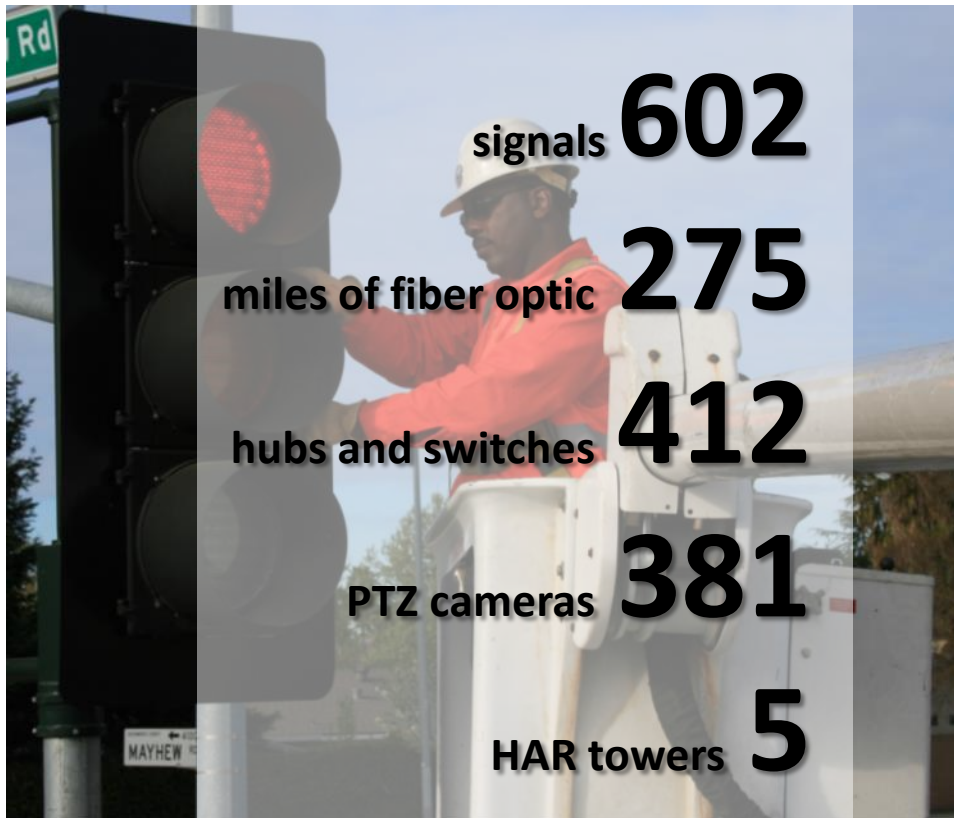
Adding **2** dispatch centers

93% of the county is
covered

7% in progress

Source: LCDOT Traffic Department 4/23/2018

PASSAGE: 2018 Asset Inventories



Source: LCDOT Traffic Department 2/2018

Priority Three: Expansion

Expansion projects:
approximately

40%

of program

Typically add lanes, grade separations, new or
extended roads

Tools in the Toolbox:

- 2040 plan
- State Consensus list
- Socioeconomic trends
- Traffic data
- CMAP On To 2050

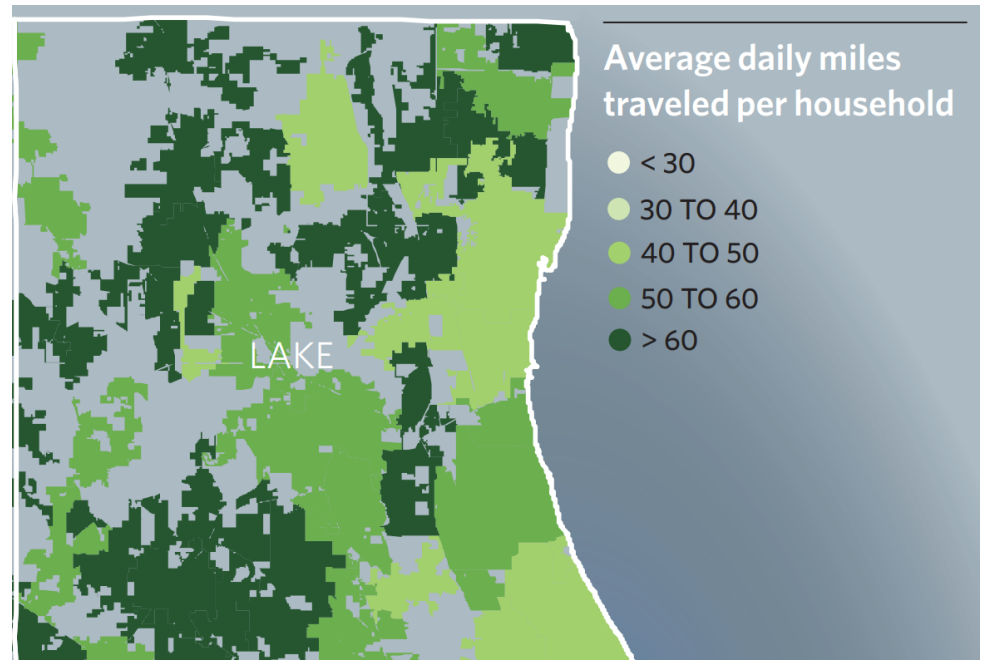
Are County-owned roads keeping up with growth?



Lane Miles		Daily Vehicle Miles	
1990	634	1990	1,801,717
2017	889	2017	3,507,947
40% growth		95% growth	

Lake County Travel Data

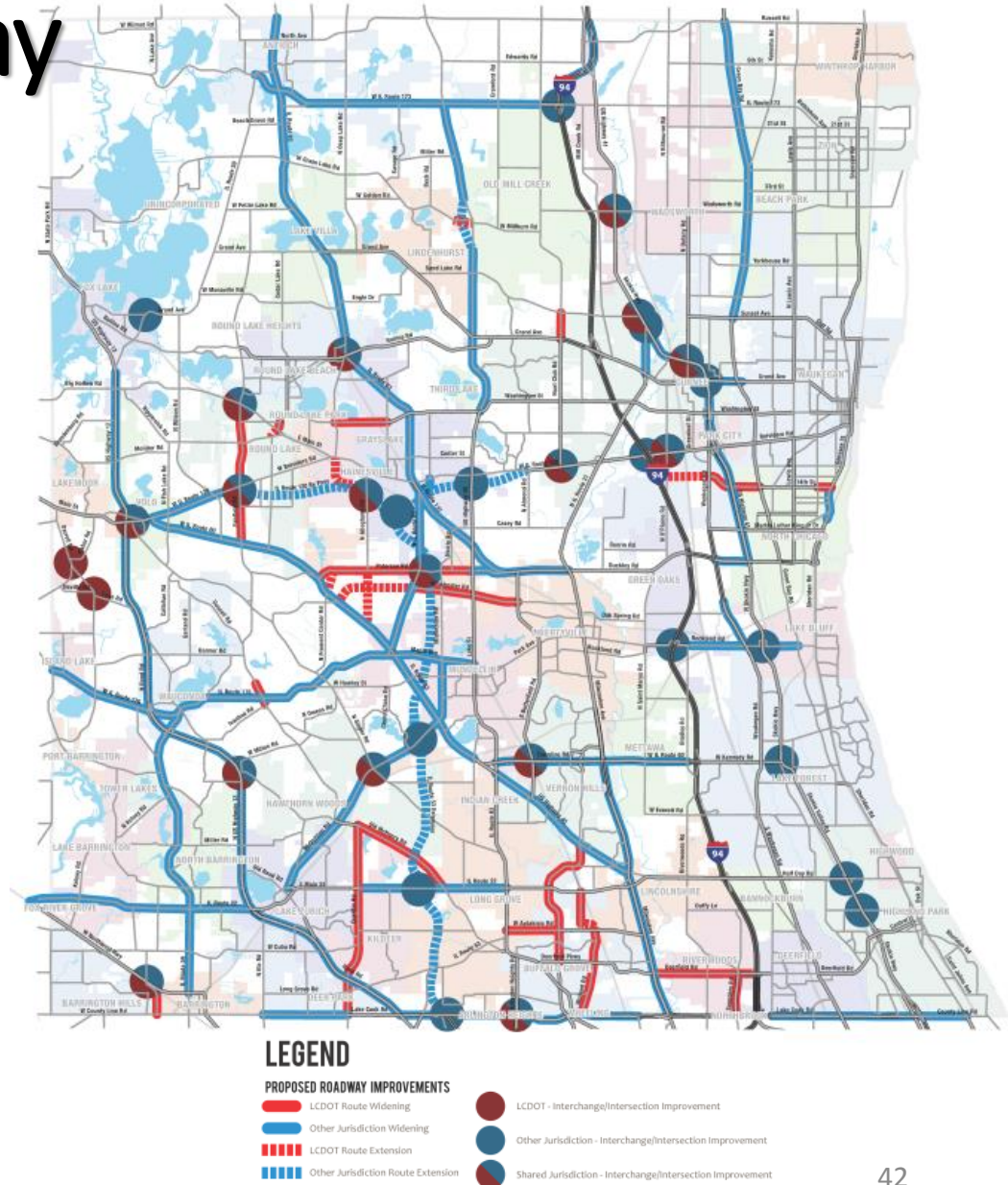
- **23,215** average annual vehicle miles traveled for Lake County households
- **16,723** average annual vehicle miles traveled for CMAP region collar counties households
- **36% more peak period trips** forecasted by 2040 in Lake County



Source data: CMAP analysis of US Census data, Illinois Secretary of State, 2015 American Community Survey

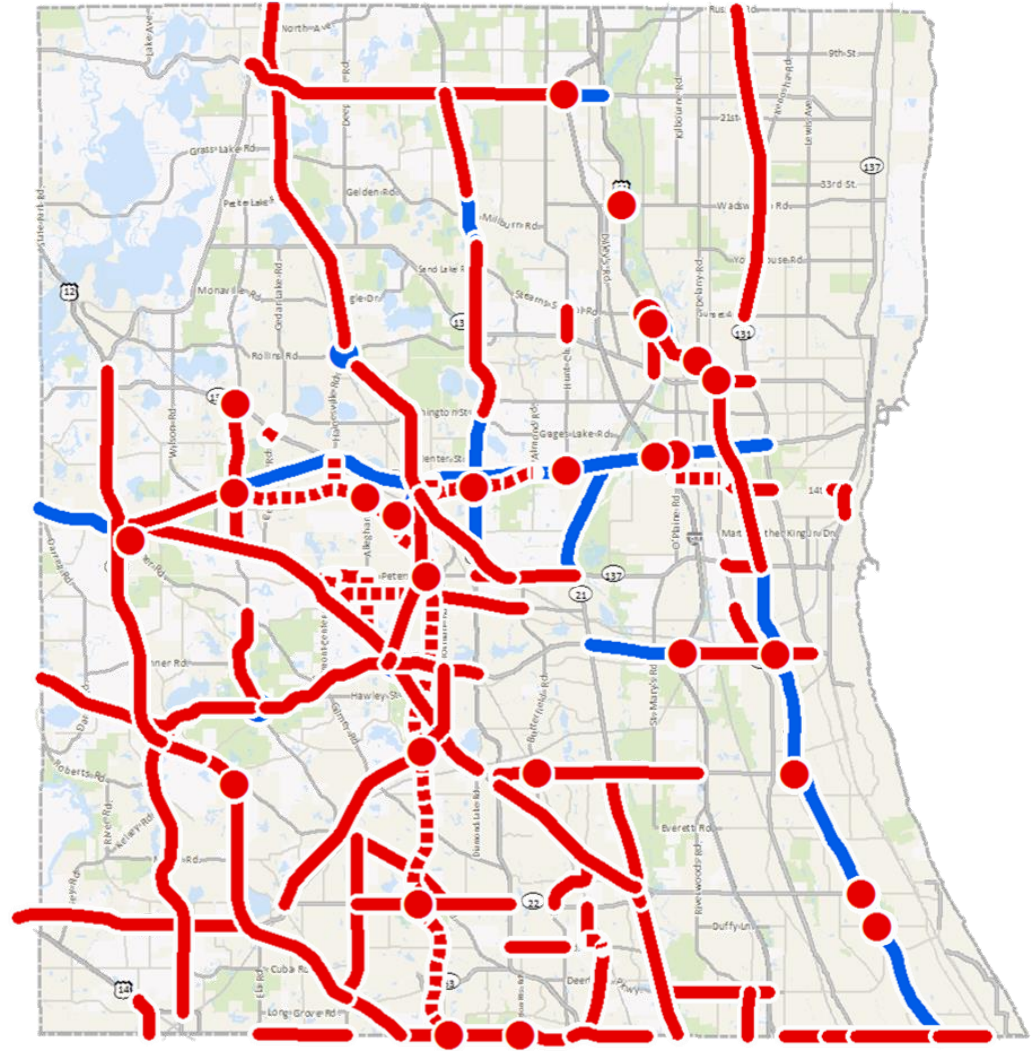
2040 Roadway Priorities

- Peak period trips estimated to increase by **36%** between 2010 and 2040
- **212** miles of roadway Improvements recommended
 - **7** interchange
 - **9** intersection
 - **65** corridor



2040 Roadway Improvements

- Consensus projects
- 2040 projects
- Both LCDOT and IDOT projects
- LCDOT has projects in preliminary phases now that can't be programmed for construction due to lack of funding.
- **\$1.2 billion** still needed to fund remaining projects in the Consensus Plan (2006 dollars)



Presentation Schedule

PWTC 2018 Meeting Date

Presentation Topic

April 25 • Overview and Program Priorities

June 6 • Funding and Projects / Draft Program Document