Proposed 2021-2026 Transportation Improvement Program

Part 1:
Annual Department Update and Program Overview

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

Public Works, Planning and Transportation Committee

April 28, 2021

Presentation Schedule

- **April 28, 2021   Part 1A: Annual Department Update**

      Part 1B: Program Overview and Priorities

- June 30, 2021   Part 2: Funding and Projects

Strategic Plan, 2019
Lake County Board

**LakeCounty** Division of Transportation

GOAL: IMPROVE INFRASTRUCTURE

"Develop a modern, multi-modal and comprehensive transportation plan that reduces trip times, air pollution and carbon emissions, protects our valuable open space, and positions Lake County to be competitive in a 21st-century economy."

OUR STRATEGIC PARTNERS

Illinois Department of Transportation

Illinois Tollway

Chicago Metropolitan Agency for Planning

Metra

LCTA Lake County Transportation Alliance

pace

Lake County Partners
Location. Collaboration. Opportunity.

Regional Transportation Authority

Transportation Investment Objectives

- **Improve Public Safety**

- **Improve Quality of Life**

- **Enhance Economic Prosperity and Job Creation**

- **Reduce Congestion**

- **Add Environmental Value**

- **Expand Multi-modal Network**
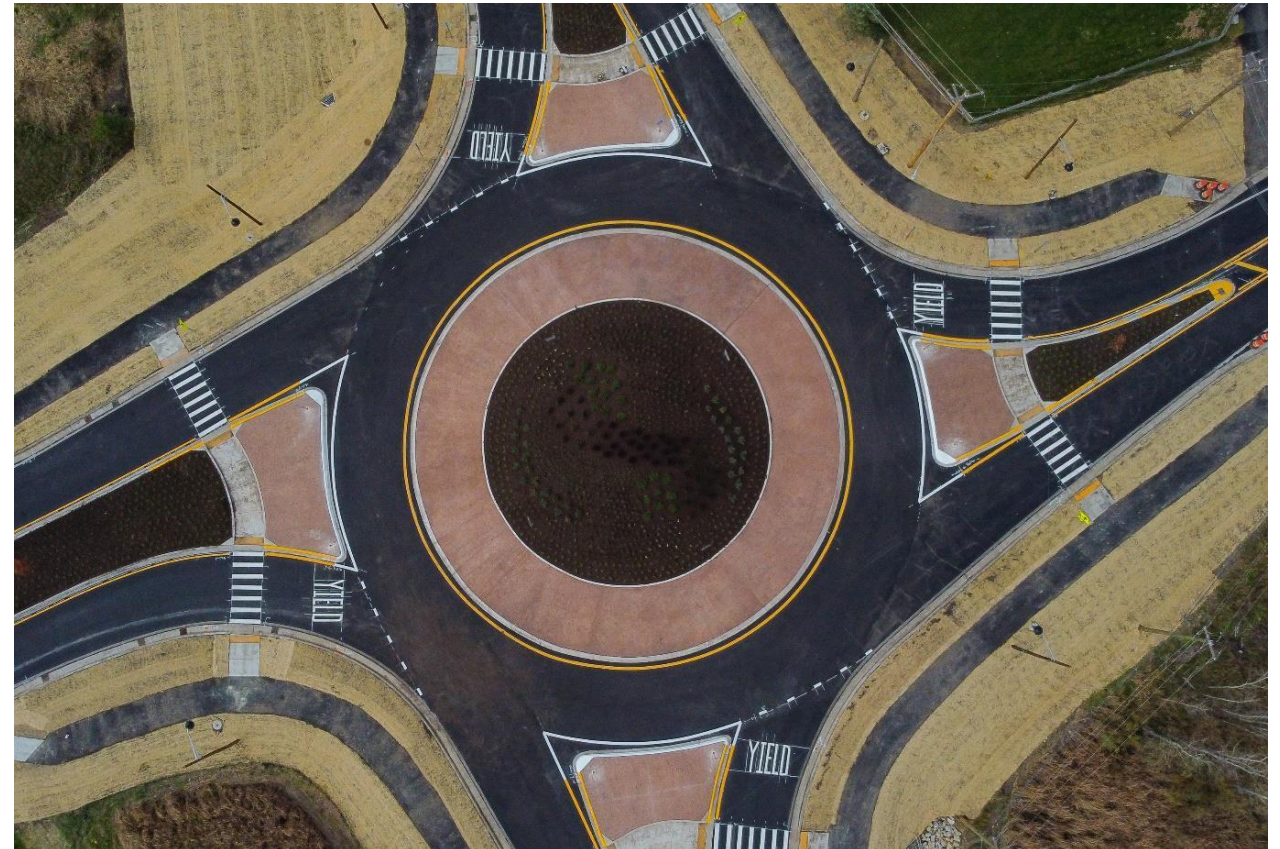
Part 1A:

Annual Department Update

- Department overview
- Accomplishments
- Goals
- 2021 construction program

Department Overview

Lake County
Division of Transportation

Staffing

- **127 Full-time**
  - 68 non-union (7 open)
  - 59 union (Local 150)

- **21 Part-time (seasonal)**
  - 10 winter maintenance workers
  - 11 summer interns (6 in 2021)

- **2 Cristo Rey students** (0 in 2021)

- **Workforce development candidates** (varies)

Budget

- Operations: $21.5M (FY2021)
- 2021 Construction Program: $109M
- 2020-2025 5-YR TIP: $670M

Department Purpose

LakeCounty
Division of Transportation

- Operate, engineer, plan, construct and maintain 915 lane miles of county highway, 74 bridges and tunnels, and 65 miles of bikeways in accordance with the Illinois Highway Code

- Operate and maintain Lake County PASSAGE with 638 interconnected traffic signals

- Coordinate local federal transportation aid for LCDOT and Lake County agencies through CMAP and the Lake County Council of Mayors

- Review and issue permits for overweight/overwide trucks, utility placement, and development access along county highways

- Coordinate township road districts for township highway commissioners per the Illinois Highway Code

- Maintain the county's vehicle fleet for all user departments

Department Functional Subdivisions

Administration | Construction | Design | Maintenance | Planning | Traffic

Mission | Vision | Values

LakeCounty
Division of Transportation

Lake County Division of Transportation (Mission)

WEST LAKE A20 COUNTY ROLLINS ROAD

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.

LakeCounty
Division of Transportation

Lake County Division of Transportation Mission Statement 2016

Statement of Vision

The Lake County Division of Transportation sets the standard of excellence for transportation performance, innovation, and team culture.

Lake County Division of Transportation Statement of Vision 2016

Core Values

At the Lake County **Division of Transportation** *we are...*

TEAM oriented · dedicated to SAFETY & enthusiastic positive

people of INTEGRITY · ACCOUNTABLE and transparent

in service to the COMMUNITY · environmentally RESPONSIBLE

committed to QUALITY & excellence

RESPECTFUL of all persons and perspectives

innovative, efficient and solution-focused · open-minded & ATTENTIVE

Lake County Division of Transportation Core Values 2016

# Accomplishments - Previous 12 Months

- **New Engagement Tools**
  - **Online Interactive Construction Map**
  - **Virtual Public Meeting Space**
- **Wayfinding Study: Implemented North Shore Bike Path Test Segment**
- **Single Occupied Vehicle (SOV) Reduction Study (Ongoing)**
- **Paratransit Countywide Borderless Service (Ongoing)**

Accomplishments –
# Delivered 2020 Construction Program

- 68 active projects, 268 lane miles under construction

- Second-highest contractor payouts in LCDOT history ($59.9M)
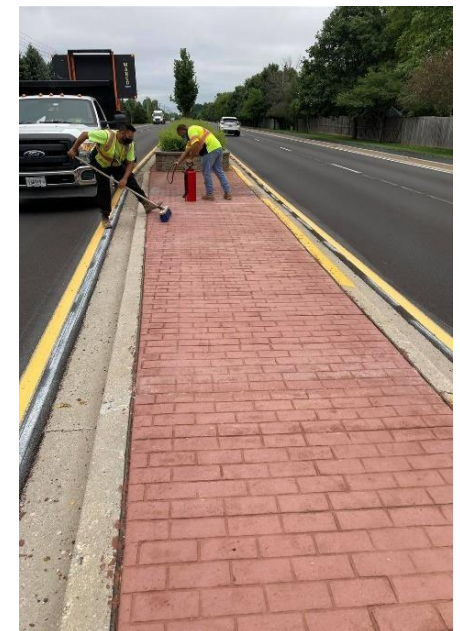
Goals – Next 12 Months

- **Develop 2021-2026 Transportation Improvement Program (TIP)**
  - **Incorporate new county option motor fuel tax revenue**
- **Pursue New Federal Funding Opportunities**
- **Paratransit Borderless Countywide Service**
- **Wayfinding Signage Systemwide Implementation**
- **Develop "Rumble Strip" Safety Policy**
- **Update County Highways and Bikeways Map**
- **Update TIP Programming Management Software**
- **Implement 2021 Construction Program**

2021 Construction Program

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Division of Transportation
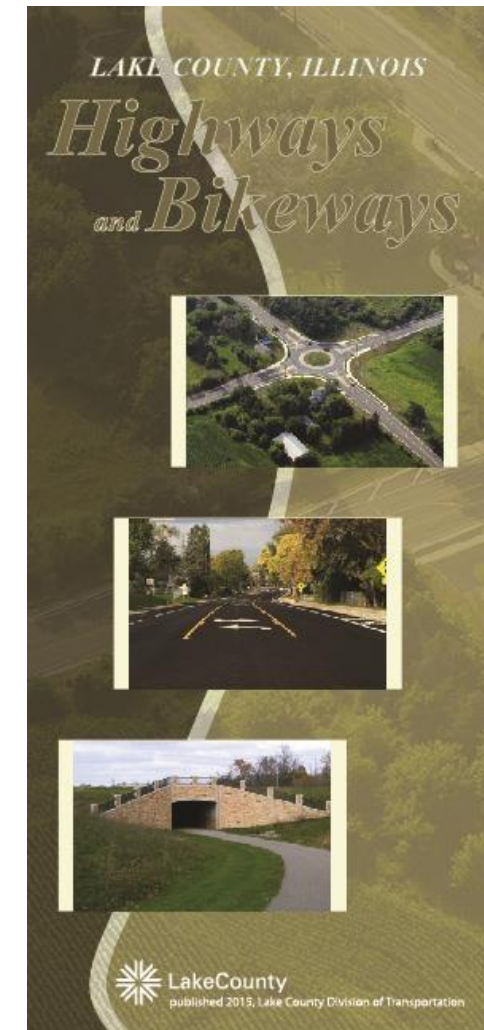
- ## $109 million in project work:
  - ### Continued from 2020
  - ### Preservation
  - ### Modernization
  - ### Expansion

Work Category

- Preservation (blue)
- Modernization (green)
- Expansion (red)
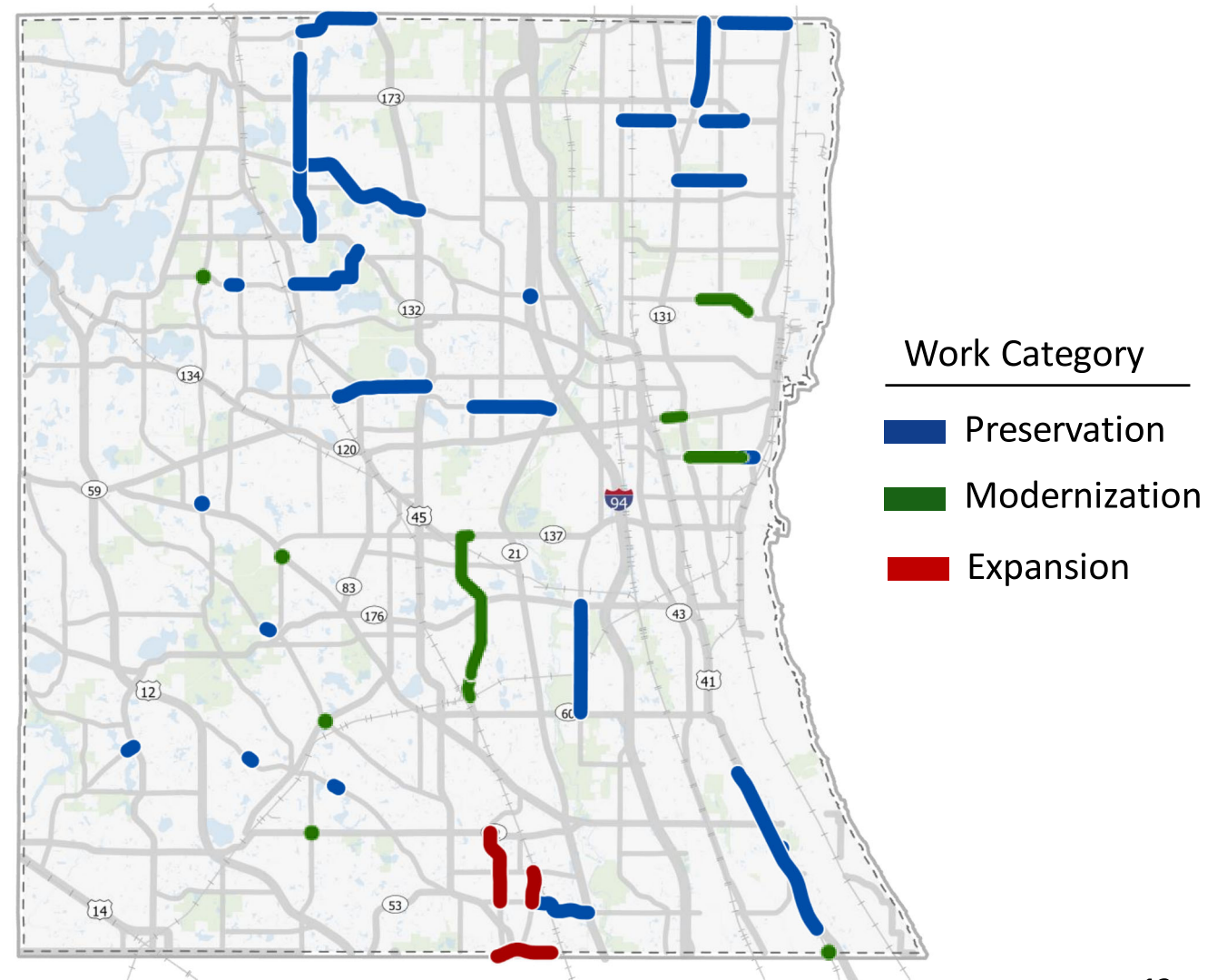
$56M continued from 2020

- **Reconstruct and widen:**
  - **Weiland Rd, Lake Cook Rd to Aptakisic Rd**
  - **Buffalo Grove Rd, IL22 to Deerfield Pkwy**
  - **Lake Cook Rd at Weiland Rd/Buffalo Grove Rd***
- **Roundabout intersection/reconstruct to 3 lanes:**
  - **14th St, IL131 to Jackson St**
- **ITS *PASSAGE* signal interconnect**
  - **Sunset Ave, McAree Rd to Sheridan Rd**
- **Resurfacing/Pedestrian Improvements**
  - **Millburn Rd/Grass Lake Rd, Deep Lake Rd to Hunt Club Rd**

LCDOT is not lead agency

$53M in new projects

- **Resurfacing Projects**
  - **Washington St**
  - **14th St**
  - **33rd St**
  - **Kenosha Rd**
  - **Russell Rd**
  - **St. Mary's Rd**
  - **Deep Lake Rd (2 projects)**
  - **Engle Dr**
  - **21st St**

$53M in new projects (cont'd)

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- **Deerfield Pkwy, Weiland Rd to IL21/US45: concrete pavement patching**
- **Stearns School Rd, at I-94: bridge replacement***
- **Stearns School Rd, at Mill Creek: emergency bridge replacement**
- **Culvert replacements:**
  - **Gilmer Rd/Old McHenry Rd/Monaville Rd**
  - **North Ave/Gages Lake Rd**
  - **Kelsey Rd/Old McHenry Rd**
  - **Skokie Valley Bike Path**
- **Fairfield Rd, north of IL60: retaining wall replacement**

LCDOT is not lead agency

$53M in new projects (cont'd)

- **Butterfield Rd, Allanson to IL137: adaptive signal control system**
- **Butterfield Rd Bike Path: new path north of EJ&E RR to Gregg's Pkwy**
- **Intersection Improvements:**
  - **Gilmer Rd at Midlothian Rd**
  - **Fremont Center Rd at IL60**
  - **Fairfield Rd at Monaville Rd**
- **IL120, Knight Ave to IL131: widen to 5 lanes**
- **Skokie Valley Bike Path*: new bridge over Lake Cook Rd**
- **Quentin Rd at IL22: pedestrian accommodations**

**LCDOT is not lead agency*

Engagement Tools

- **Connecting residents, system users, and partners**
  - **LCDOT website**
  - ***PASSAGE* website**
  - **Interactive construction map (New!) at lakecountyil.gov/ConstructionProgram**
  - **Email updates**
  - **Social Media**
    - **Facebook**
    - **Twitter**
  - **Public Meetings**
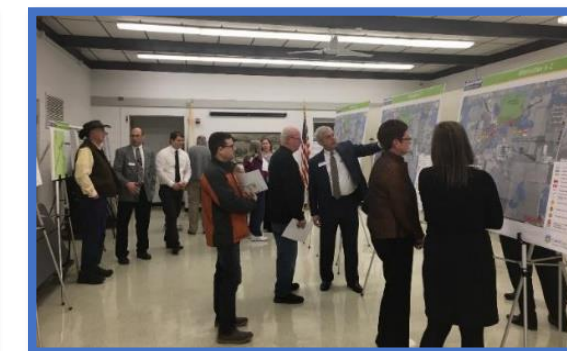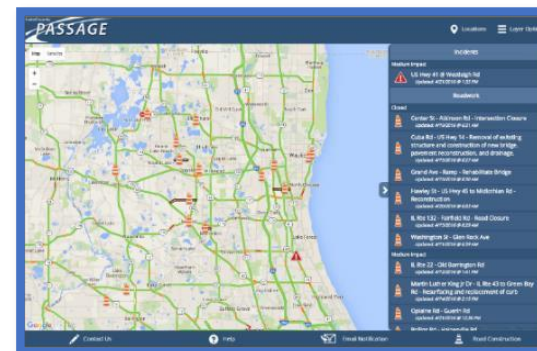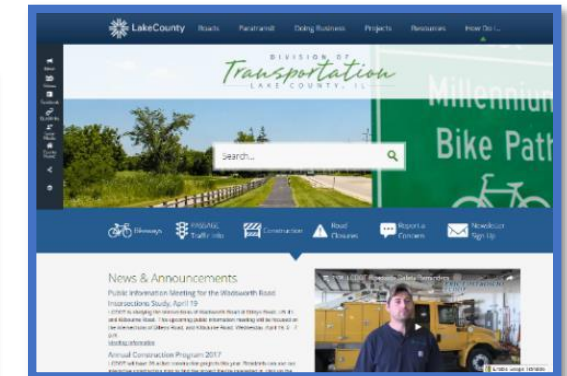
Want More LCDOT Information?

- **Please Review: Transportation Briefing Book (Updated 2021)**
- **Available in electronic (PDF) and hard copy format**

Reconstructed Hutchins Road Bridge (2020)
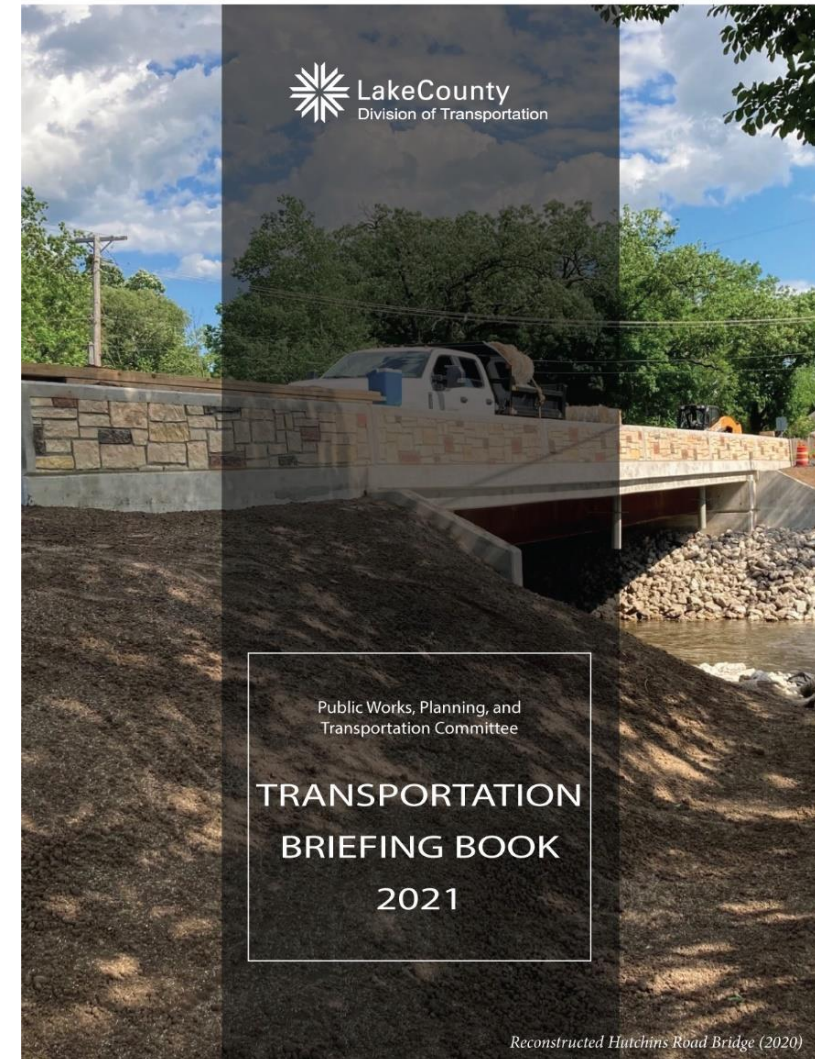
Part 1B:

2021-2026 Transportation Improvement Program

Program Overview and Priorities

- **Project categories**
- **Project selection tools**
- **List of assets to maintain**
- **Resource documents**

LCDOT's System Management Priorities

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Division of Transportation

1. Preservation

- Keep roads, bridges, drainage systems, and other assets in good condition

2. Modernization

- Reduce delays and increase safety
- Non-motorized accommodation
- Smart roads

3. Expansion

- Accommodate regional traffic and economic development
- Countywide Paratransit

Priority One: Preservation

LakeCounty
Division of Transportation

- **Tools in the toolbox:**
  - **ARGUS pavement management software**
  - **Asset inventories**
  - **Unit cost information**
  - **Industry standards**
  - **Innovative techniques**

Preservation projects: approximately

24%

of program

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

ARGUS Pavement Management System

- **For data-driven, cost-effective decisions:**
  - **Where repairs are needed**
  - **What repair strategies to use**
  - **When repairs will be most effective**

Laser surface testing

- **Using these program components:**
  - **County highway database**
  - **Automated pavement testing**
  - **Repair strategies with costs**
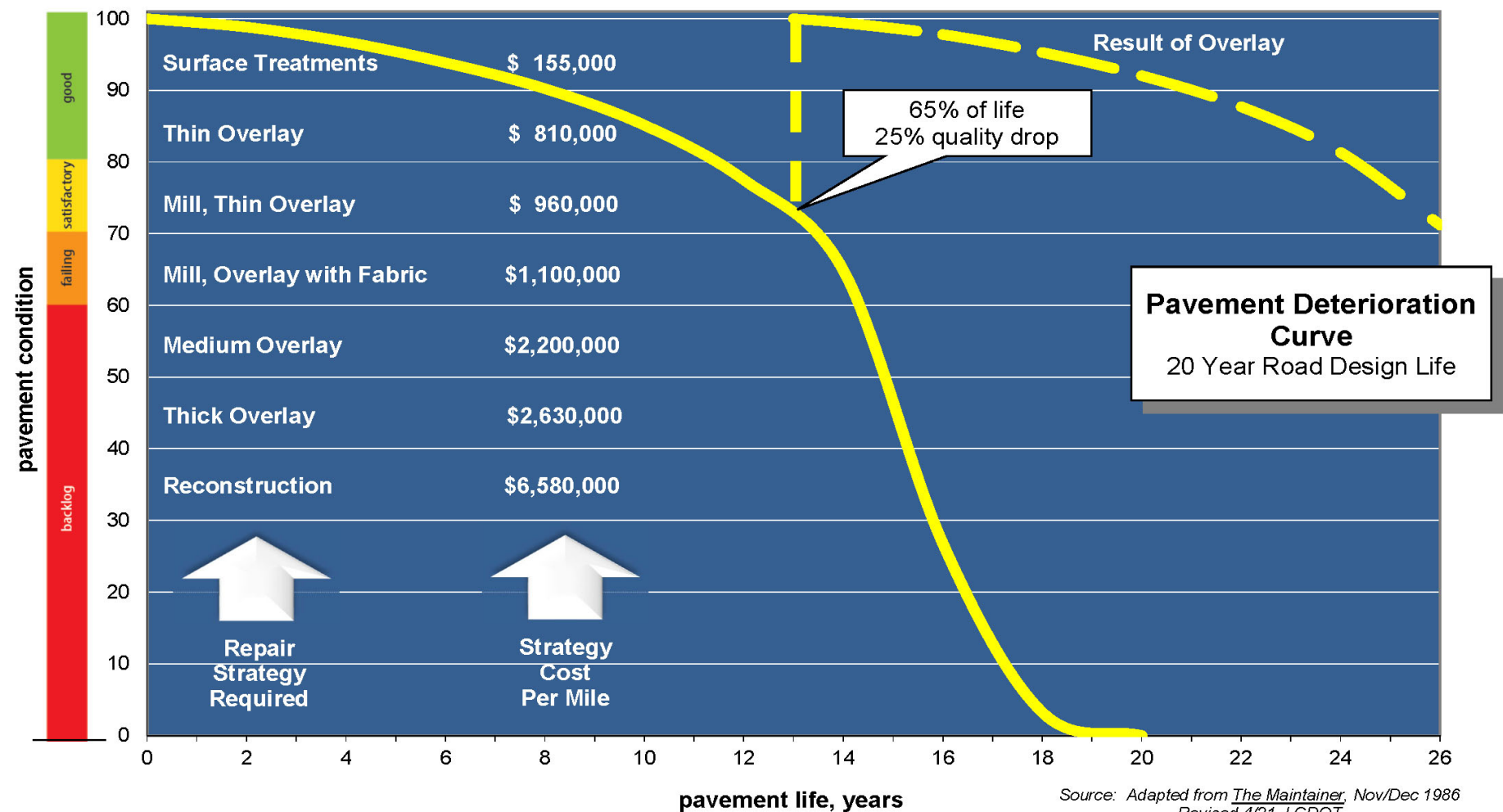 - **Pavement aging predictions**
  - **Optimization program**

Dynaflect

The right time for repairs

Pavement Deterioration Curve — 20 Year Road Design Life

Repair Strategy Required	Strategy Cost Per Mile
Surface Treatments	$ 155,000
Thin Overlay	$ 810,000
Mill, Thin Overlay	$ 960,000
Mill, Overlay with Fabric	$1,100,000
Medium Overlay	$2,200,000
Thick Overlay	$2,630,000
Reconstruction	$6,580,000

65% of life
25% quality drop

Result of Overlay

pavement condition: good, satisfactory, failing, backlog

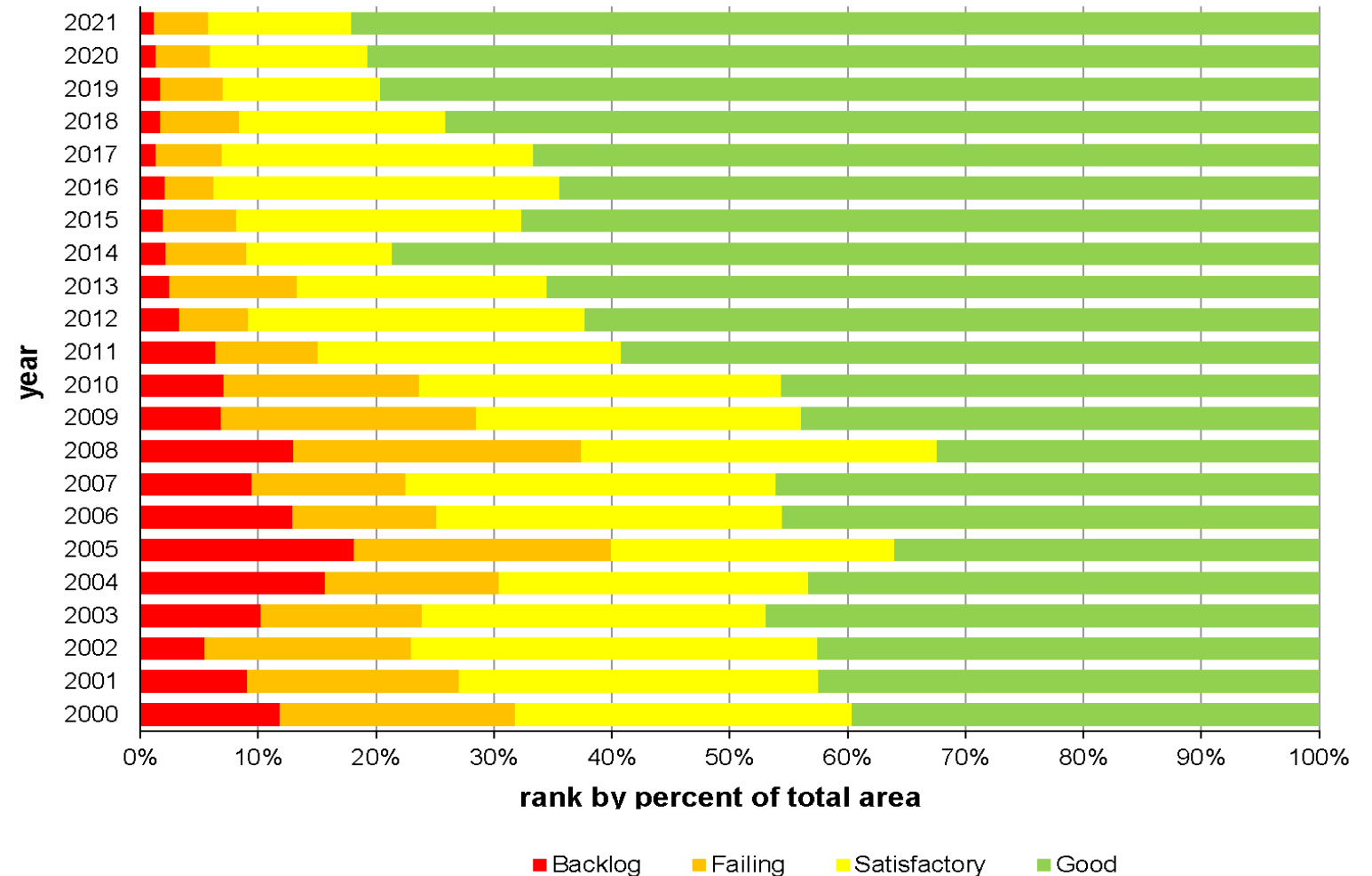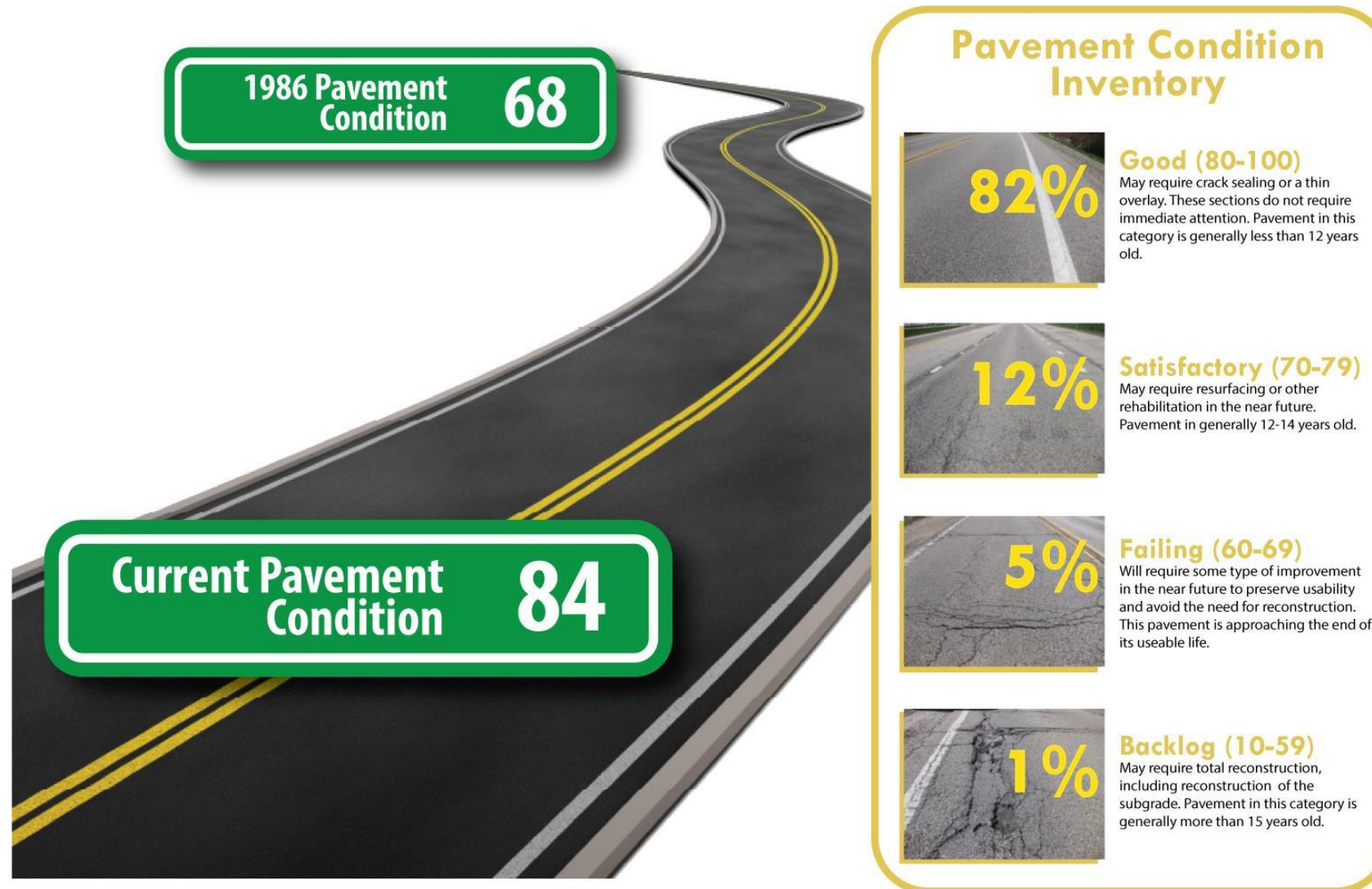pavement life, years

ARGUS results

- **Implemented in <u>1986</u>**

- **Area of failing pavement reduced from 55% to 1%**

- **For more information, watch LCDOT's 'Pavement Management Techniques' video at: Lakecountyil.new.swagit. com/videos/16338**
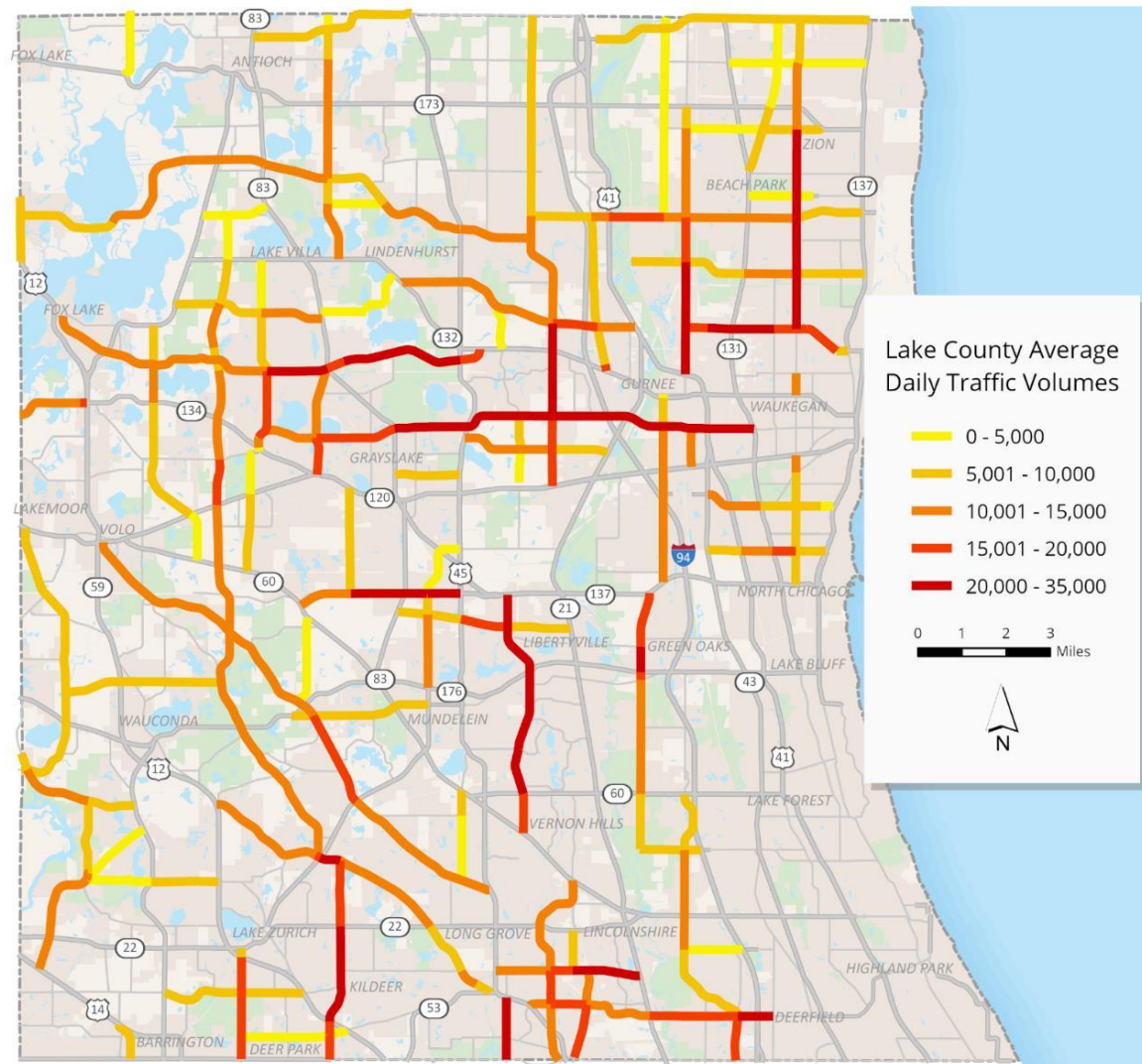
Current Pavement Condition

LakeCounty
Division of Transportation

1986 Pavement Condition **68**

Current Pavement Condition **84**

Pavement Condition Inventory

82% **Good (80-100)**
May require crack sealing or a thin overlay. These sections do not require immediate attention. Pavement in this category is generally less than 12 years old.

12% **Satisfactory (70-79)**
May require resurfacing or other rehabilitation in the near future. Pavement in generally 12-14 years old.

5% **Failing (60-69)**
Will require some type of improvement in the near future to preserve usability and avoid the need for reconstruction. This pavement is approaching the end of its useable life.

1% **Backlog (10-59)**
May require total reconstruction, including reconstruction of the subgrade. Pavement in this category is generally more than 15 years old.

Traffic Volumes

- **Traffic volumes and truck traffic are key life cycle measurements**

- **More traffic and heavier vehicles impose more stress and strain on the roadway**

Lake County Average Daily Traffic Volumes
- 0 - 5,000
- 5,001 - 10,000
- 10,001 - 15,000
- 15,001 - 20,000
- 20,000 - 35,000

Source: LCDOT Traffic Department 4/19/2019

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**

Keeping Tabs on the System

LakeCounty
Division of Transportation

Asset Inventories

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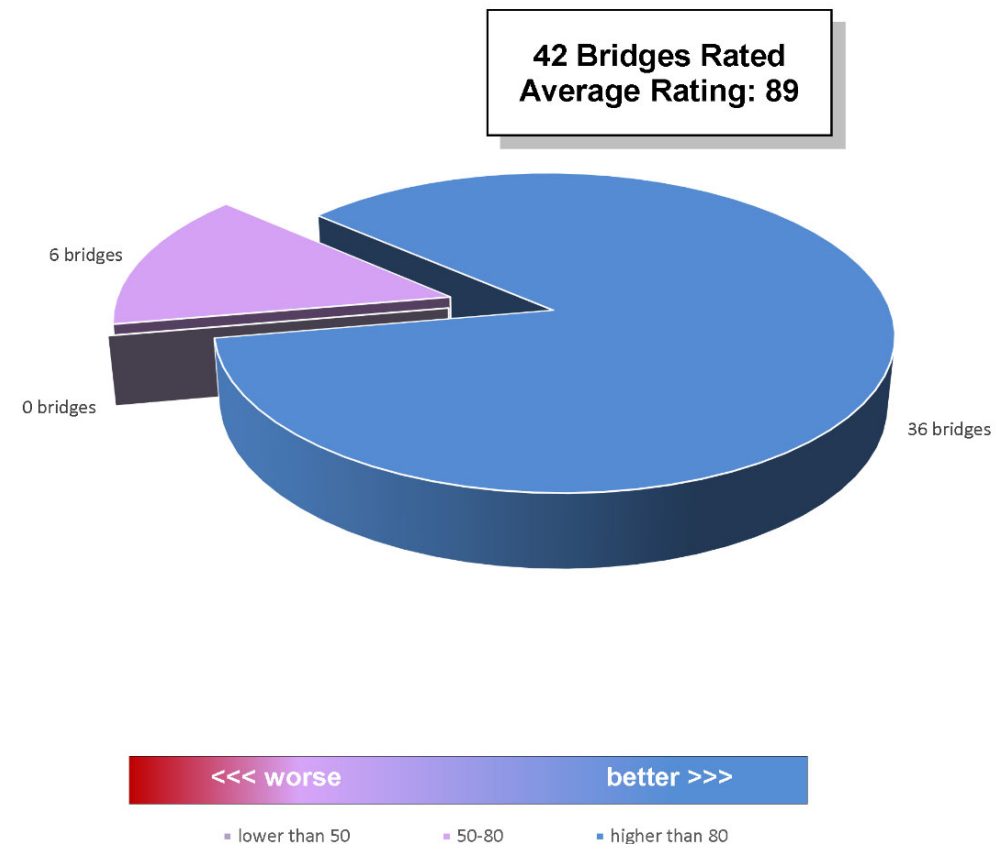- **More…**

Pavement: Our most obvious asset

- **Lane miles** — 915
- **Centerline miles** — 303
- **Miles paved shoulder** — 215
- **Average age of roadway** (years) — 50
- **Average age of surface** (years) — 11

Lake County's Bridges

LakeCounty
Division of Transportation

- **Highway Bridges**
  - **Number of bridges**   **44**
  - **Average age (years)**   **29**
  - **Average deck age (years)**   **19**

- **Bike and Pedestrian Bridges**
  - **Number of bridges**   **15**
  - **Number of tunnels**   **15**

- **74 Total Bridges and Tunnels**

**Sufficiency Ratings:
Lake County's Bridges**

42 Bridges Rated
Average Rating: 89

6 bridges

0 bridges

36 bridges

<<< worse   better >>>

▪ lower than 50   ▪ 50-80   ▪ higher than 80

Accommodating Bikes and Pedestrians

- **Bike/pedestrian bridges   15**
- **Tunnels and underpasses   15**
- **Miles of bike facilities   65**
- **Miles of bike friendly shoulder 134**

Culverts

- **A variety of culvert materials:**
  - **Concrete**
  - **Corrugated metal pipe (CMP)**
  - **Composite**
  - **PVC**
- **Culverts are routinely inspected**
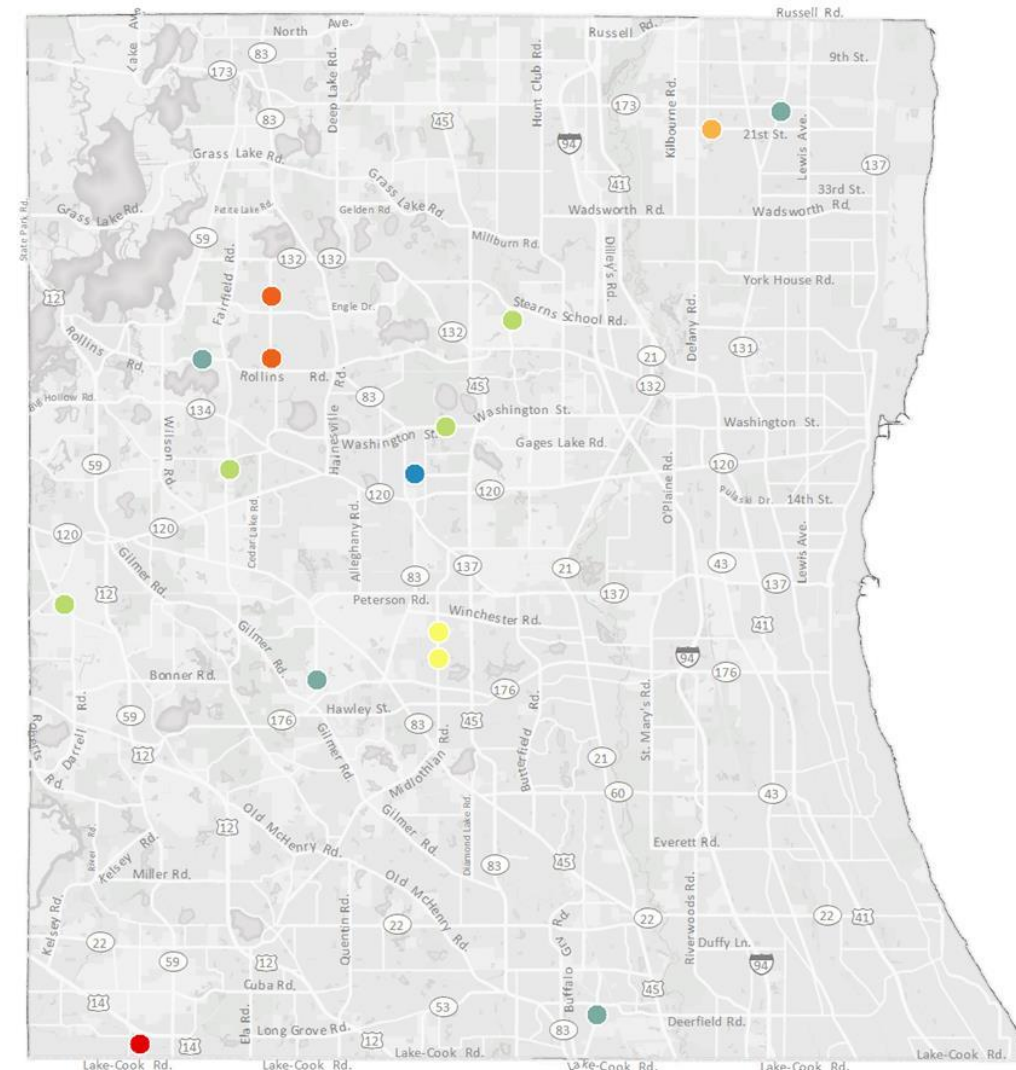- **More than <u>49,000</u> feet in LCDOT inventory**

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

Non-pavement assets

- **17,631 storm sewer structures**

- **655 culverts**

- **195 miles of storm sewer pipe**

- **54 stormwater basins**

- **48,612 feet of fencing**

- **20,930 feet of retaining wall**

- **21 miles of guardrail**

- **34 landscape areas (99 acres)**

LCDOT GIS / April 2020

Signs*

- **8,218 Regulatory**
- **10,660 Guide**
- **5,577 Warning/Object Marker**
- **2,655 Information**
- **528 School**
- **27,638 Total Signs**

Signs installed/maintained by LCDOT
Source: LCDOT sign inventory, April, 2021

Priority Two: Modernization

LakeCounty
Division of Transportation

- **Tools in the Toolbox:**
  - **Traffic and safety analysis**
  - **Level of Service (LOS) data**
  - **PASSAGE data**
  - **2040 bike and pedestrian priorities**
  - **Non-motorized policy**
  - **Bike/Pedestrian gap analysis**
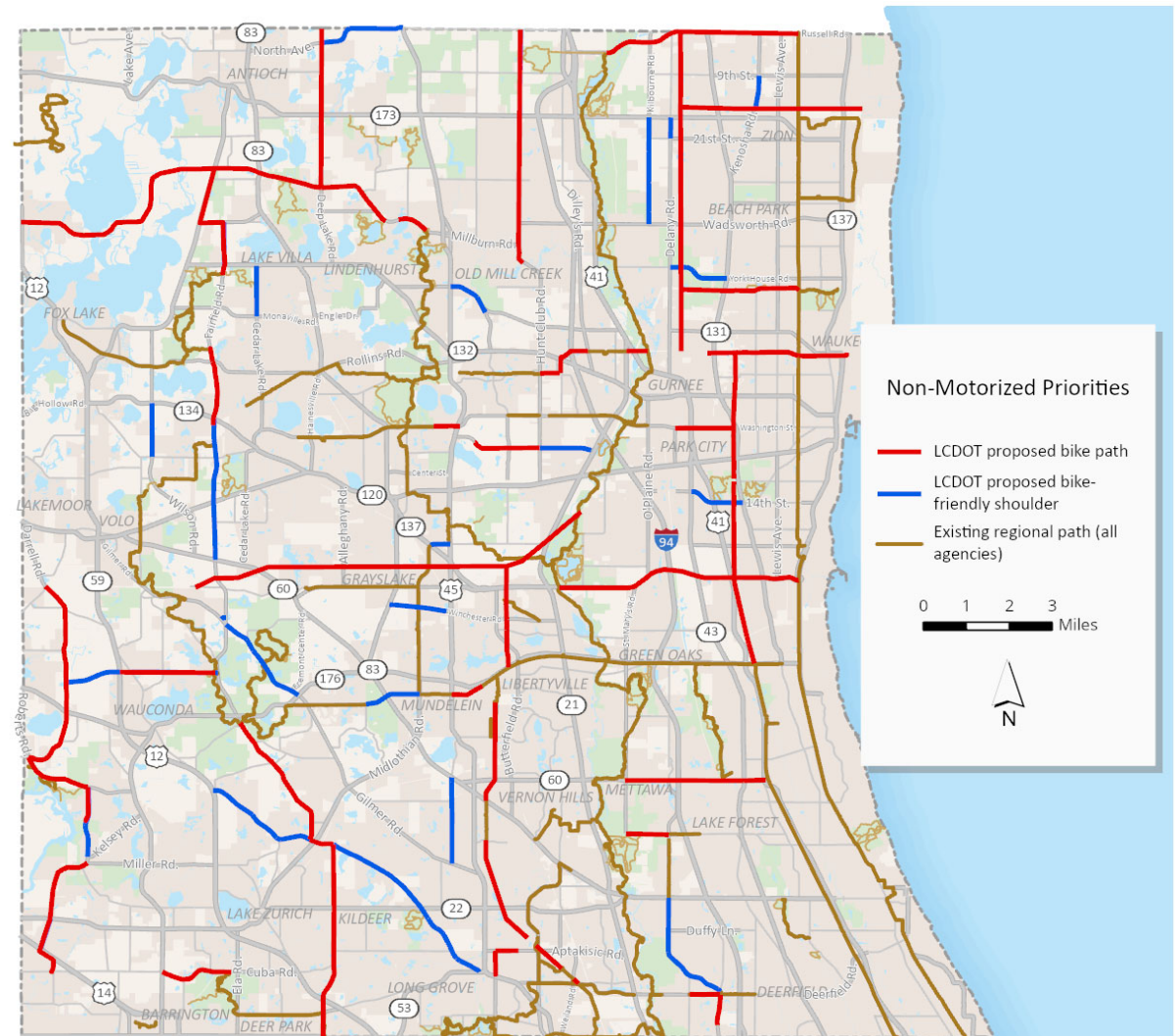
Modernization projects: approximately

31%

of program

Typically intersection and safety improvements, bike and pedestrian accommodations

Bike and Pedestrian Priorities
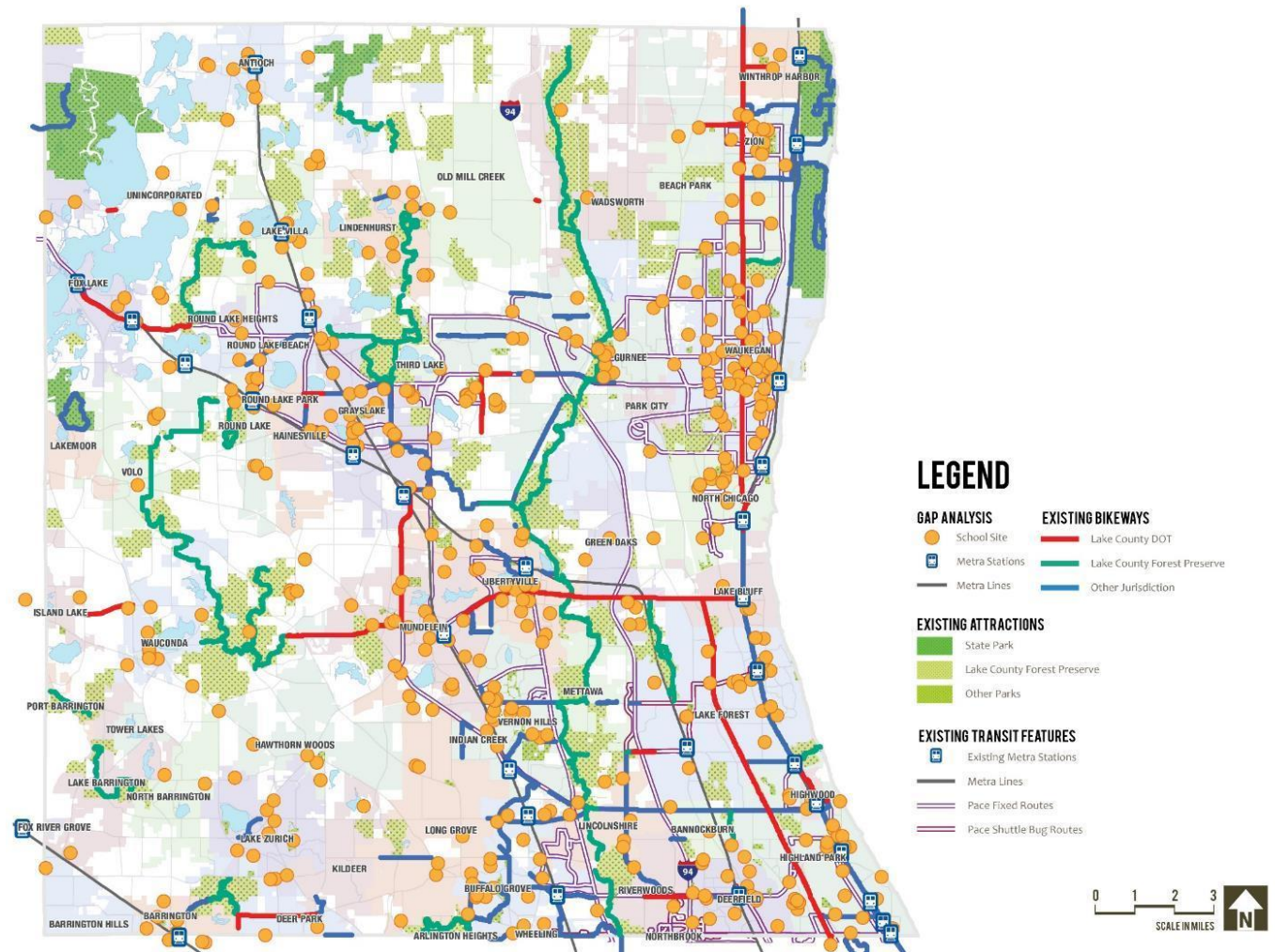
Lake County
Division of Transportation

- **Lake County's 2040 Non-motorized plan identifies 310 miles of proposed bike paths**
  - 107 miles under LCDOT jurisdiction
  - 43 miles under LCFPD jurisdiction
  - 160 miles under other jurisdiction, such as State, municipality, or township
- **Advance as stand-alone projects or combined with adjacent roadway project work**

Non-Motorized Priorities

— LCDOT proposed bike path
— LCDOT proposed bike-friendly shoulder
— Existing regional path (all agencies)

0 1 2 3 Miles

N

Source: LCDOT Information Services Group/Design Department 4/21/2021
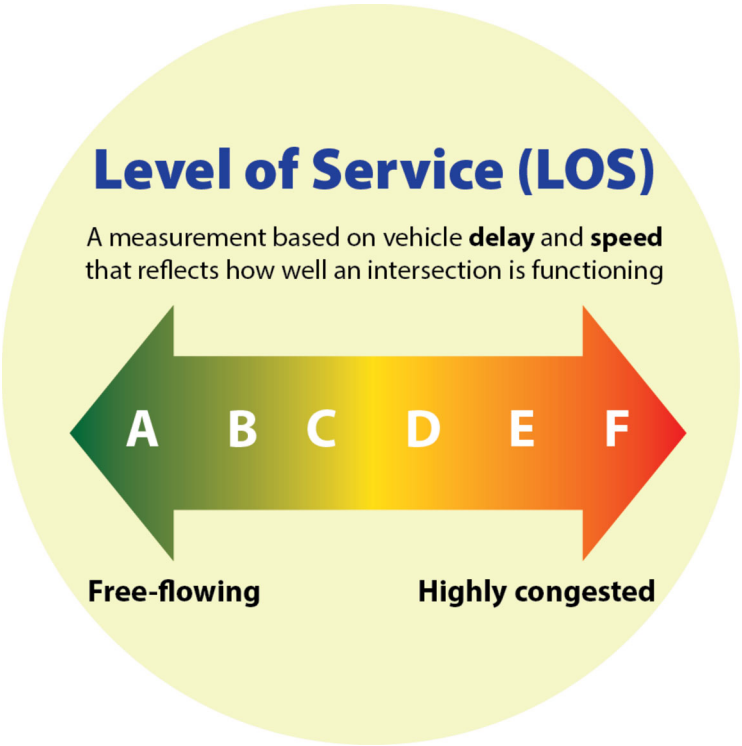
Bike and Sidewalk Gap Analysis

Lake County
Division of Transportation

- **2010 study identified 58 strategic gaps, that if filled, would provide regional connectivity**

- **County pays 100% of cost to fill gaps with local sponsor to own and maintain**

- **To date, 65% have been programmed or completed**

Level of Service Data

- **County involved, signalized intersections and roundabouts**

Level of Service (LOS)

A measurement based on vehicle **delay** and **speed** that reflects how well an intersection is functioning

A B C D E F

Free-flowing   Highly congested

- 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 (313 total)**

	Level of Service	AM Peak Hour	PM Peak Hour
(best)	A	97	64
	B	73	73
	C	89	79
	D	33	59
	E	7	22
(worst)	F	14	16

Source: LCDOT Traffic Department 3/2020

Historical Perspective: Crash Data

5-year averages	2006-2010	2007-2011	2008-2012	2009-2013	2010-2014	2011-2015	2012-2016	2013-2017	2014-2018	2015-2019
Number of crashes	4236	3994	3704	3485	3530	3673	3796	3934	3991	4037
Fatality	8	8	8	7	8	8	10	12	15	15
Crash with injury	942	931	952	974	978	1004	1046	1085	1102	1113
Property damage only	3286	3147	2744	2504	2544	2662	2741	2836	2874	2909

Data Source: LCDOT Traffic Department, 4/2021
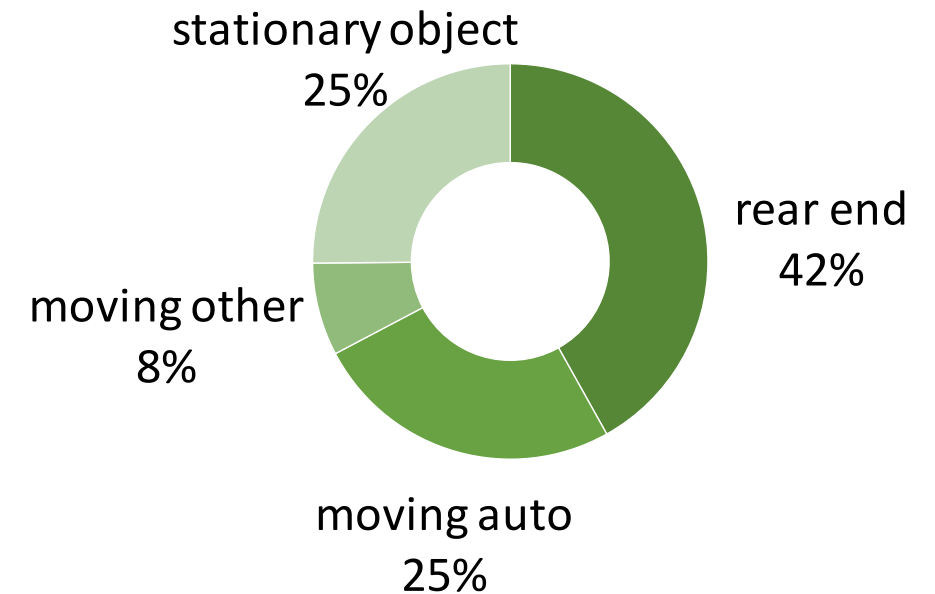*IDOT 2019 crash data (most recent available)*

Crash Summary

Crashes at intersections
Total: 3568 (90%)

stationary object
10%

moving other
4%

rear end
42%

moving auto
44%
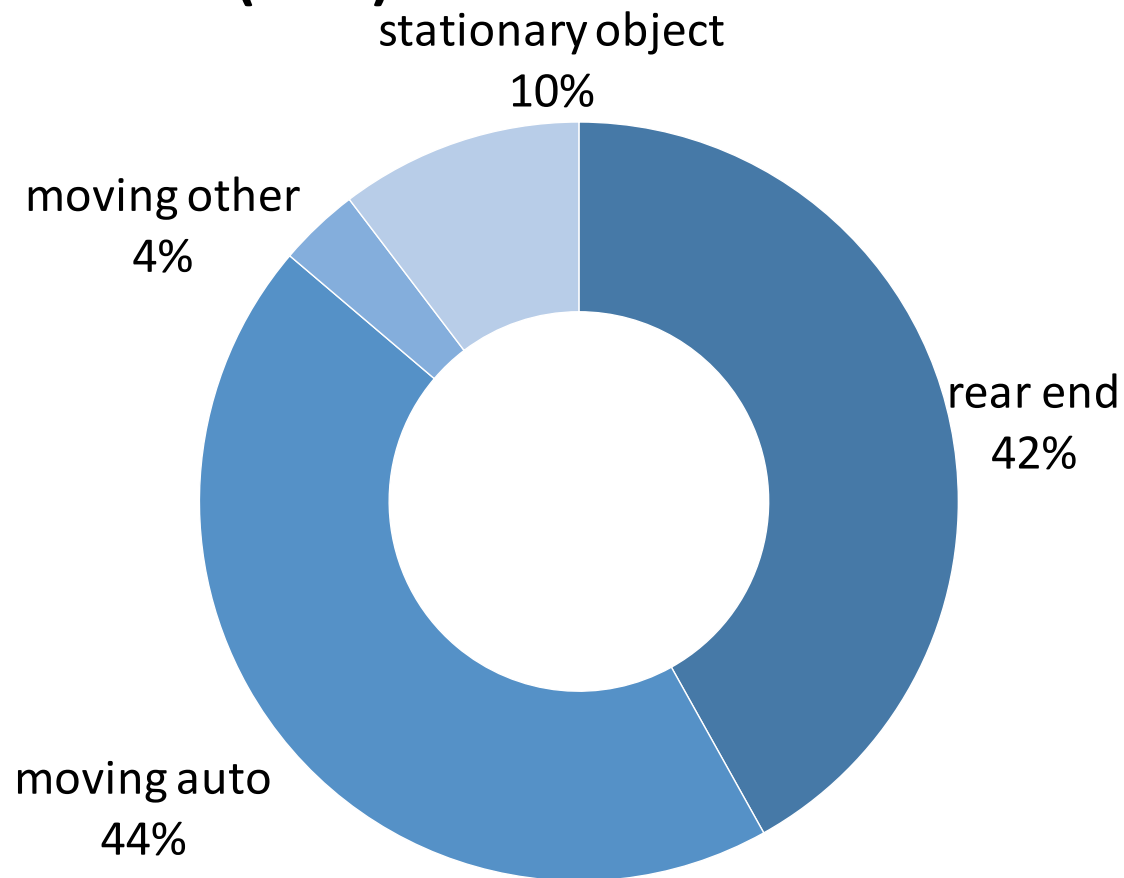
Crashes on roadway sections
Total: 382 (10%)

stationary object
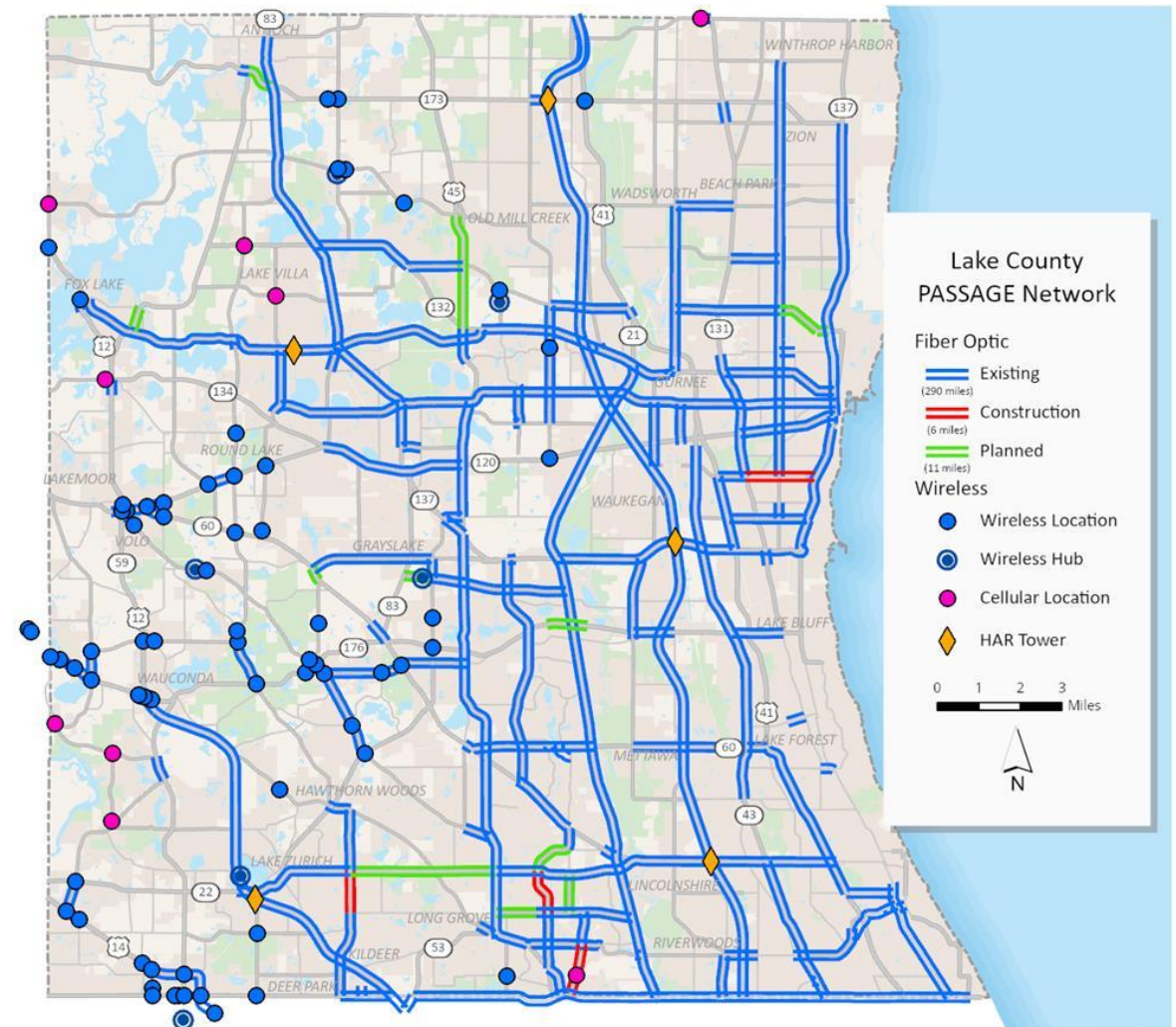25%

rear end
42%

moving other
8%

moving auto
25%

Data Source: LCDOT Traffic Department, 4/2021
IDOT 2019 crash data (most recent available)

04/28/2021

Lake County's Traffic Signal and Communication Network

LakeCounty
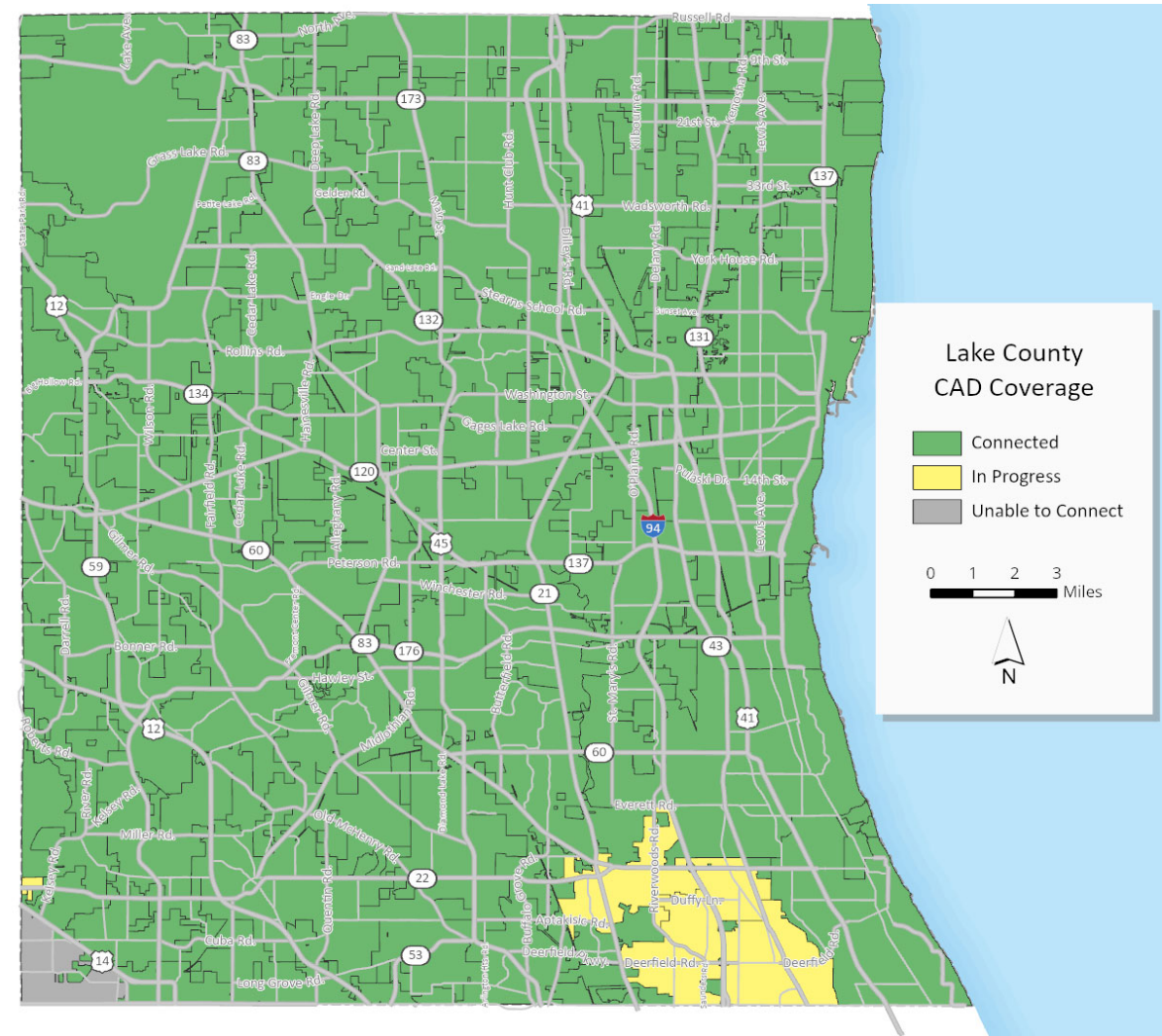Division of Transportation

- **294 miles of fiber optic in place**

- **4 miles under construction**

- **16 miles planned**

- **5 Highway Advisory Radio (HAR) towers**

- **638 Traffic signals connected**

- **416 PTZ Cameras**

- **1 portable (cell) PTZ**

Lake County
PASSAGE Network
Fiber Optic
— Existing
(290 miles)
— Construction
(6 miles)
— Planned
(11 miles)
Wireless
● Wireless Location
◉ Wireless Hub
● Cellular Location
◆ HAR Tower

0 1 2 3
Miles

N

Source: LCDOT Traffic Department 5/14/2020

Computer Aided Dispatch (CAD) Partnerships

LakeCounty
Division of Transportation

- **11 of 12 dispatch centers (via Central Square) connected with Lake County PASSAGE**

- **Two-way data sharing:**
  - **Video (LCDOT provides)**
  - **Incident data (Dispatch centers provides)**
  - **Combined real-time data shared with public via PASSAGE**

Lake County CAD Coverage

- Connected
- In Progress
- Unable to Connect

0 1 2 3 Miles

N

Source: LCDOT Traffic Department 4/14/2021

Priority Three: Expansion

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Division of Transportation

- **Tools in the Toolbox:**
  - **Lake County 2040 Transportation Plan**
  - **State Consensus List**
  - **CMAP ON TO 2050 Regional Plan**
  - **IDOT Multi-Year Plan**
  - **Traffic and Safety Data**
  - **Demographic Trends**
  - **Areas of Need/Inclusive Growth**
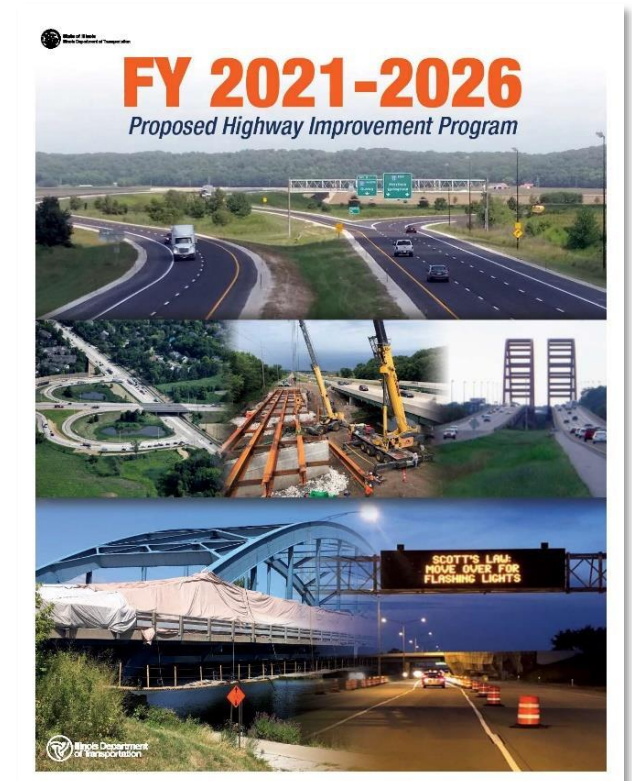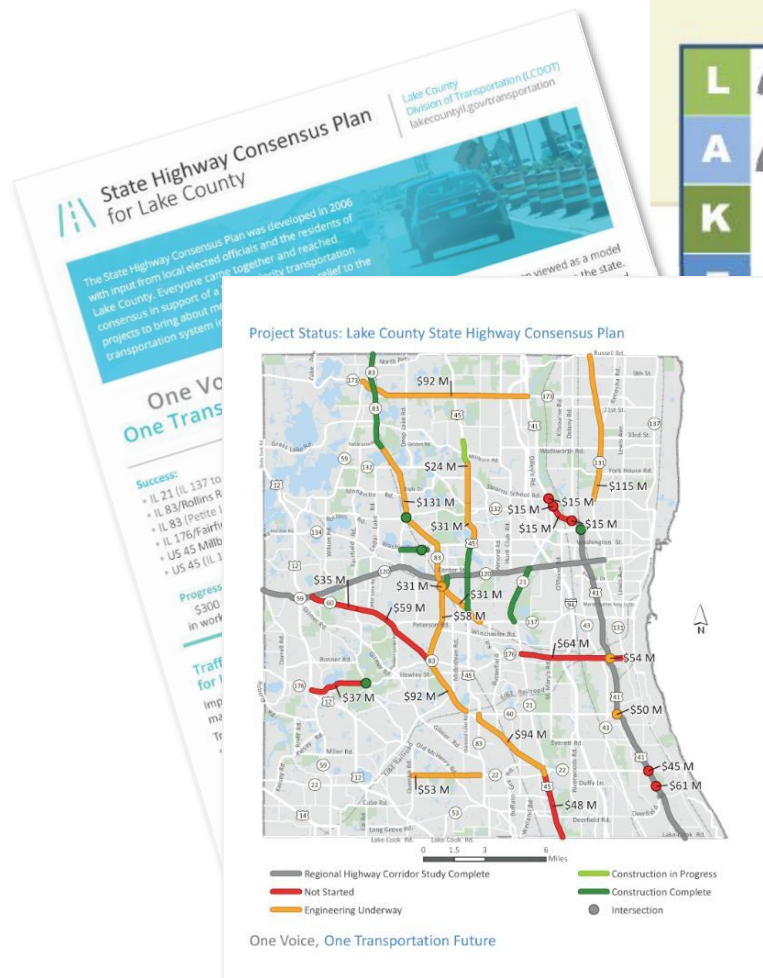 - **Environmental/Sustainability**
  - **Paratransit Market Study**

Expansion projects: approximately

37%

of program

Typically add lanes, grade separations, new or extended roads

Regional Plans

2040 Priority Railroad Grade Separations

- 66 at-grade road/rail crossings evaluated
- Criteria:
  - Vehicular ADT
  - Freight trains per day
  - Other roadway deficiencies
- Other references
  - Northeast Illinois Priority Grade Crossing Report, CMAP
 - Illinois Commerce Commission (ICC) Rail Safety Plan
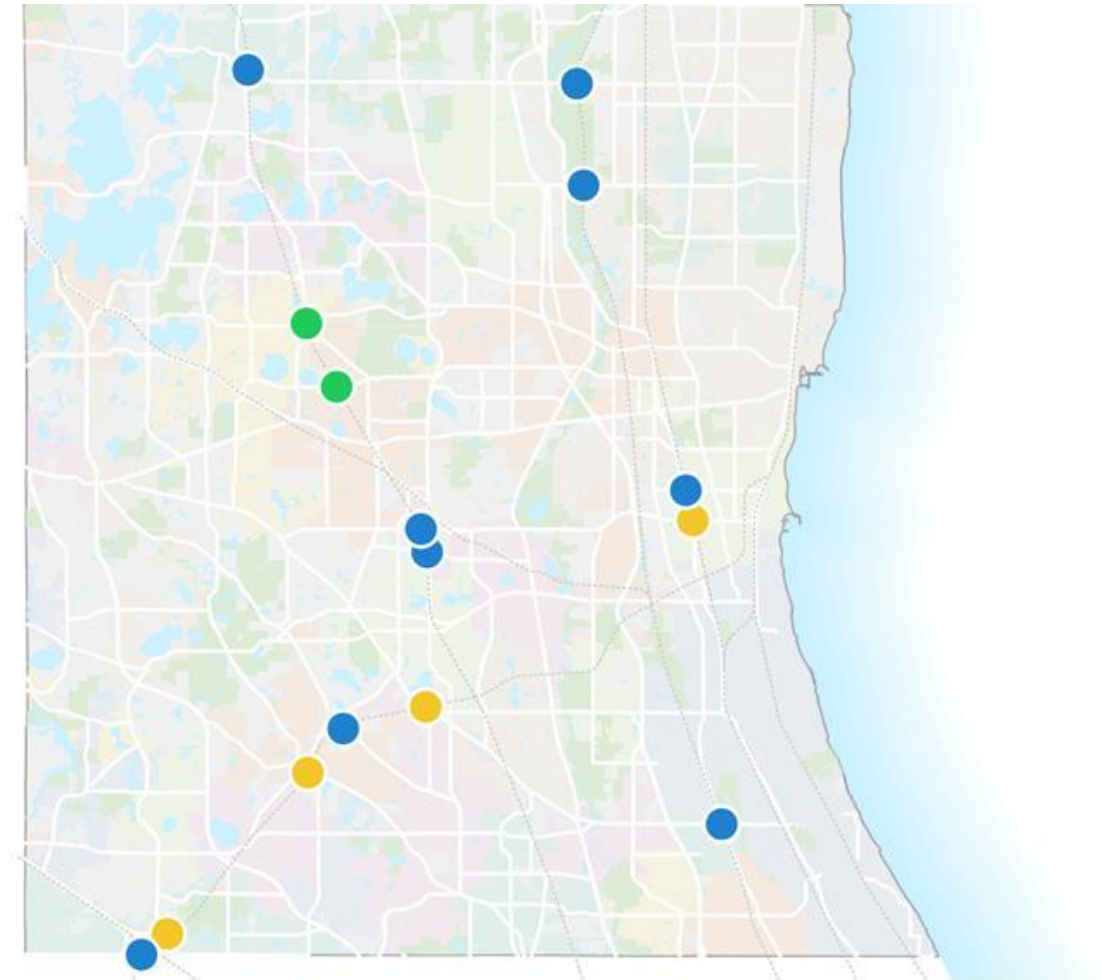
- Grade Separation - Completed
- Grade Separation - Identified
- Grade Separation - Study Underway

Lake County Travel Data
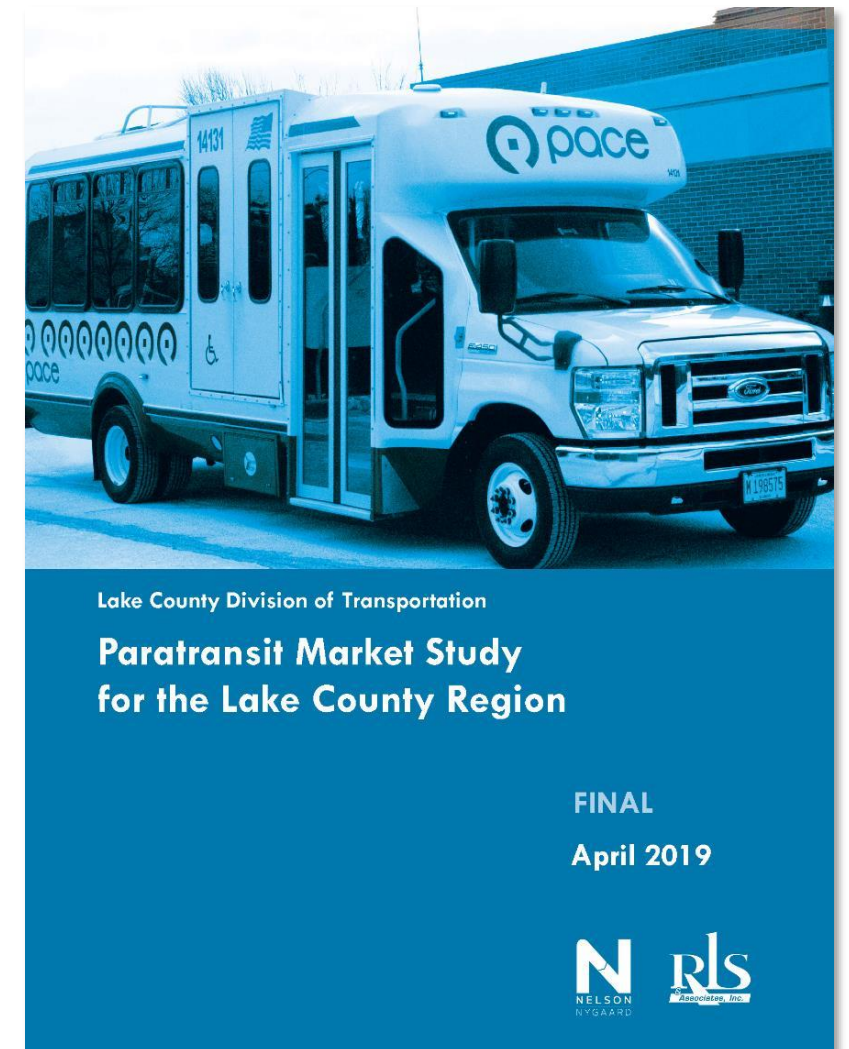

LakeCounty Division of Transportation

- **23,215 average annual vehicle miles traveled by Lake County households**

- **16,723 average annual vehicle miles traveled by CMAP region (collar counties) households**

- **40% more household travel miles in Lake County vs other collar county households**

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

LAKE

AVERAGE DAILY MILES TRAVELED PER HOUSEHOLD

- <30
- 30 to 40
- 40 to 50
- 50 to 60
- >60
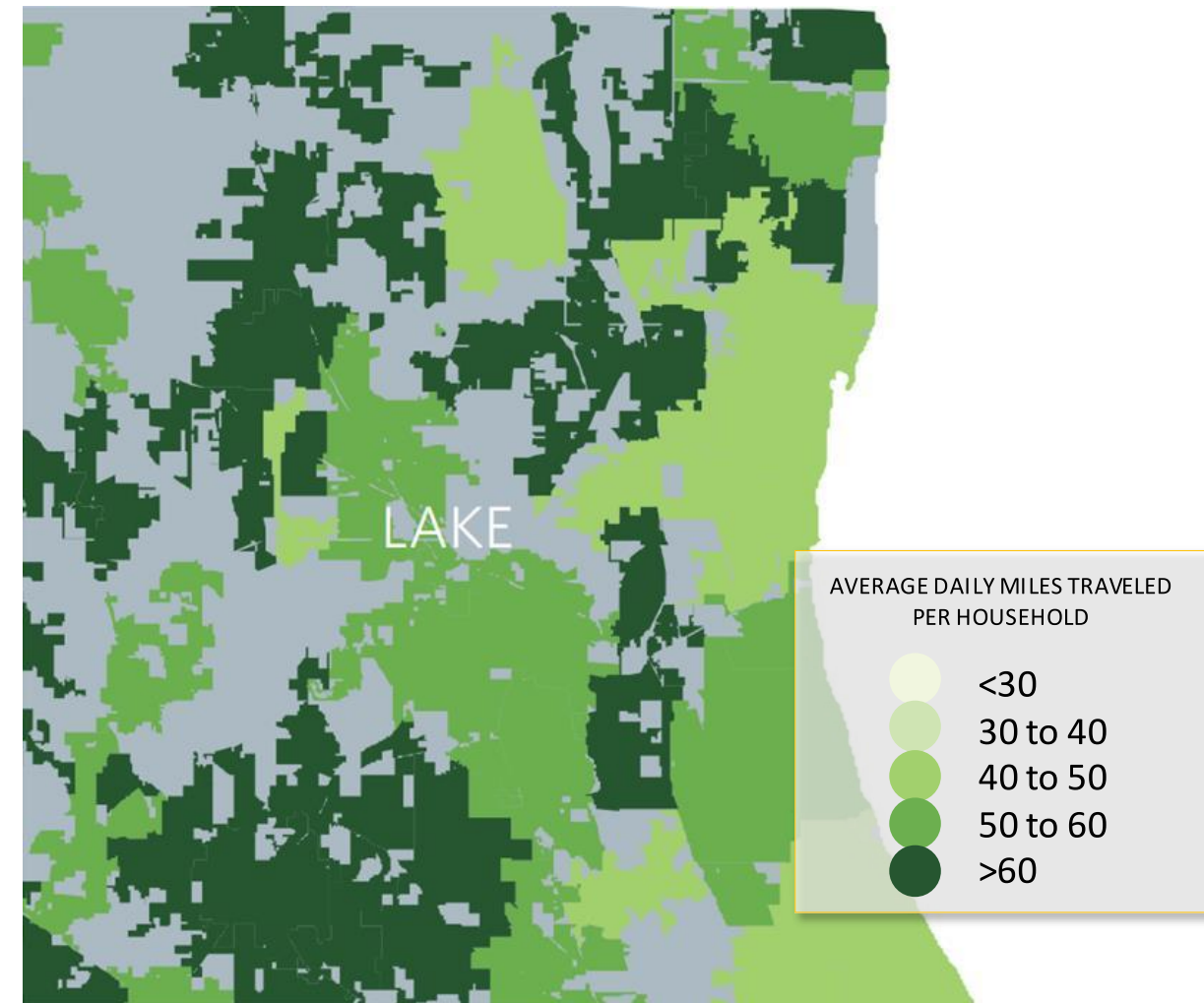
Paratransit

- **On-demand service targeted to seniors and people with disabilities**
- **2019 Report Recommends:**
  - **Consolidation of 40+ different services**
  - **Expansion to countywide borderless system**
  - **Establish new lead agency**
  - **Centralized transportation information and trip planning assistance**
  - **Countywide transportation marketing program**
  - **Other service/mobility strategies**

Lake County Division of Transportation
Paratransit Market Study for the Lake County Region

FINAL
April 2019

Presentation Schedule

- **April 28, 2021**   **Part 1A: Annual Department Update**

     Part 1B: Program Overview and Priorities

- June 30, 2021   Part 2: Funding and Projects

Thank You!

Connect with us!

- lakecountyil.gov/transportation
- facebook.com/lcdot
- twitter.com/lcdot
- Instagram.com/lakecountydot
- lakecountypassage.com

Questions