

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

Public Works, Planning and
Transportation Committee
January 9, 2019

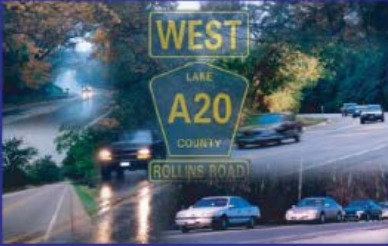
Lake County Division of Transportation
2018 - 2023 Highway Improvement Program

OVERVIEW FOR NEW COMMITTEE MEMBERS

FUNDING PROGRAM PRIORITIES PROJECTS

Note: Program information originally presented to PWTC in April and June of 2018

Department Overview



Lake County Division of Transportation

Our mission is to provide a safe, efficient and innovative transportation system to enhance mobility, economic development and quality of life in Lake County.



- 127 full time employees
- Plan, engineer, construct, operate and maintain county highways and bikeways in accordance with the Illinois Highway Code (Illinois State Laws)
- Coordinate federal transportation aid (through CMAP and LCCOM for county and local agencies)
- Coordinate township road districts (oversee MFT, bridges, and advise on project planning)

Department Overview

- Operate PASSAGE an intelligent transportation system
- Review and approve permits for overweight trucks, utility placement, and development access to county highways
- Maintain county vehicle fleet for all departments
- “Division” of the Illinois Department of Transportation



Published Documents

- 2040 Transportation Plan (Long range plan)
- 5-Year Highway Improvement Plan (updated annually)
- Annual Construction Plan
- Utility and Highway Access Regulation Ordinance (update in 2019)
- Roadway Classification Map (truck routes/weight limits)



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



Lake County Strategic Plan



GOAL: Improve Transportation

STRATEGIC STATEMENT: Advance the development of *State, Regional, County*, and municipal transportation systems that provide for safe, efficient, and flexible movement through an integrated network of *road, rail, public transit*, and non-motorized (*bicycle, pedestrian*) modes of travel.



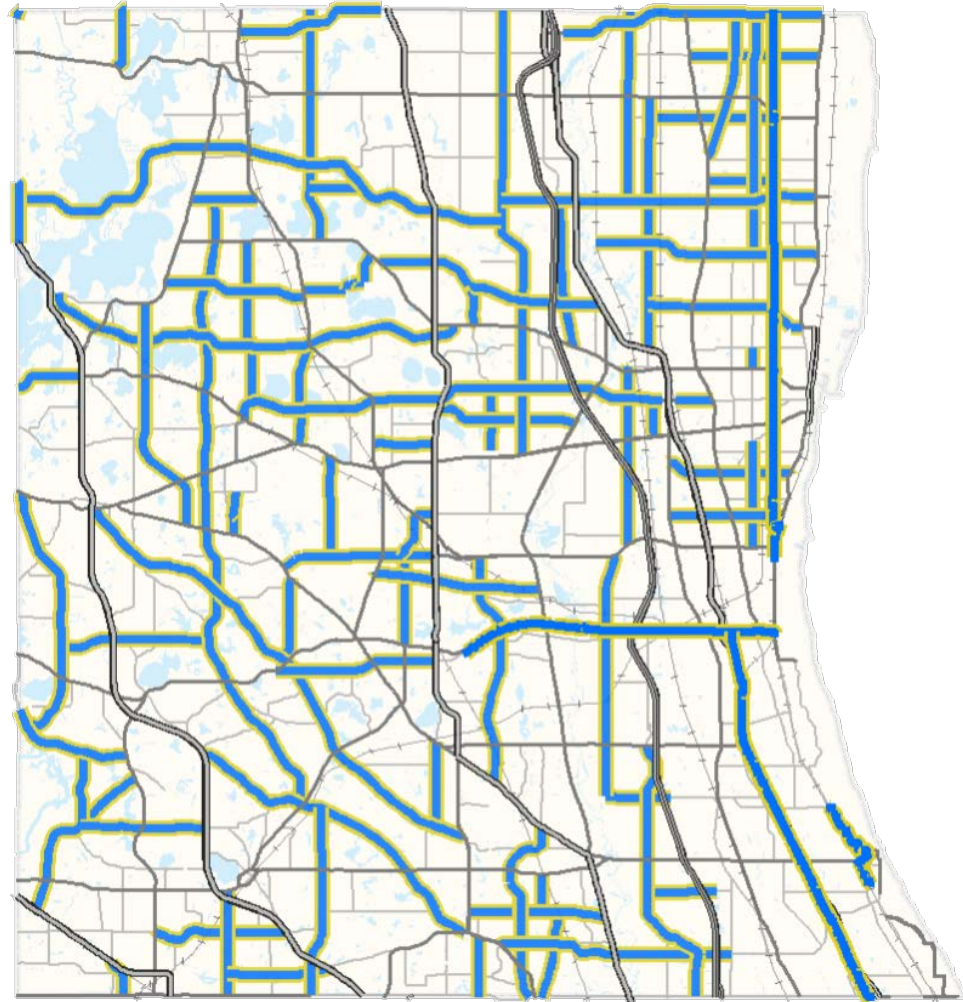
- Investigate alternatives to single-occupancy vehicles
- Leverage new and emerging technologies (*PASSAGE*)
- Advance transportation solutions by collaborating with state, regional, and local agencies
- Advocate for permanent and sustainable transportation funding
- Reduce number of fatal and serious injury crashes

The County Highway Network



300-mile network of minor arterial highways and over **60-mile** network of bike paths operated by the Lake County Division of Transportation

3.5 million daily vehicle miles traveled on county highways



Efficient Transportation Contributes To:

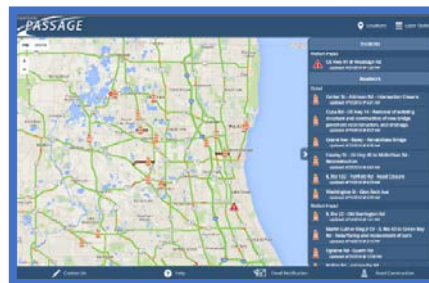
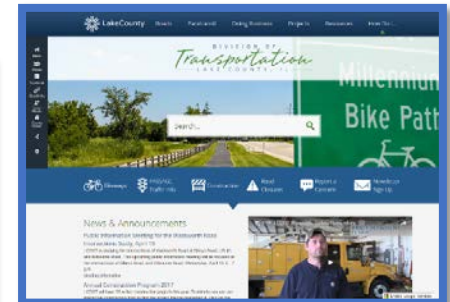


- Quality of life
- Economic vitality
- Environmental value
- Improved safety

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)*



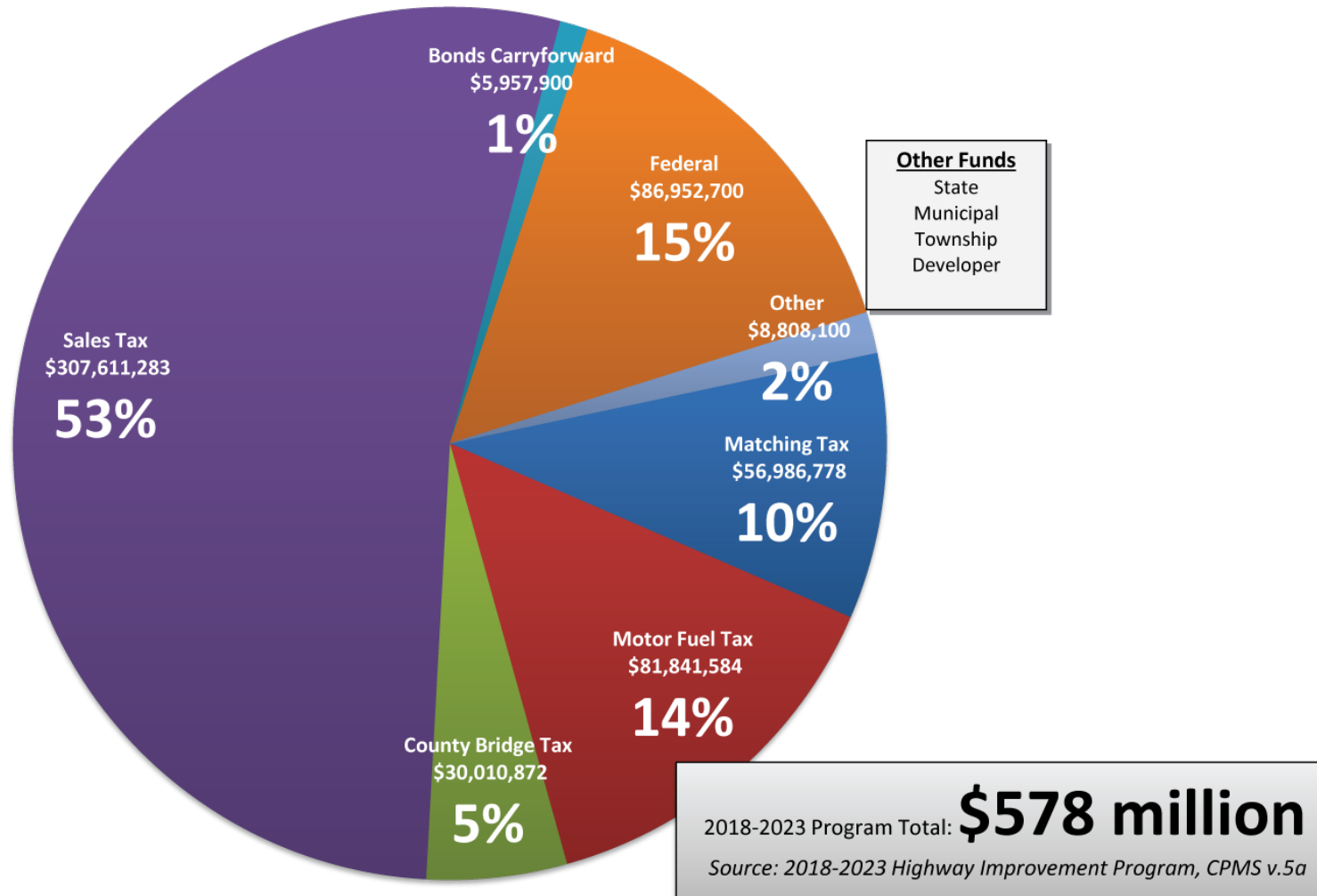
All **zero** growth except ST
ST growth forecast 2%*

**revised down from 3% per RTA, April 2018*

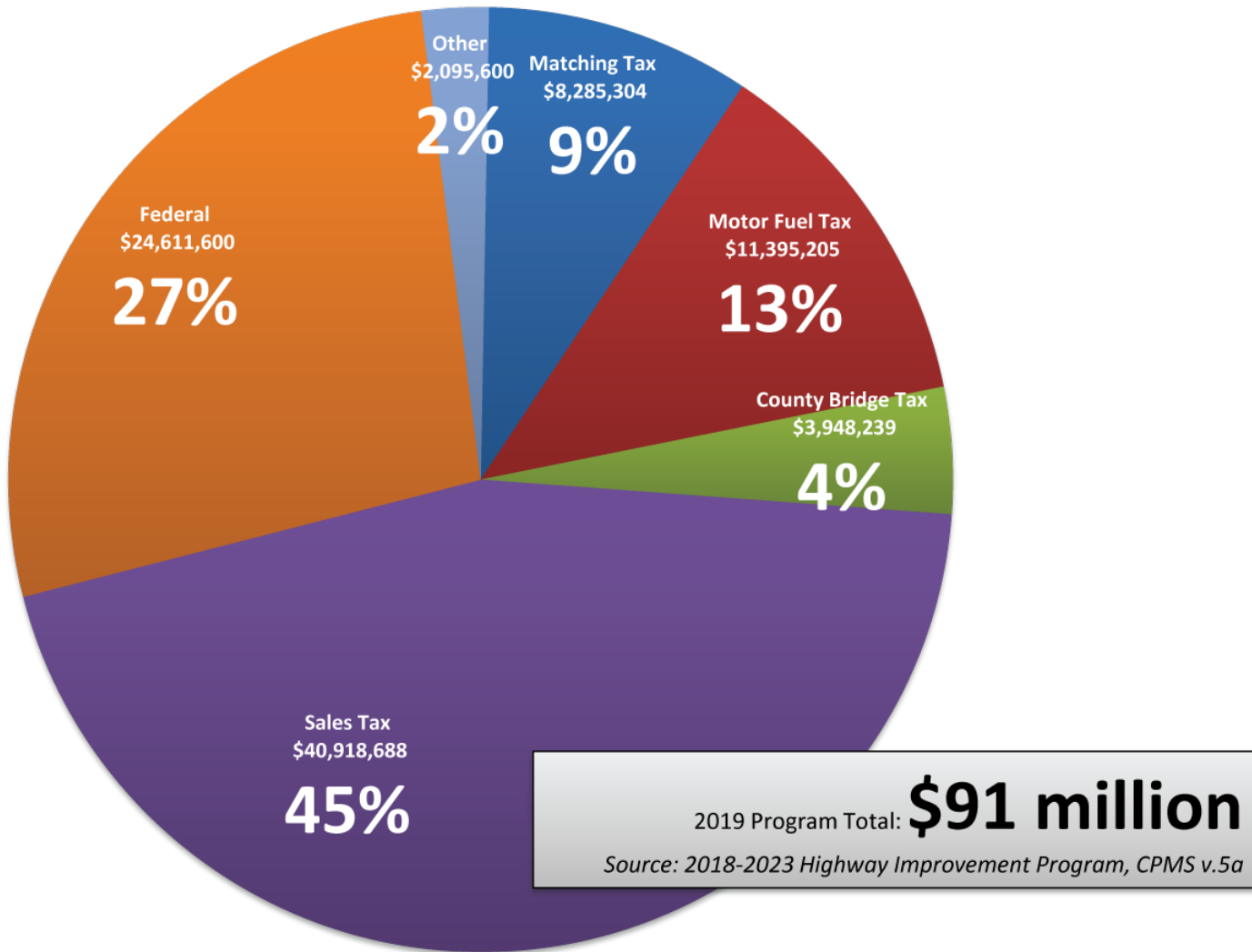
Leverage Outside Funds for Effective Programming

- Illinois Commerce Commission (ICC) Railroad Grade Crossing Protection
- Congestion Mitigation and Air Quality (CMAQ)
- Transportation Alternatives Program (TAP)
- Surface Transportation Block Grant (STPL, STPC, STPE)
- 5310 Funds (for Ride Lake County paratransit)
- Highway Bridge Program (HBP)
- Highway Safety Improvement Program (HSIP)
- TIGER/BUILD
- State of Illinois Funds
- *more*

Fund Sources | 2018-2023 program



Fund Sources | 2019 program



Balancing Program Needs

Funds Distribution | 2018-2023 by program category



Source: LCDOT Information Services | CPMS v.5a

Balancing Program Needs

Funds Distribution | 2019

by program category



Source: LCDOT Information Services | CPMS v.5a



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



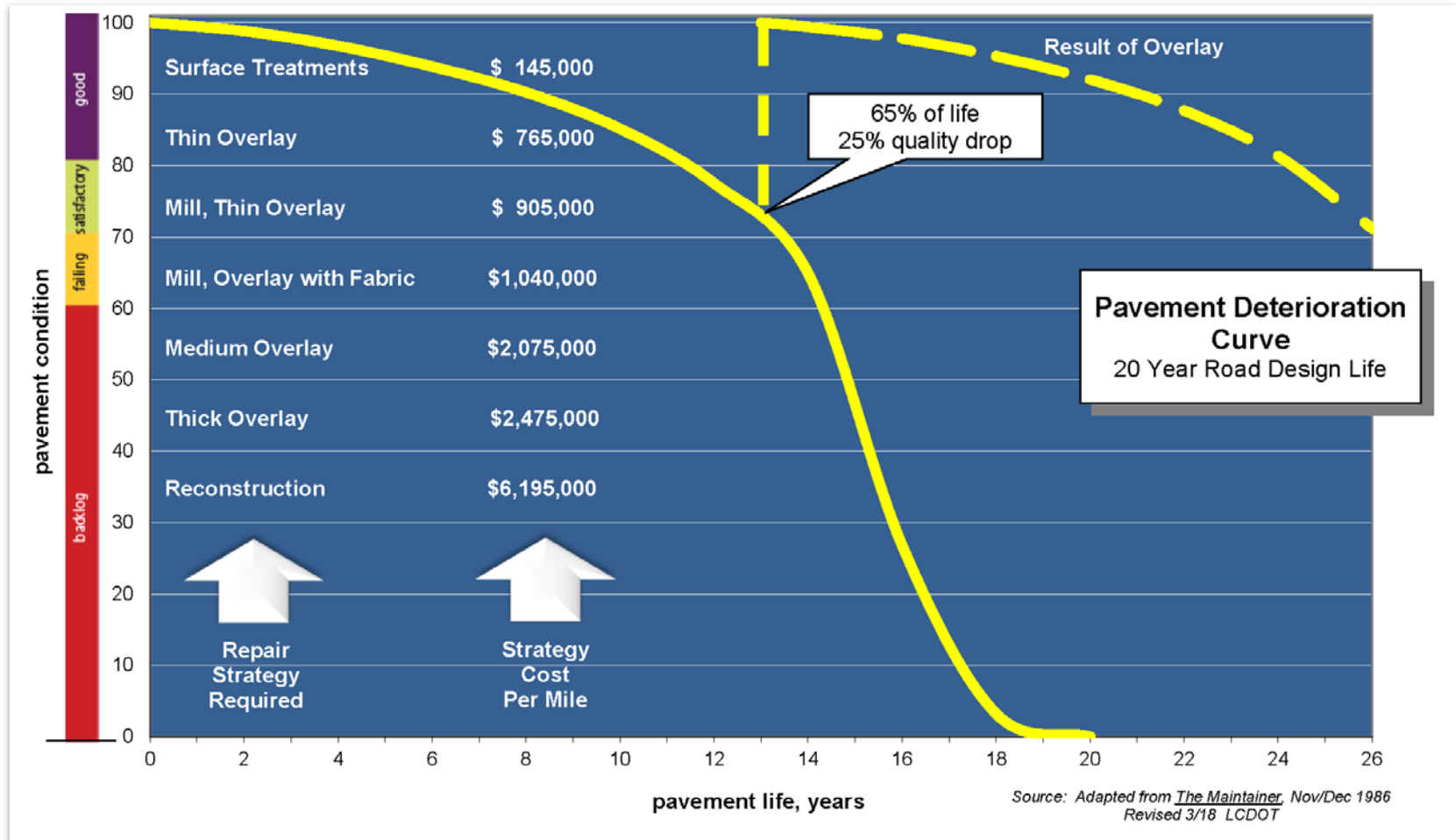
Laser surface testing



Dynaflect

Pavement Aging Prediction Costs

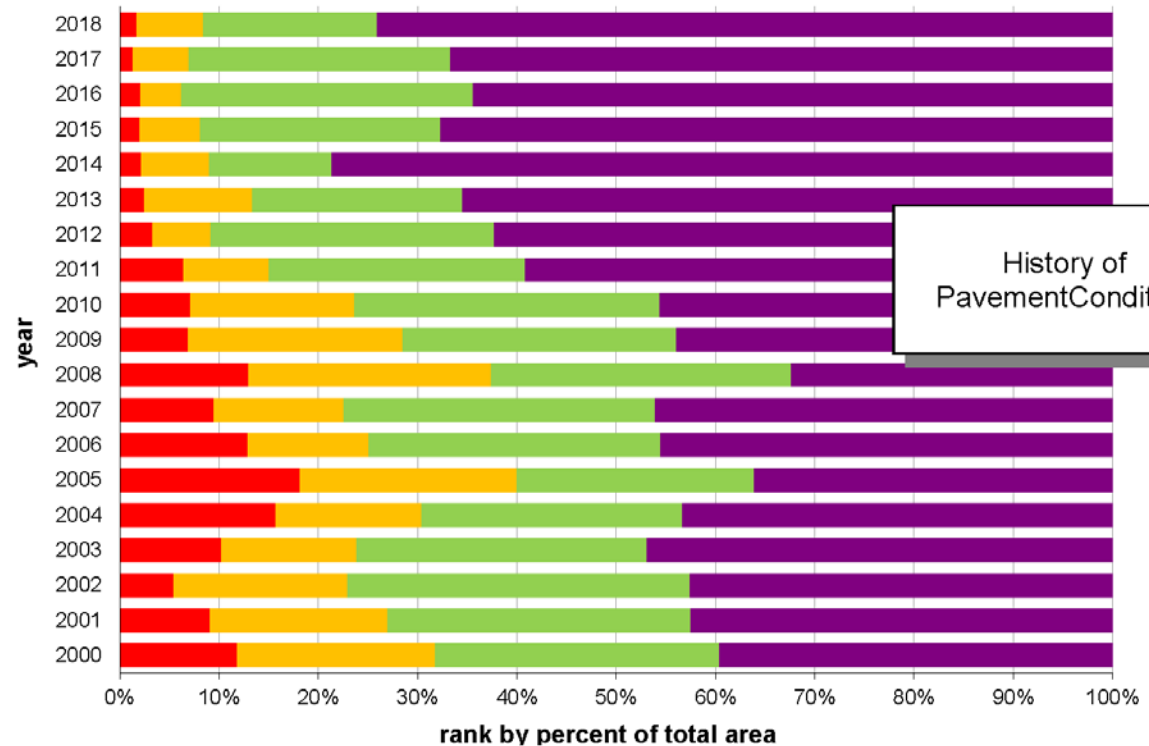
Repairs Made **at the Best Time** Maximize Return



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

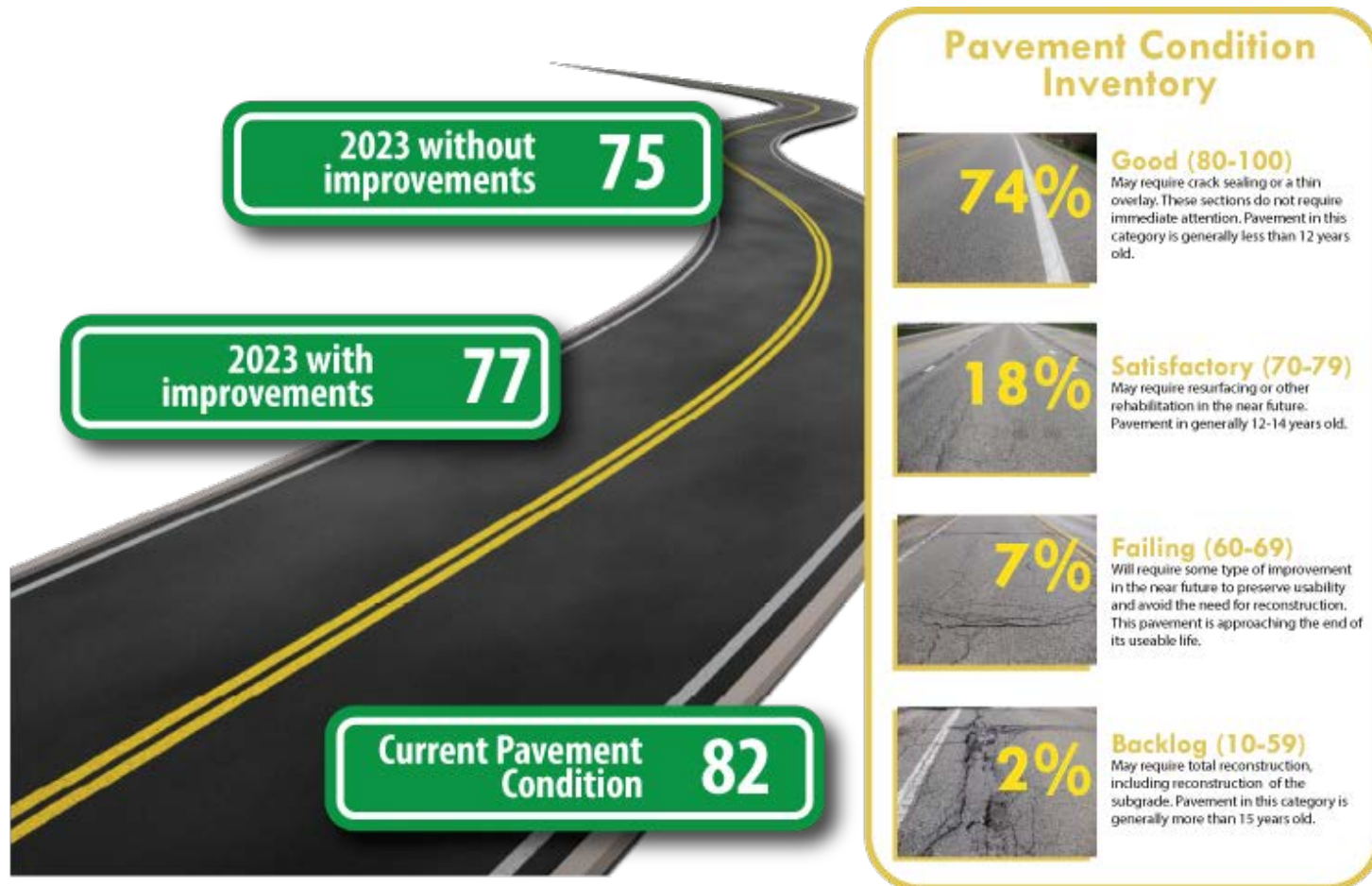


Note: Current year rankings are based on the previous year's testing.

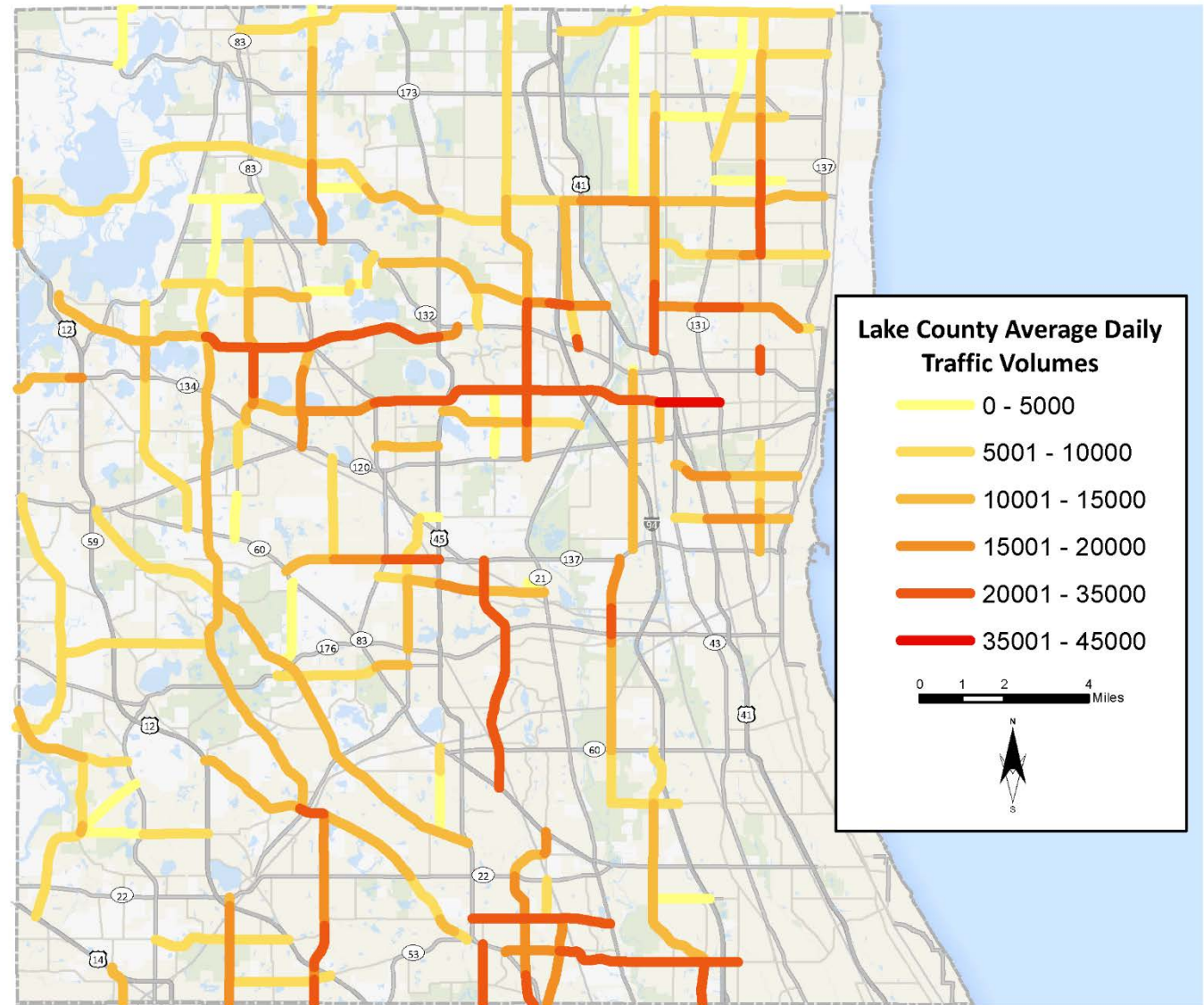
Backlog Failing Satisfactory Good

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...***

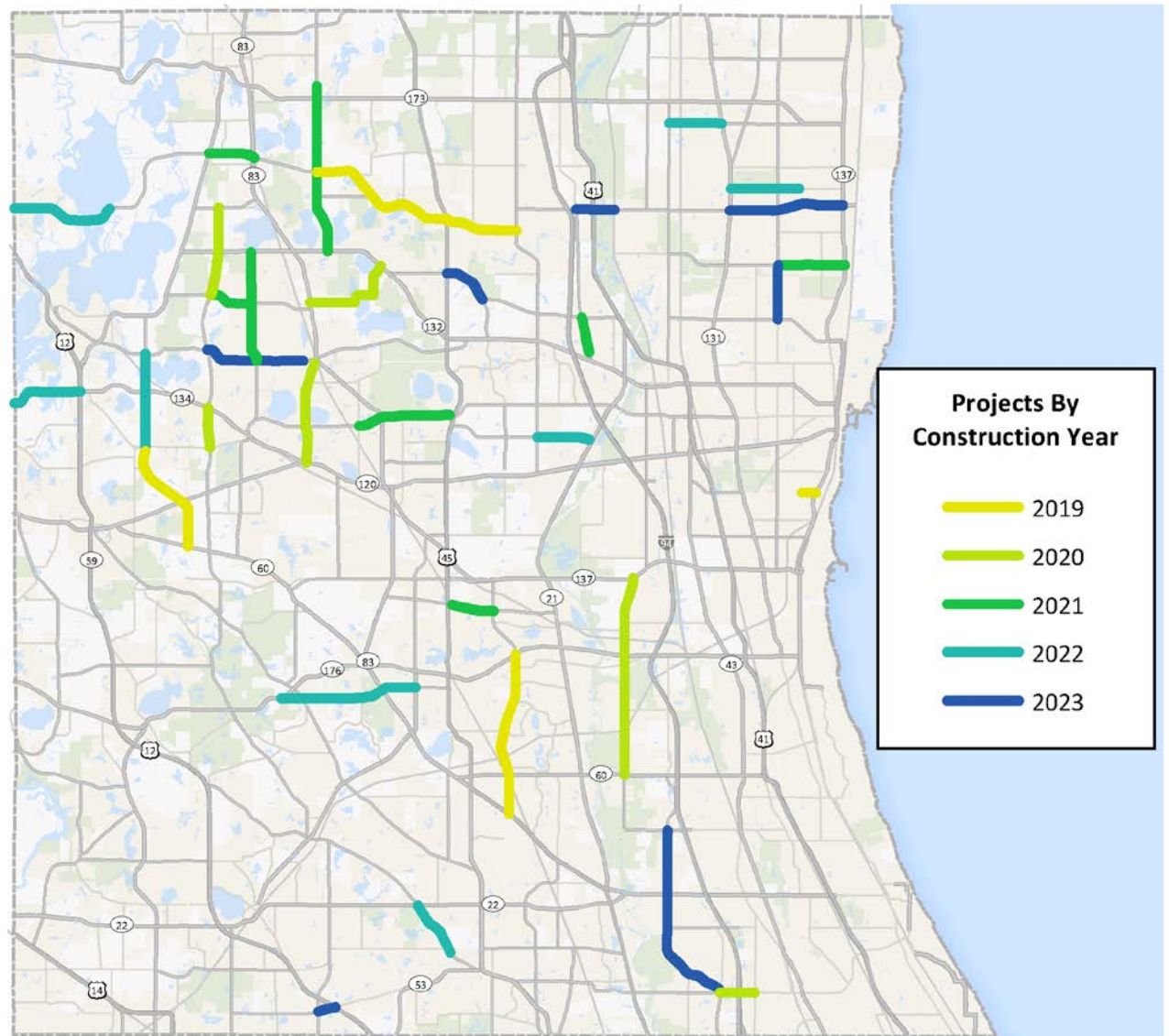
- Assess the present condition of the system
- Estimate future road conditions
- Identify and rank road projects
- Maximize the condition of the system within the given budget

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

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

2019 – 2023

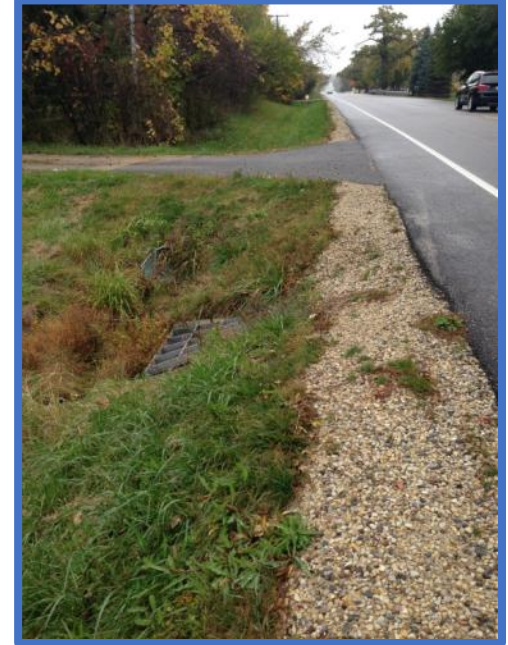
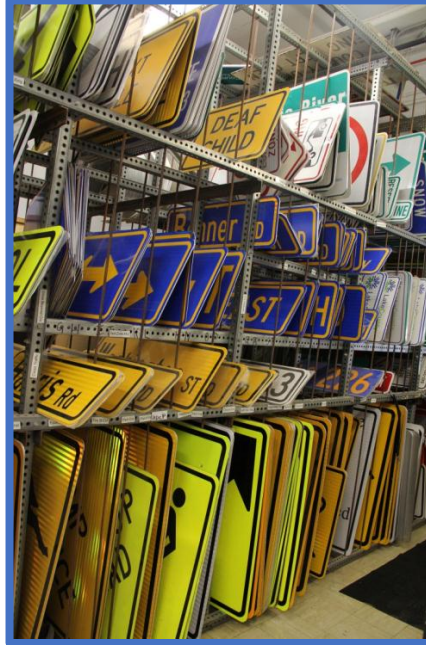
ARGUS System Preservation Projects



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

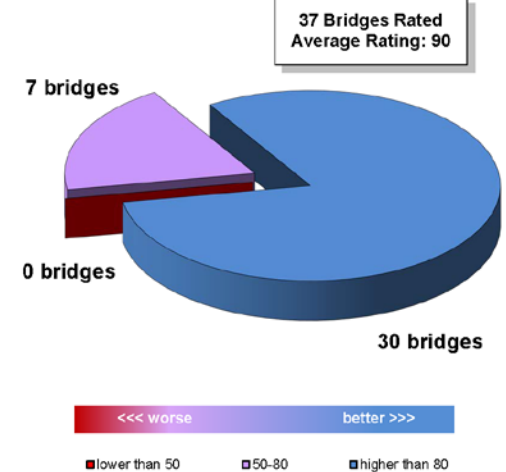
Highway Bridges:

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



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

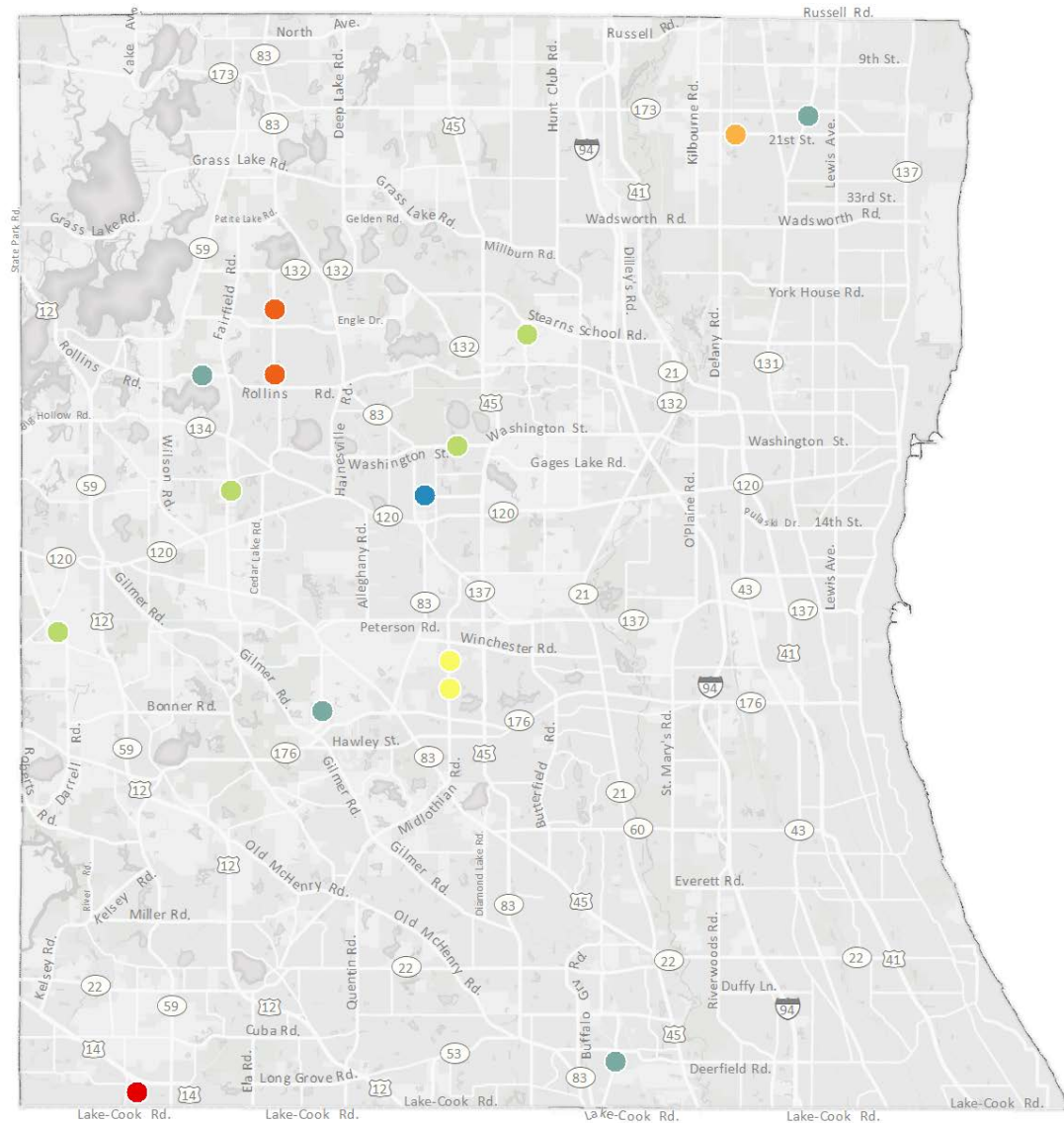
Identifying High Risk Culverts

Project set of 15 culverts:

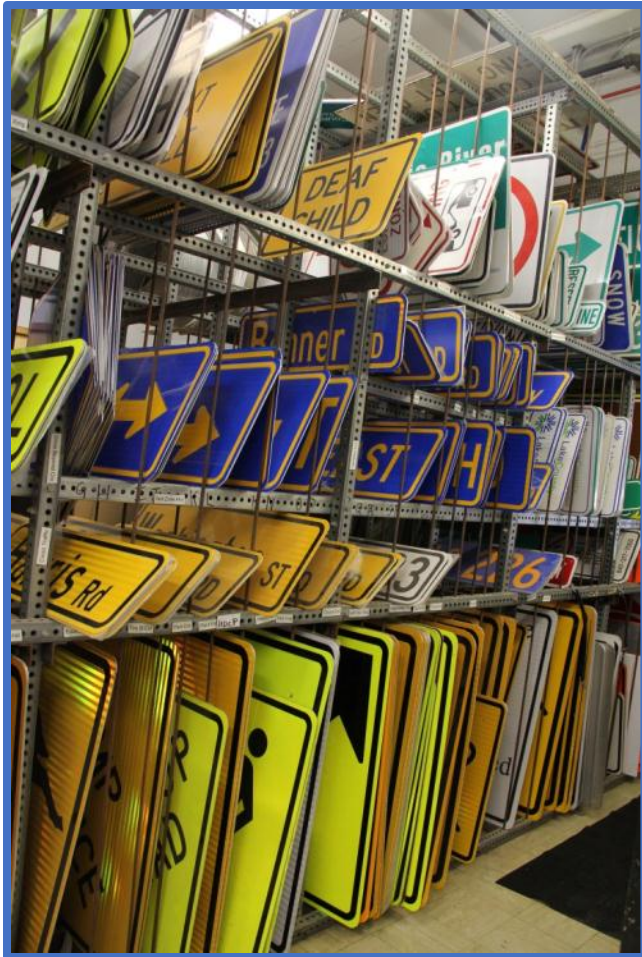
- Greater than 35 years old
- Corrugated metal pipe
- 36" or larger

Replacement schedule:

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



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*

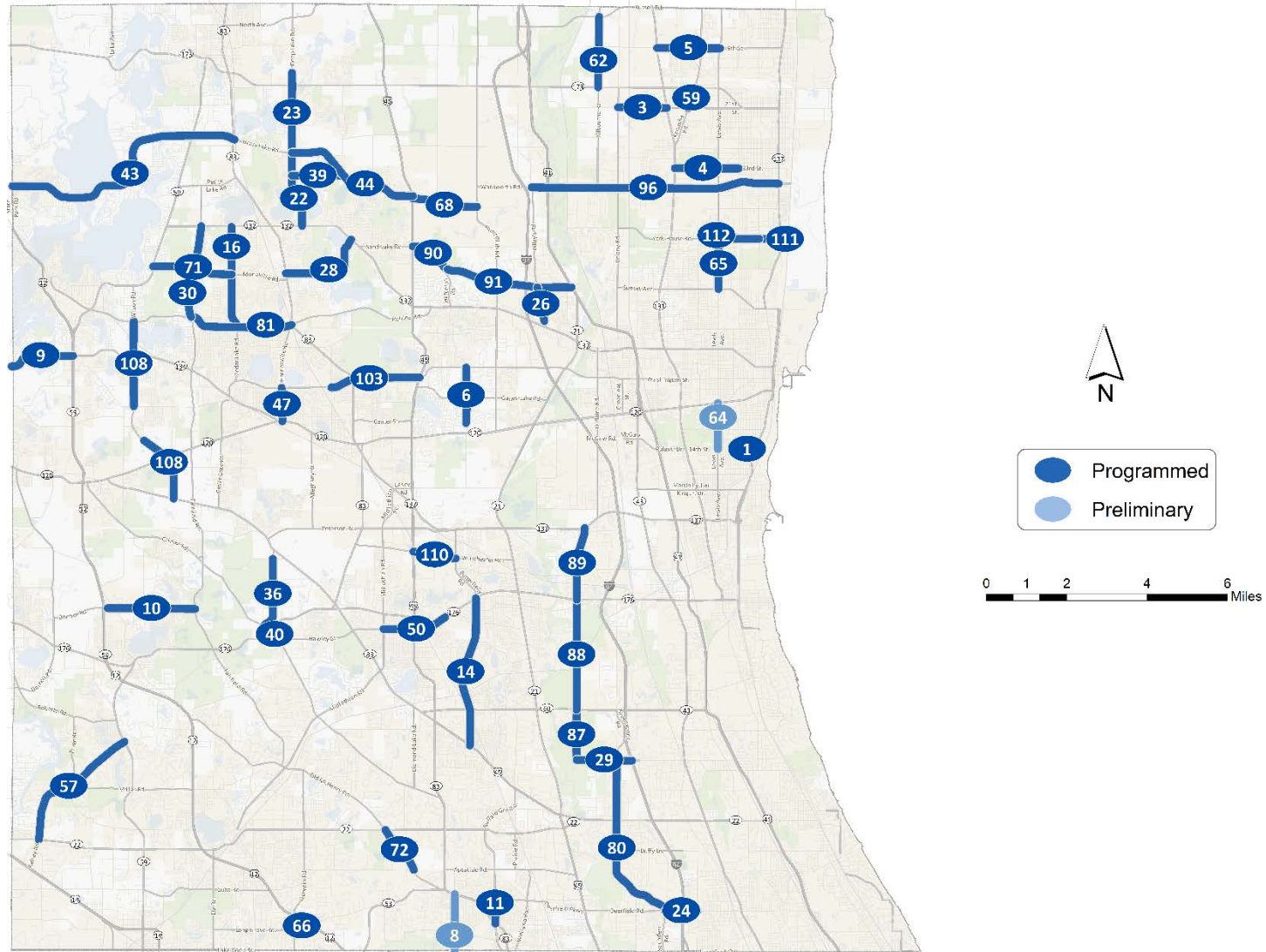
Source: LCDOT Sign Inventory, March 2018

What's **new** in this 5-year program?

- **Preservation Projects:**
 - Culvert replacements
 - Pavement rejuvenator
 - Upgrade PASSAGE equipment
 - Bridge inspection
 - Storm sewer/drainage work
 - Annual maintenance items—
patching, crack sealing, trees &
landscaping, guardrail, retaining
walls



Preservation | 2018 – 2023 Program



Preservation Projects

Preservation Projects (cont'd)

40	Gilmer Rd.	Resurfacing	2018	B-01235b
43	Grass Lake Rd.	Microsurfacing	2021	B-01391b
44	Grass Lake Rd.	Resurfacing	2019	B-01399c
46	Grass Lake Rd.	Drainage Improvements	2018	B-01438b
47	Hainesville Rd.	Resurfacing	2020	B-01480
48	Hart Rd.	Culvert Replacement	2023	B-01372b
50	Hawley St.	Resurfacing	2022	B-01490
53	Hutchins Rd.	Culvert Replacement	2019	B-01372a
57	Kelsey Rd.	Resurfacing	2018	B-01306
58	Kenosha Rd.	Culvert Replacement	2018	B-01163d
59	Kenosha Rd.	Resurfacing	2018	B-01163c
61	Kilbourne Rd.	Bridge Repairs	2018	B-01476
62	Kilbourne Rd.	Resurfacing	2019	B-01163a
64	Lewis Ave.	Reconstruction	2024	B-01452b
65	Lewis Ave.	Bridge Repairs	2023	B-01493
66	Long Grove Rd.	Resurfacing	2023	B-01483
67	Milburn Rd.	Bridge Deck Profiling	2019	B-01399b
68	Milburn Rd.	Resurfacing	2019	B-01399a
69	Milburn Rd.	Culvert Repair	2019	B-01399d
71	Monaville Rd.	Microsurfacing	2021	B-01391a

Preservation Projects (cont'd)



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

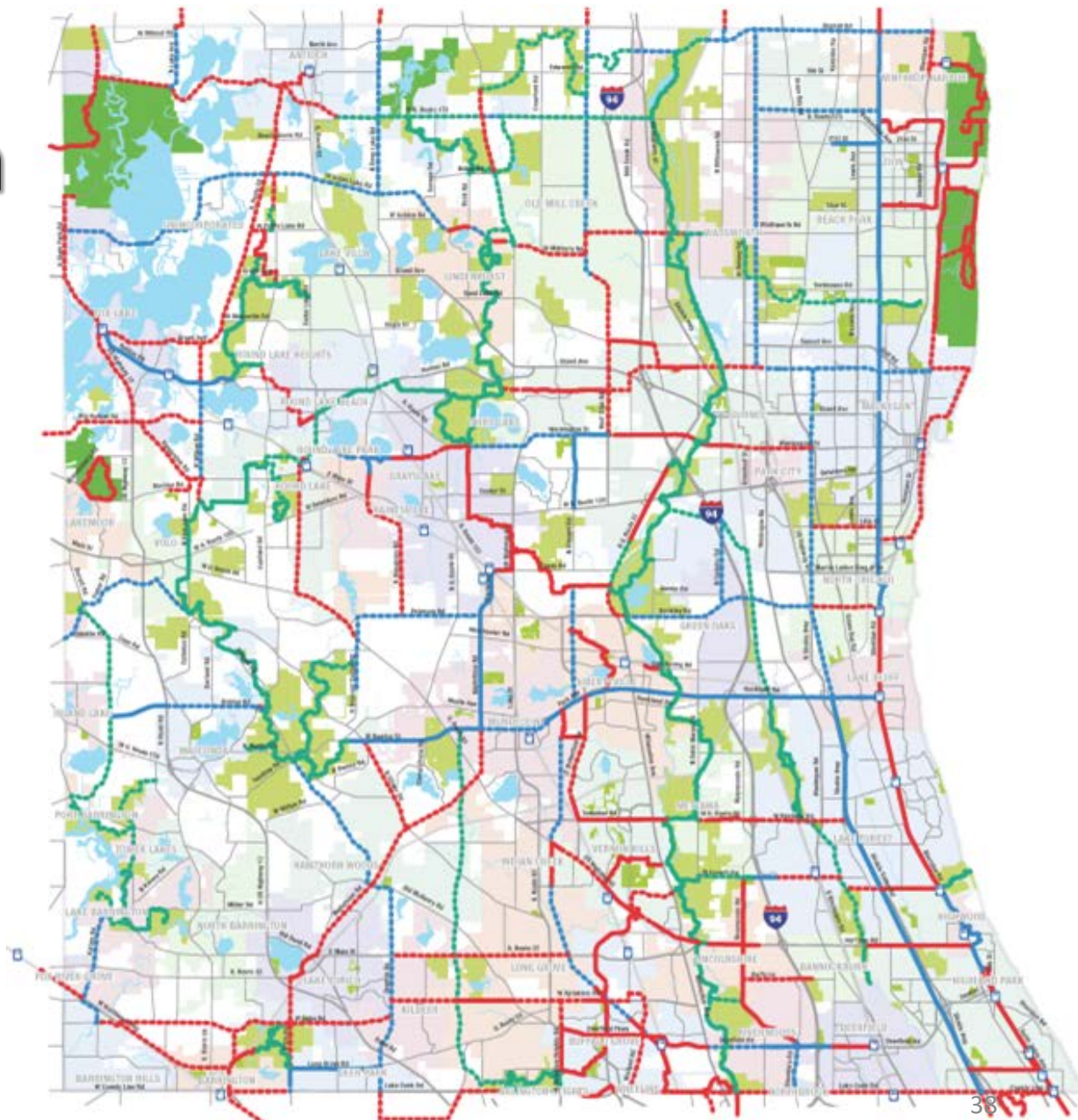
- existing
- - - planned

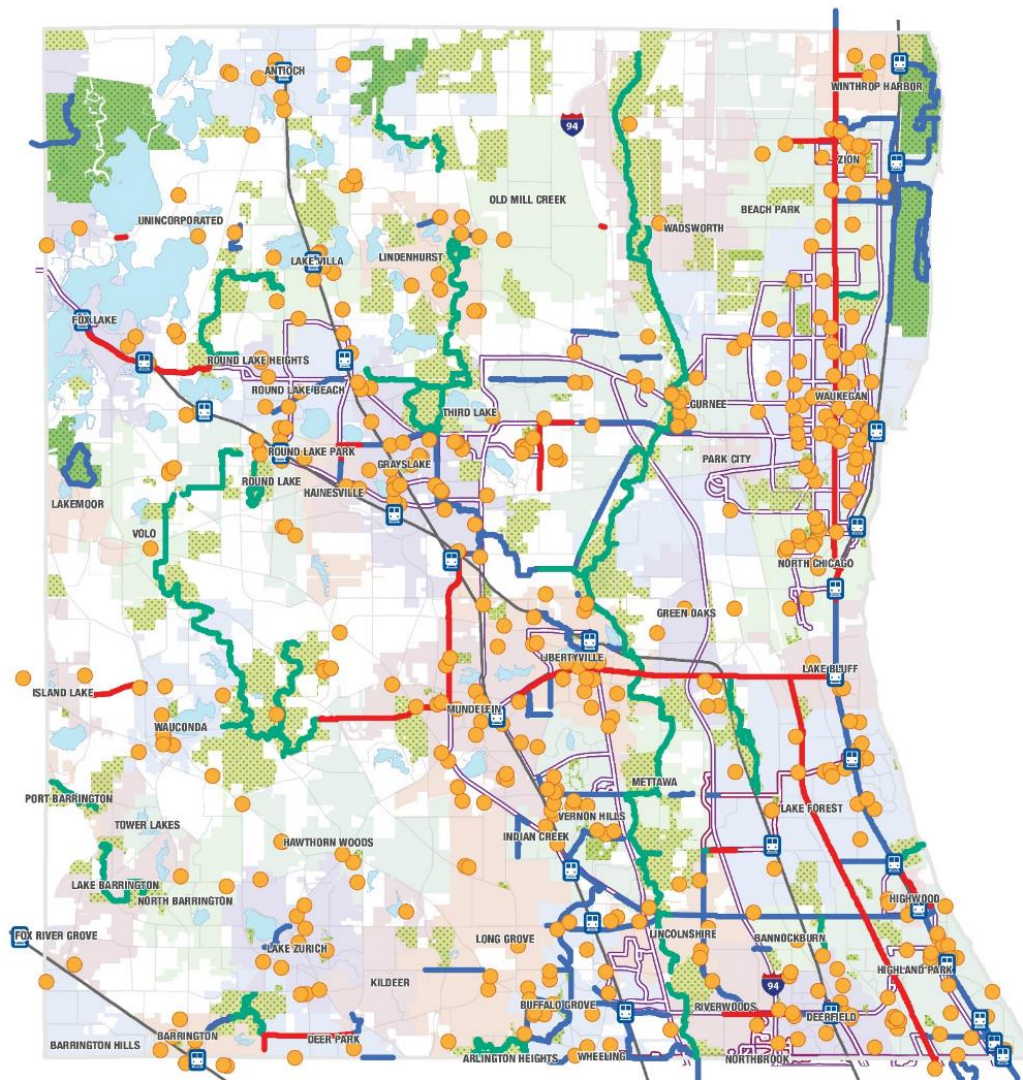
LCFPD

- existing
- - - planned

Other jurisdiction

- existing
- - - planned





GAP ANALYSIS

LEGEND

GAP ANALYSIS

- School Site
- Metra Stations
- Metra Lines

EXISTING BIKEWAYS

- Lake County DOT
- Lake County Forest Preserve
- Other Jurisdiction

EXISTING ATTRACTIONS

- State Park
- Lake County Forest Preserve
- Other Parks

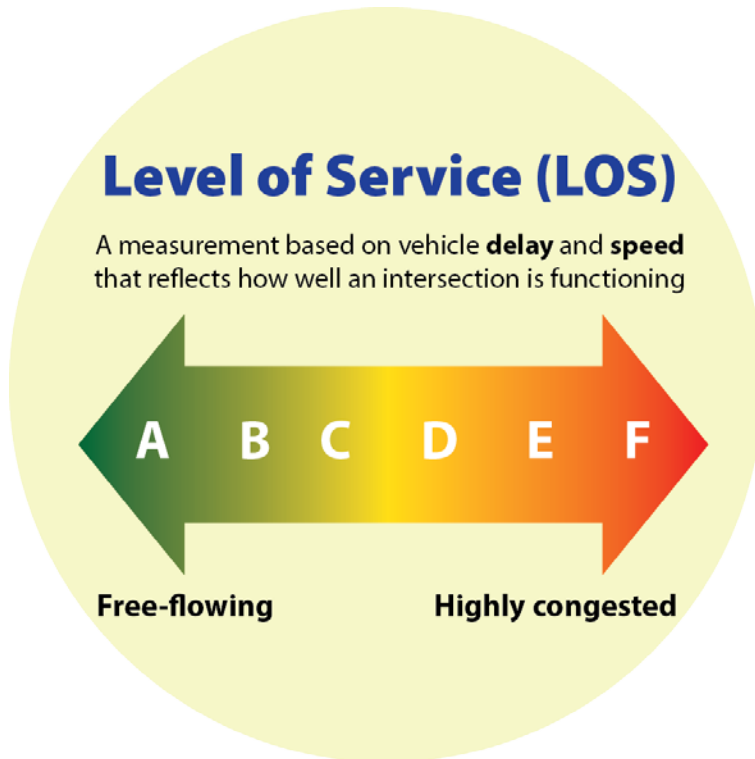
EXISTING TRANSIT FEATURES

- Existing Metra Stations
- Metra Lines
- Pace Fixed Routes
- Pace Shuttle Bus Routes



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)

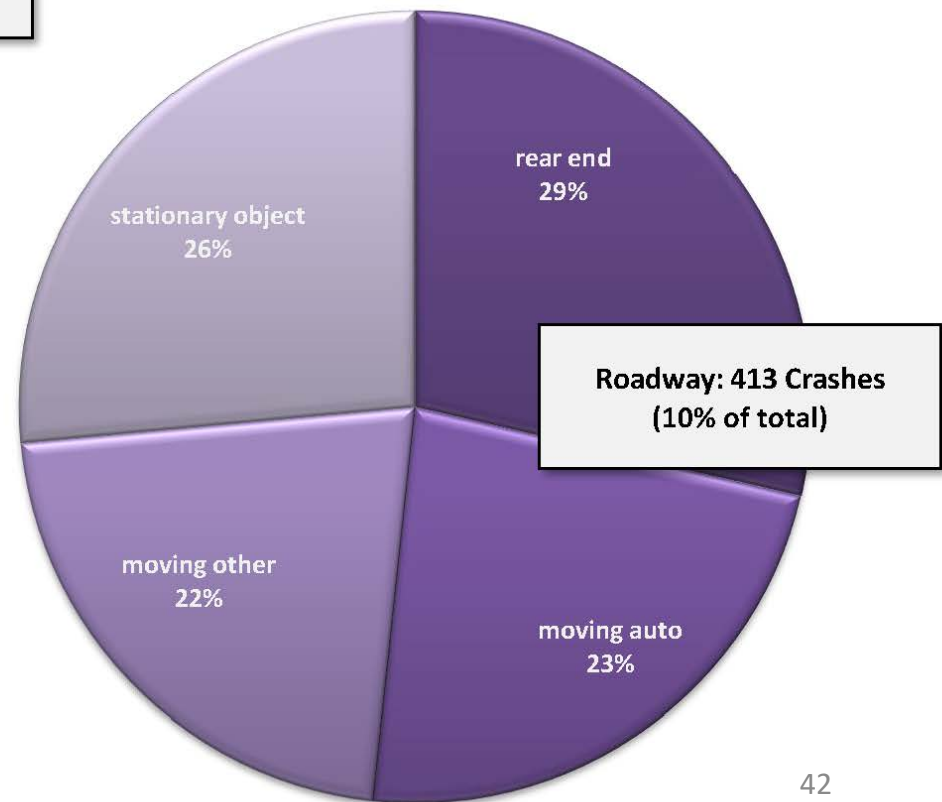
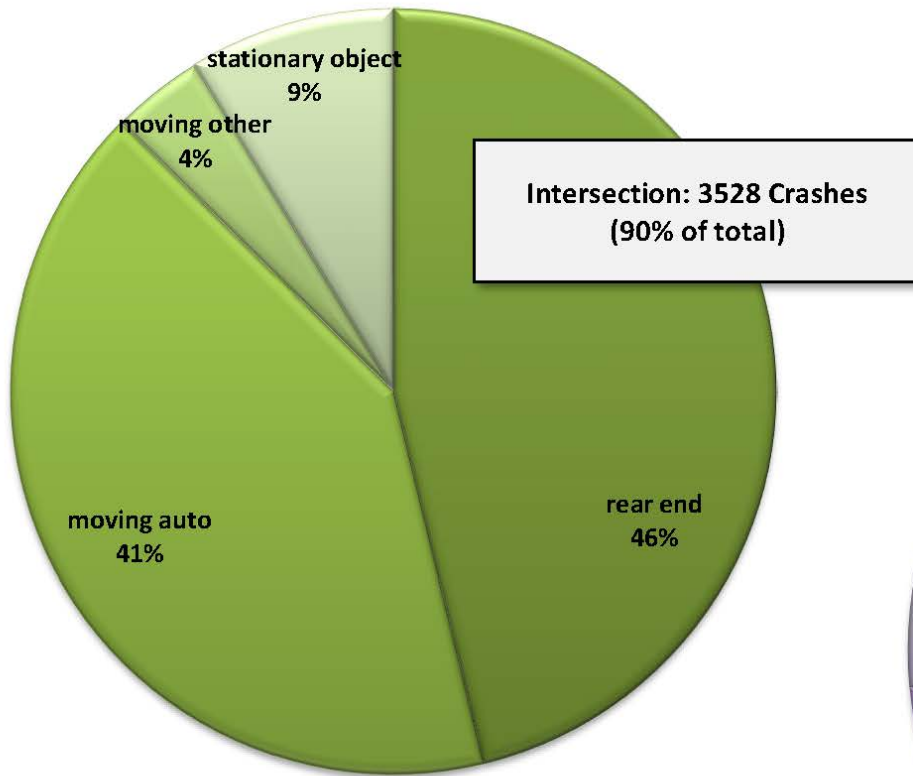
	Level of Service	AM Peak Hour	PM Peak Hour
(best)	A	90	53
	B	66	68
	C	90	85
	D	30	55
	E	10	20
(worst)	F	15	20

Source: LCDOT Traffic Department 2/2018

Historical Perspective: Crash Data

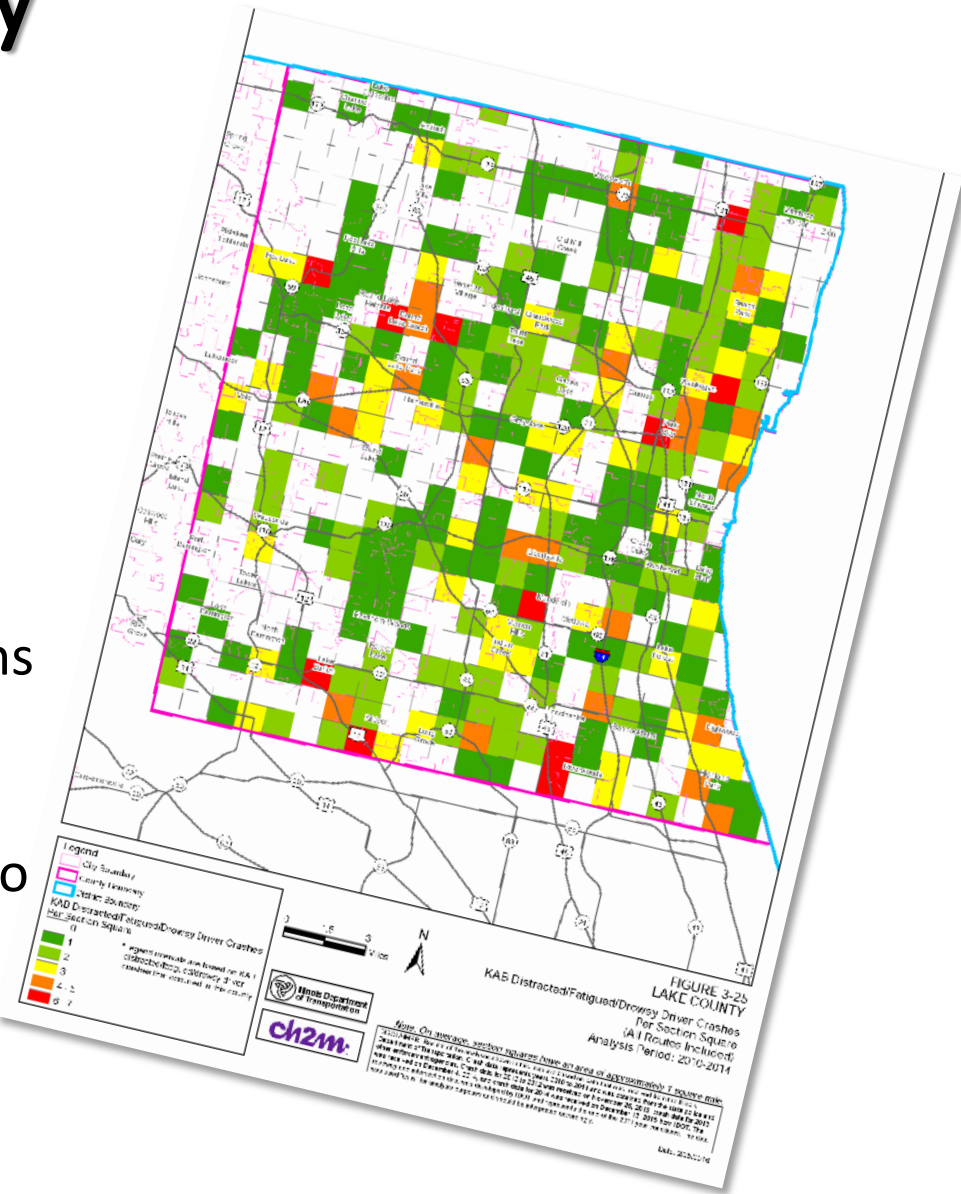
5 year averages	2006-2010	2007-2011	2008-2012	2009-2013	2010-2014	2011-2015
Number of crashes	4236	3994	3704	3485	3530	3673
Fatality	8	8	8	7	8	8
Crash with injury	942	931	952	974	978	1004
Property damage only	3286	3147	2744	2504	2544	2662

Crash Summary *(2015 TDMS Report)*

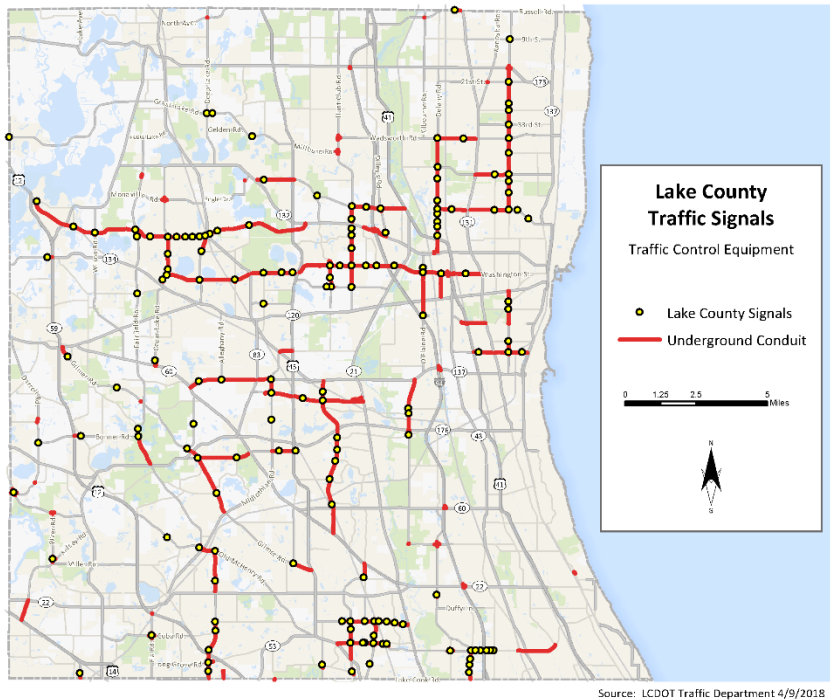


Strategic Highway Safety Plan

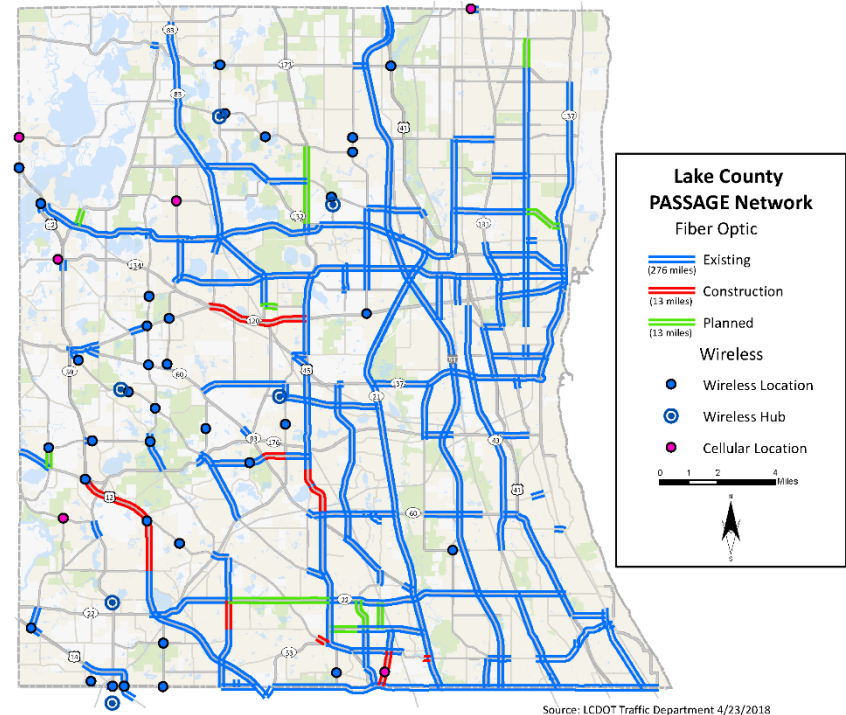
- Statewide effort to achieve **zero fatalities** on Illinois roadways
- **Data-driven plan** to reduce severe crashes by:
 - Documenting at-risk locations
 - Identifying effective safety improvement strategies
 - Better positioning counties to compete for available safety funds
 - Effectively partnering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



Lake County's Traffic Signal and Fiber Network



602 County-involved signals

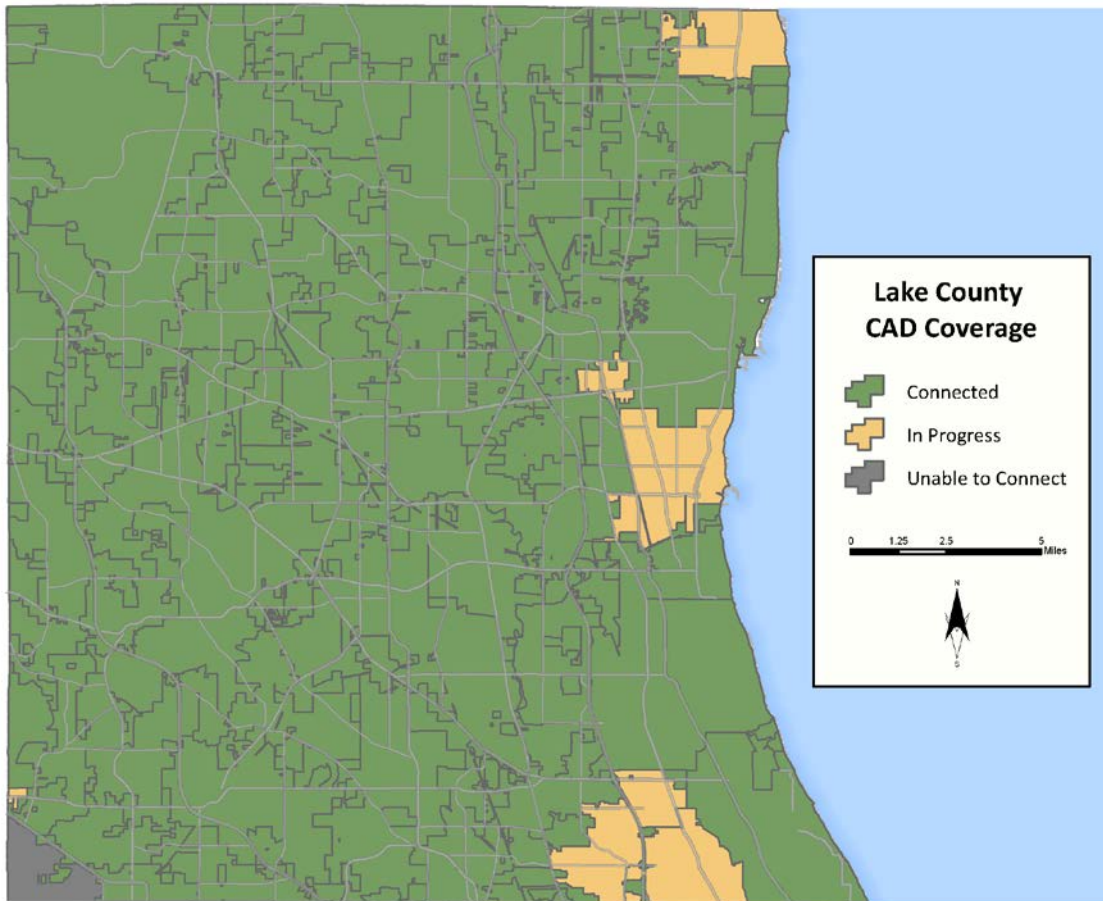


275 miles of fiber optic in place

4 miles under construction

19 miles planned

Expanding Computer Aided Dispatch (CAD) Coverage



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

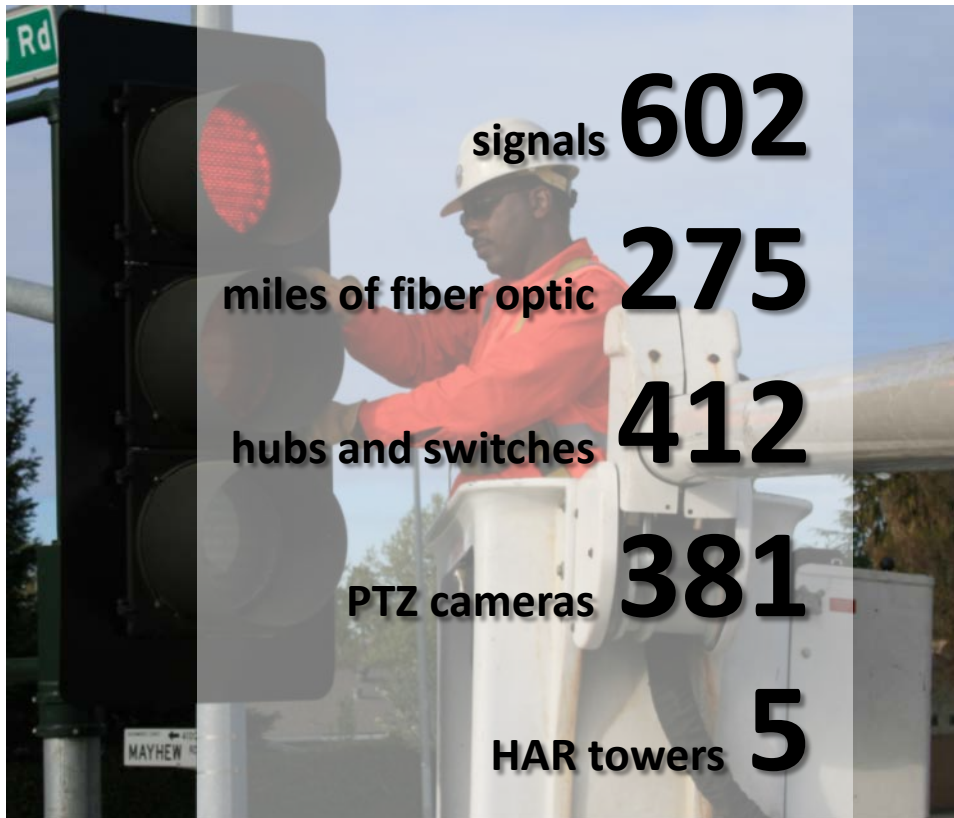
Adding **2** dispatch centers

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



Modernization saves time, fuel, money and the environment

Corridors Studied: 4

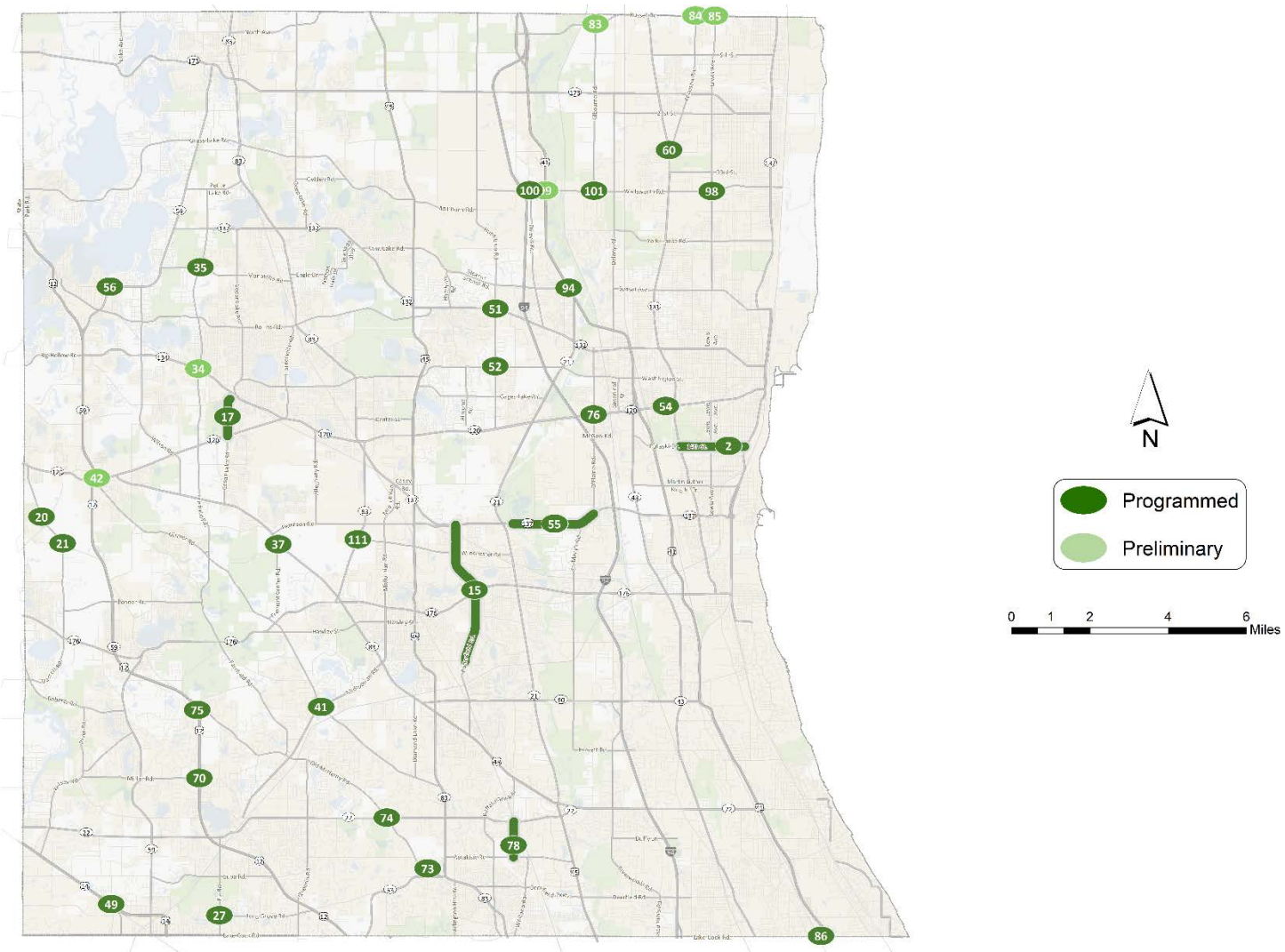
Delays Reduced: 478 hours per day

Fuel Saved: 318 gallons per day

Annual Benefit: \$3,141,414

CO₂ Emissions Avoided: 566 metric tons per year

Modernization | 2018-2023 Program



Modernization Projects

Modernization Projects (cont'd)

78	Prairie Rd.	Intersection Improvement	2023	B-01500
83	Russell Rd	Intersection Improvement	2024	B-01445
84	Russell Rd	Intersection Improvement	2024	B-01445b
85	Russell Rd.	Intersection Improvement	2024	B-01445c
86	Skokie Valley Bikepath	Bike Path Bridge	2019	B-01150
94	Stearns School Rd.	Intersection Improvement	2021	B-01361
98	Wadsworth Rd.	Intersection Improvement	2021	B-01119
99	Wadsworth Rd.	Intersection Improvement	2024	B-00737a
100	Wadsworth Rd.	Intersection Improvement	2019	B-00737b
101	Wadsworth Rd.	Intersection Improvement	2021	B-00737c
111	Winchester Rd.	Intersection Improvement	2020	B-01365

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

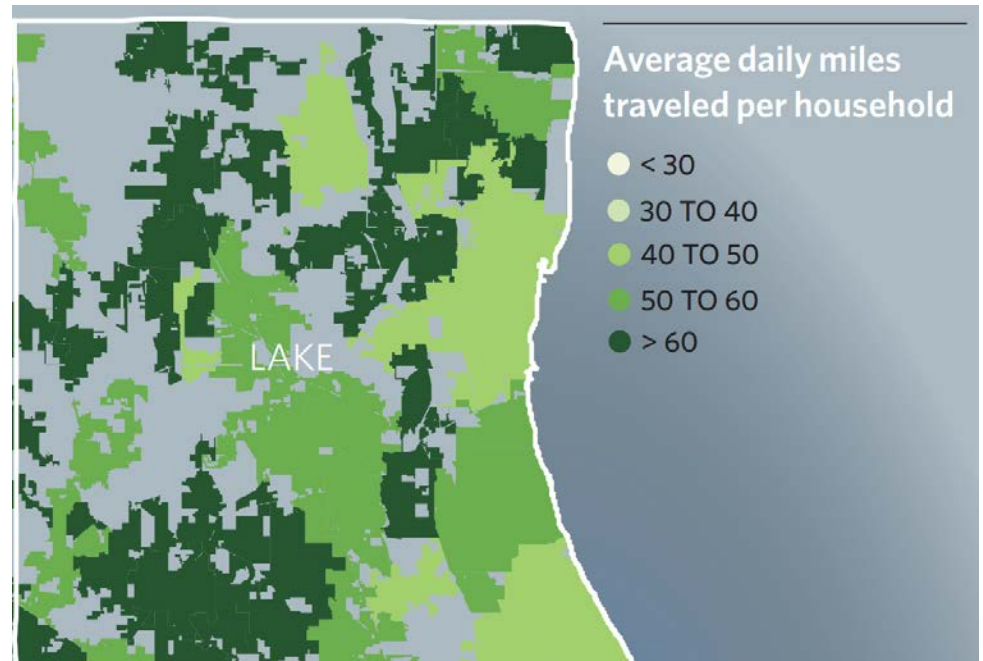
Are County-owned roads keeping up with growth?



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

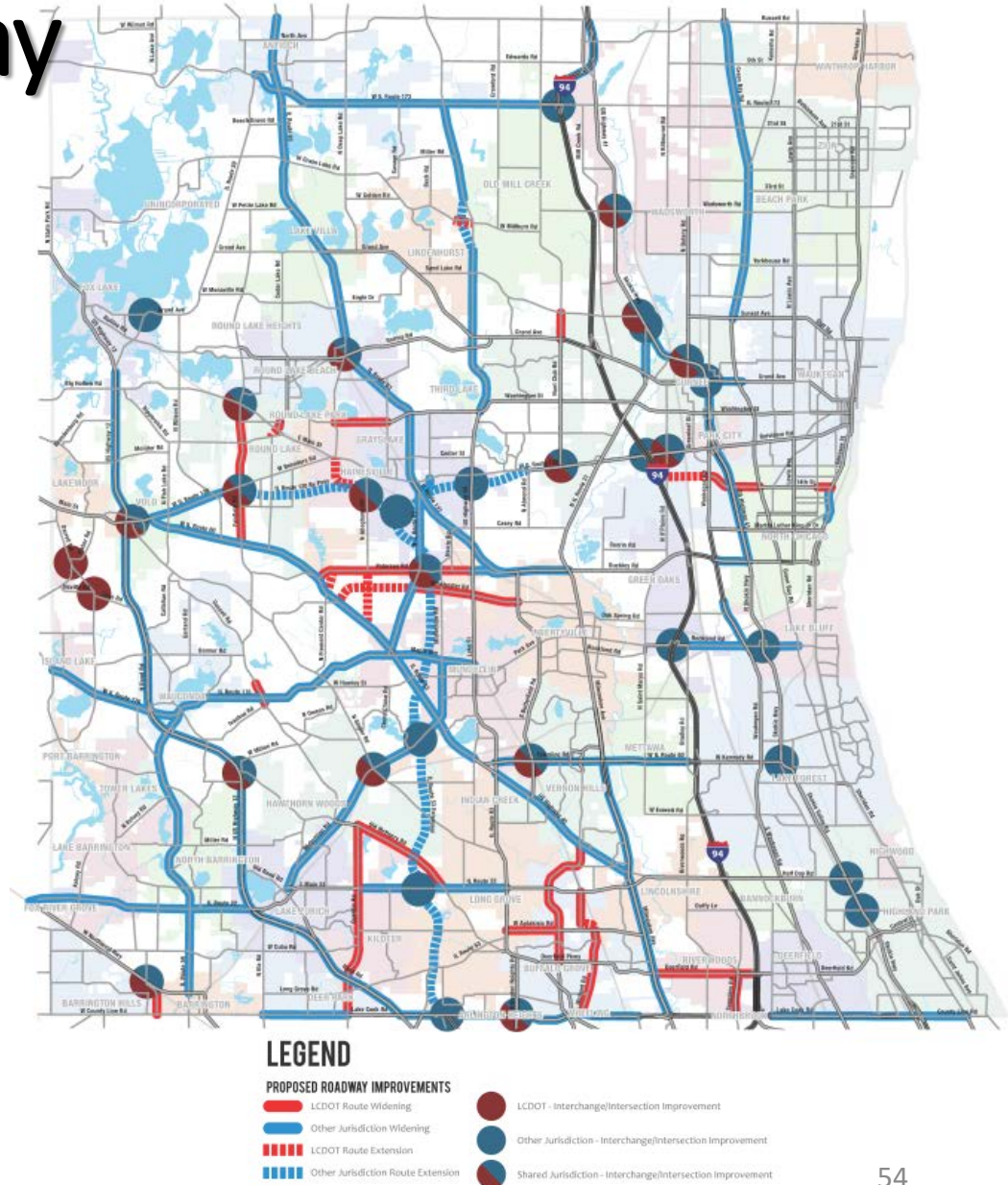
- **23,215** average annual vehicle miles traveled for Lake County households
- **16,723** average annual vehicle miles traveled for CMAP region collar counties households
- **36% more peak period trips** forecasted by 2040 in Lake County



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

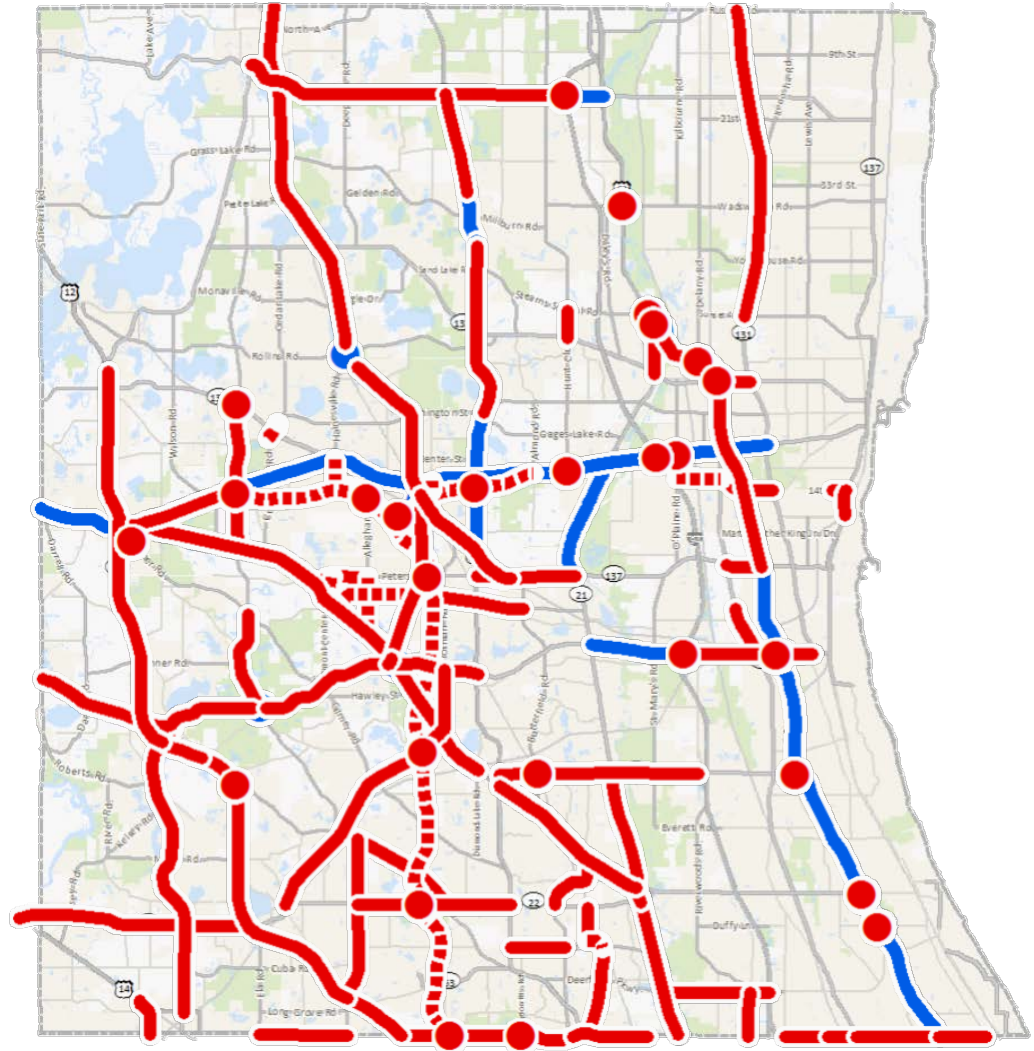
2040 Roadway Priorities

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



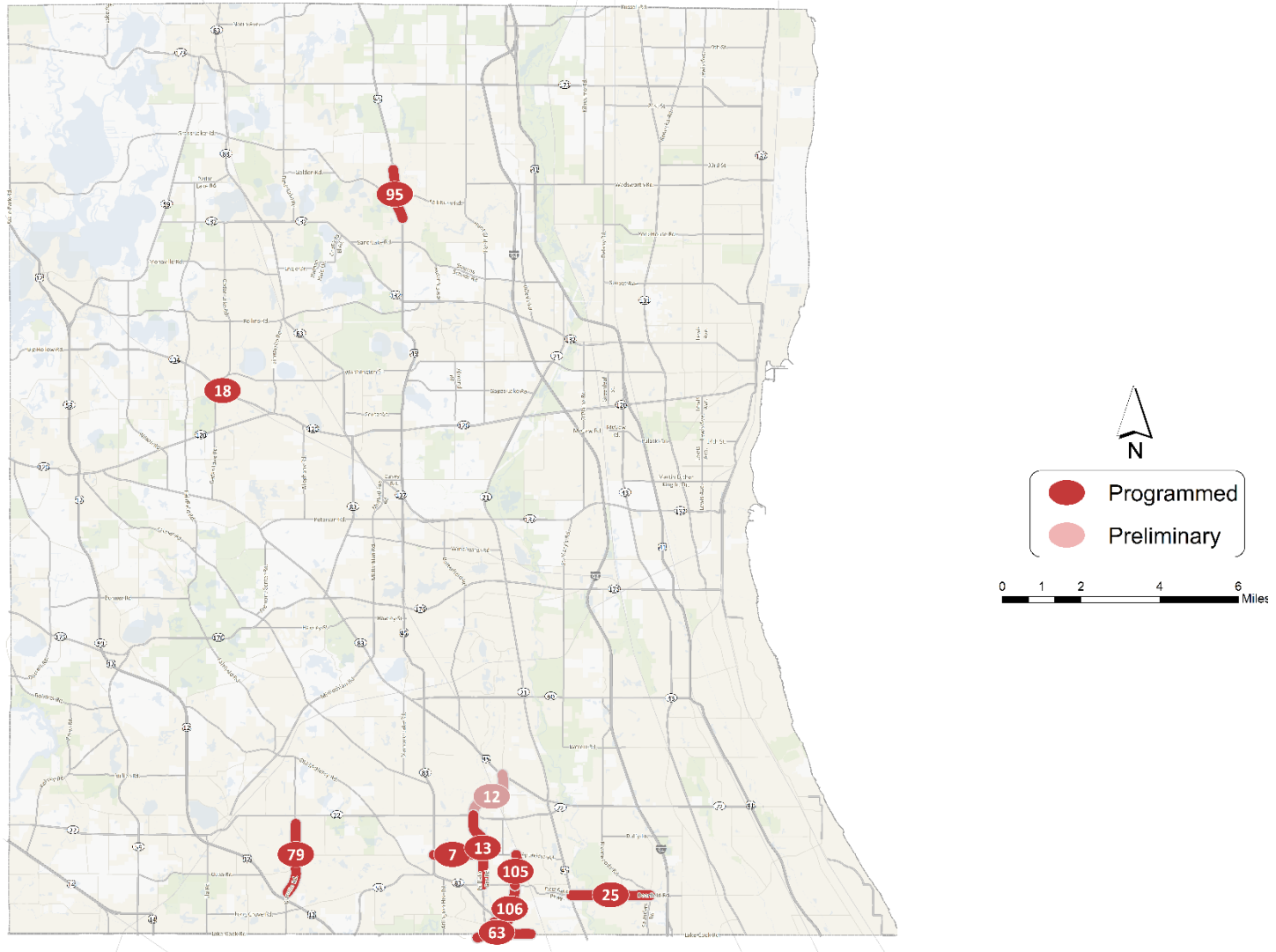
2040 Roadway Improvements

- 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)



Expansion |

2018-2023 Program



Expansion Projects

Thank You!

Connect with us!



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- facebook.com/lcdot
- twitter.com/lcdot
- Instagram.com/lakecountyydot
- lakecountypassage.com