



Kane County 2050 Long-Range Transportation Plan

Sponsoring Agency: Kane County Division of Transportation (KDOT)

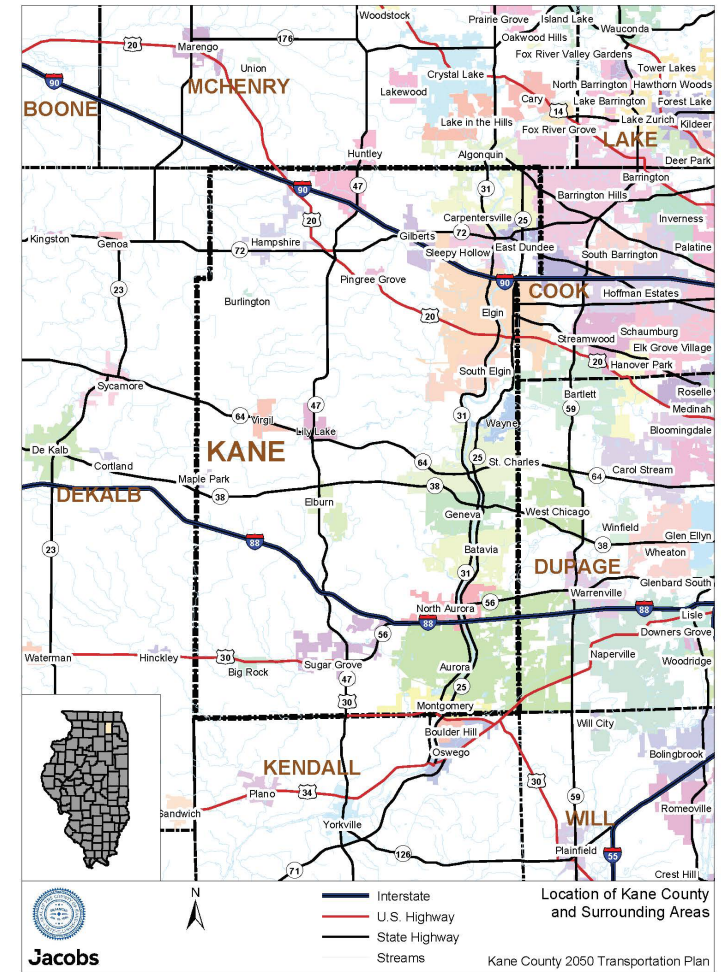
Fall 2020

KDOT developed the 2050 Long-Range Transportation Plan to plan for growth and ensure necessary infrastructure is in place

• Kane County Characteristics

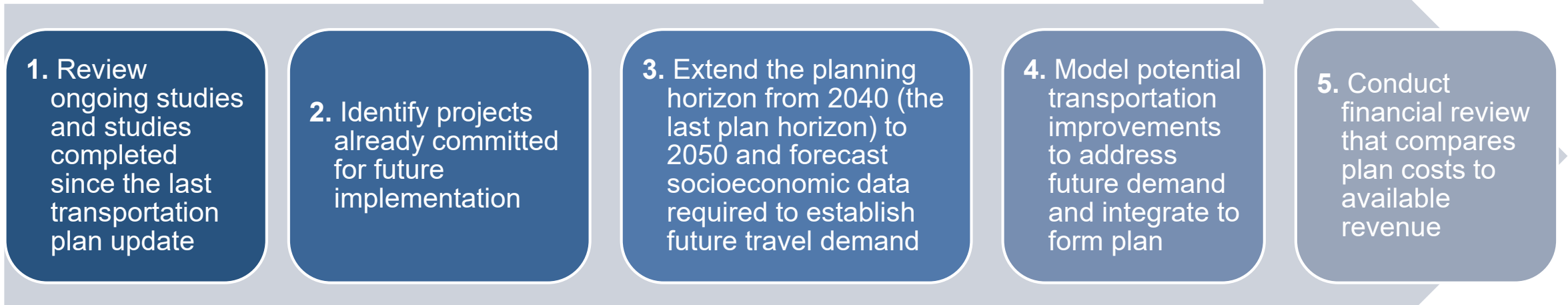
- 16 townships
- 30 municipalities
- Land area of 524 square miles; 30 miles north to south and 18 miles east to west
- 2015 Population 548,257; 2015 Employment 212,451*
- Population and employment both **expected to grow by at least 40 percent** by 2050
- **Purpose** of the 2050 Long-Range Transportation Plan (2050 LRTP) is to deliver a comprehensive plan that responds to both existing deficiencies in Kane County's transportation network and projected development and growth

*Source: CMAP ON TO 2050 Conformity Analysis, October 2018



The 2050 LRTP anticipates and addresses the transportation and mobility needs of those living and working within Kane County through the year 2050

Overview of the Kane County 2050 LRTP Planning Process



Coordination with prior planning initiatives, the public, and local officials was integral to development of the Kane County 2050 LRTP

- Stakeholder input informed the 2050 LRTP
 - Assisted in determining projects to be incorporated in the County's program
 - Determined habits of people using the transportation system
 - Helped identify transportation priorities
 - Gathered specific suggestions for improvements and information on locations currently experiencing transportation problems within the County
 - Developed long term recommendations to improve the growing travel network in Kane County
- Stakeholder input was compared to KDOT's Mission Statement and Goals to ensure the 2050 LRTP was in alignment with Stakeholders' travel behaviors and desires

KDOT Mission Statement and Goals

Mission Statement: To provide and maintain a safe and efficient transportation system while sustaining the County's vision and values.

Goals:

- ✓ **Safety Goal:** Provide a multimodal transportation system that is safe for all users.
- ✓ **Personal Mobility Goal:** Develop a balanced intermodal transportation system that adds to the available travel options, increases personal mobility, and offers alternatives to the Single Occupancy Vehicle.
- ✓ **Cooperative Planning Goal:** Coordinate local and regional transportation planning to provide a transportation system that accommodates both existing and future travel demands and supports County and regional land use plans and policies.
- ✓ **Quality of the Environment Goal:** Maintain and improve the quality of the environment while providing transportation services and facilities.
- ✓ **System Efficiency Goal:** Reduce the growth in congestion and vehicle miles traveled, while preserving the County's transportation system and its carrying efficiency.



Discovering how Stakeholders use the transportation system helped KDOT identify specific areas of focus for the 2050 LRTP

Stakeholders input was solicited in two ways:

- Members of the community provided feedback via an online survey hosted by **MetroQuest** (visited 3,692 times)
- Agency input* was solicited from advisory committees using **PollEverywhere**, a live interactive audience response system

MetroQuest respondents ranked which KDOT transportation topics were of the greatest concern to them



Figure data provided by MetroQuest Survey

Agency representatives ranked transportation priorities using PollEverywhere



Figure data provided by PollEverywhere Survey

Stakeholders specified locations for improvement via a MetroQuest mapping exercise. Locations most cited for change were those in need of safety improvements and solutions to congestion.

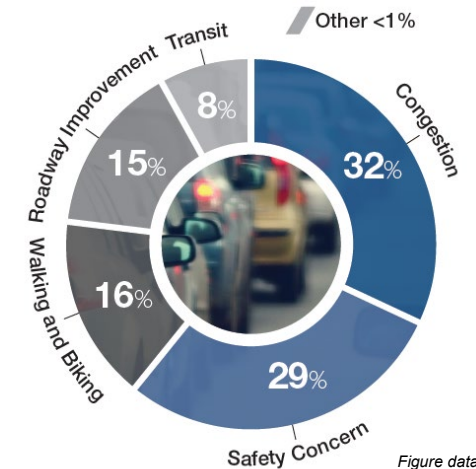


Figure data provided by MetroQuest Survey

*PollEverywhere was used during the Kane Kendall Council of Mayors Transportation Policy Committee on October 19, 2017; Kane Kendall Council of Mayors Bicycle and Pedestrian Committee on October 25, 2017; and Ride in Kane on December 5, 2017

Results of MetroQuest survey and PollEverywhere showed:

- Safety is the number one priority for the respondents
- Participants agreed that Safety, Travel Time Reliability, Economic Vitality, and conserving Natural Resources were of strategic importance to Kane County, which is in line with KDOT's mission statement and goals



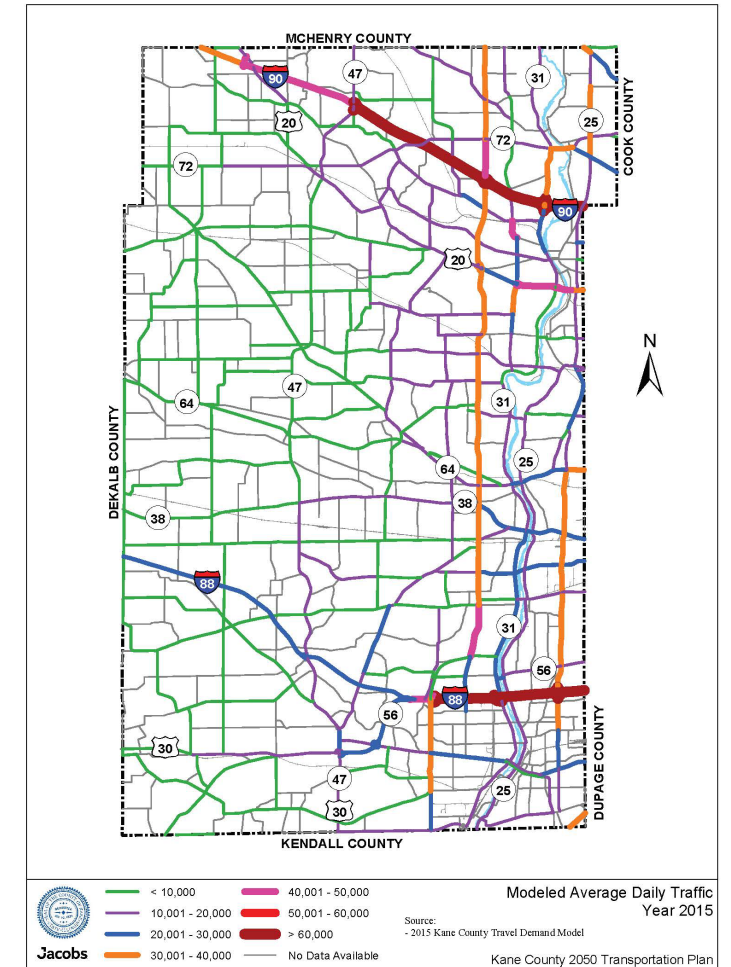
Travel Demand Models are used in long-range plans to forecast traffic flow on the transportation system and evaluate roadway improvements

- The **Travel Demand Model (TDM)**...
 - Identifies possible future year (in this case forecast year 2050) transportation system deficiencies that may not yet exist
 - Evaluates the viability of long-range plans and proposes transportation solutions and are used as the basis for traffic forecasts, impact estimates, and congestion statistics
 - Uses a computer software program and input data (forecasted land use, demographics, and travel patterns unique to the area) to provide output on the areas transportation system and traffic volumes, which are used to indicate whether the transportation system can adequately serve future developments
- The Kane County TDM was revised in 2019 and is based on the Chicago Metropolitan Agency for Planning (CMAP) model.
- The Kane County travel demand forecasting process relies on a series of mathematical models incorporating three primary components trip-generation, trip-distribution, and trip-assignment.



Understanding the components and performance of the existing transportation system is an important prerequisite to transportation planning

- Kane County System is comprised of roughly 540 miles of highway
 - Three (3) U.S. highways (including the Northwest Tollway (I-90) and the East-West Tollway (I-88), both major freeways radiating from Chicago)
 - Eleven (11) state highways
 - Approximately 56 percent of the highway system is made up of County highways
- Kane County System Performance
 - Higher-volume highways are located predominantly in the easternmost portion of the county
 - The heaviest traveled routes include I-90 and I-88, Randall Road, the Carpentersville/Dundee/North Elgin area, and Tri-Cities area
 - The tollways carry a large percentage of commercial vehicle (truck) traffic, but truck traffic was also heavy on portions of IL 47 and IL 64
 - Travel desire is oriented in a north-south direction in the eastern part of the County through urbanized areas along the Fox River, which coincides with the largest concentration of development in the County
 - Travel demand drops off considerably toward the western parts of the County
 - There is a pattern of travel desire between Kane and surrounding counties



Performance measures were established to assess the ability of the transportation system and its components to meet set performance goals and address Stakeholder priorities

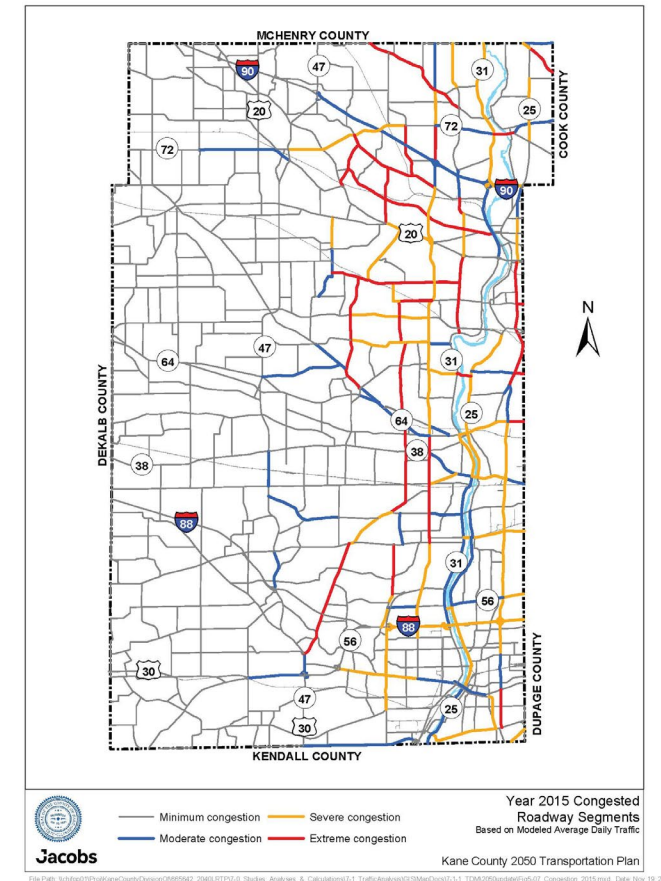
Three categories were used to analyze performance to evaluate system conditions in the study base year (2015) and for the forecast year (2050):

- **Traffic service measures**, such as vehicle miles of travel (VMT), vehicle hours of travel (VHT), and vehicle hours of delay (VHD)
- **Congestion measures**, expressed in terms of level of service (LOS) which measures the quality of traffic service and is determined for each roadway segment based on the amount of delay, the congested speed of travel, or a ratio of the volume of traffic compared with the capacity of the road (v/c). Similar to a school grading system, the various levels of service for roadway segments range from LOS A (free flow) to LOS F (extreme congestion).
- **Traffic safety measures**, which consider the number of crashes and the severity of those crashes



The traffic performance analysis of the existing Kane County highway system used data related to current travel demand and facilities in place today

- When considering all highways in Kane County, 41% percent of route-miles (i.e., length of roadway) and 45% of lane-miles (i.e., length of roadway times number of lanes) were classified as congested.
- For just county roads, 39% of route-miles and 45% of lane-miles were deemed to be congested.
- Congested roadways were concentrated in the eastern part of the county in the vicinity of Carpentersville/Dundee/Elgin, St. Charles/Geneva, and Aurora



Population, households, and employment projections are the basic tools used in developing forecasts of future (2050) travel and to determine the adequacy of the County transportation system

Projected Growth of Population, Households and Employment — 2015-2050

	2015	2050	Percent Increase
Population	548,257	781,538	42.5%
Households	186,440	298,205	59.9%
Employment	212,451	301,019	41.7%

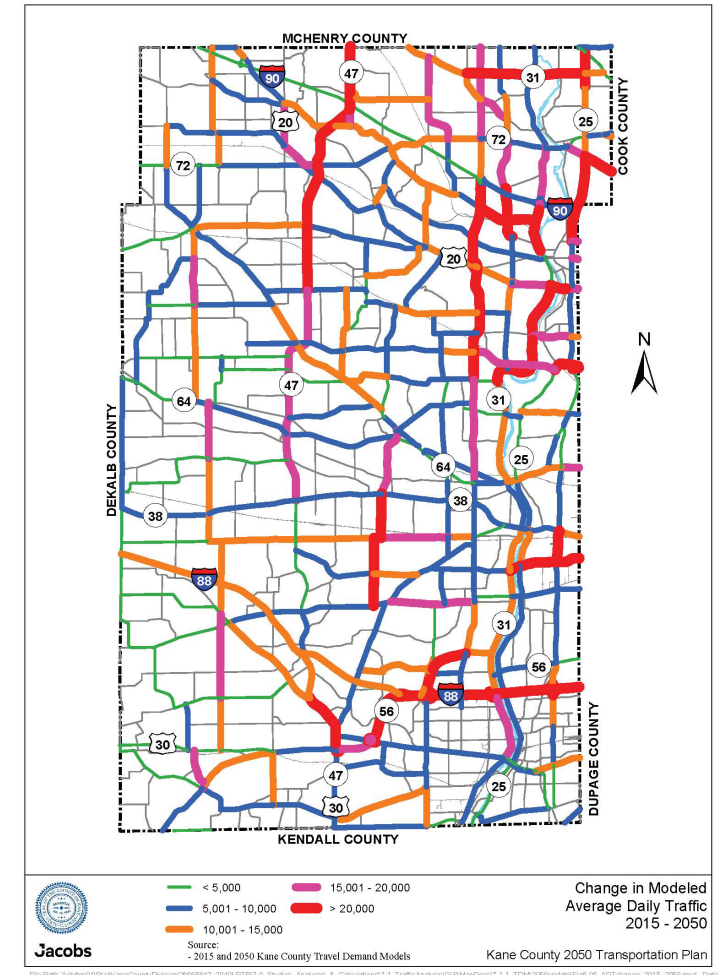
Source: CMAP ON TO 2050 Conformity Analysis, October 2018

- Areas with the greatest population in 2050 are also those that would exhibit the largest numerical population growth over the 35-year planning period
 - Forecasted population growth appears to be concentrated most heavily along the IL 47 corridor, particularly near the northern border with McHenry County
- From 2015 to 2050, both existing and forecasted employment is heaviest along the eastern, northern, and southern boundaries of the county



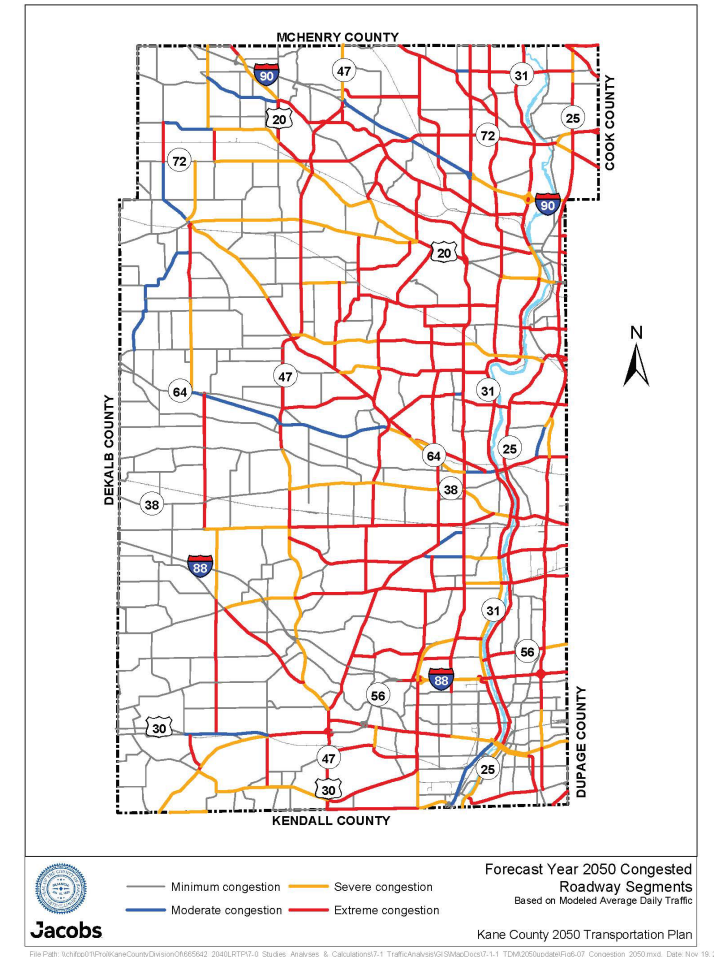
Areas that experience the most population and employment growth would also realize the greatest travel increase

- The travel demand model forecast 2050 vehicular travel based on population and employment growth and assumed implementation of the existing highway system network plus near term programmed or committed roadway improvements
 - It is projected that total daily vehicle trips in Kane County would increase by 59%.
 - Forecasted (2050) population growth is concentrated most heavily along the IL 47 corridor, particularly near the northern border with McHenry County.
 - Both existing (2015) and forecasted (2050) employment is heaviest along the eastern, northern, and southern boundaries of the County
- The largest increase in 2050 traffic volumes would occur on the north-south arterials (i.e. high capacity roads), primarily Randall Road.
- The heavy north-south travel desires that presently exist in eastern Kane County are also expected to increase
- Other high growth areas include roadways in the south-central and north-central portions of the County, adjacent to Illinois Tollway facilities.
- There would also be significant travel increases in the vicinity of Sugar Grove, as well as in the Upper Fox and Greater Elgin areas



Without improvements, the County transportation system performance will decline between now and forecast year 2050

- By 2050, across all roadways, **73% of route-miles** and **75% of lane-miles** would be **congested**.
- For county roads alone, **69% of route-miles** and **74% of lane-miles** would be **congested**.
- Overall, between 2015 and 2050, for all roads, the vehicle miles of travel would **increase by 63%**, and the vehicle hours of travel would **increase nearly 2 times**. Vehicle hours of delay would **increase by approximately 5 times** as a result of increased congestion.
- For county highways, the vehicle miles of travel would **increase by 79%**, the vehicle hours of travel would **more than double**, and the vehicle hours of delay would **increase by more than four times**.
- By 2050, most roadways would operate with moderate congestion or worse. For the entire highway system, **congested lane-miles would increase by 70%**.
- While 41% of Kane County experienced congestion in existing conditions, **congestion would expand to cover 73% of the county in 2050**.



The dramatic deterioration of traffic performance indicates that the existing and committed facilities alone would not adequately handle future travel demand

The 2050 LRTP identifies a list of **roadway projects to address these future needs** and incorporates...

- The 2017 Kane County Impact Fee Comprehensive Roadway Improvement Plan
- Previous recommendations from the Kane County 2040 Transportation Plan
- New improvements only for roadways that modeled at a LOS F (extreme congestion) under assumed 2050 conditions

Kane County is also a proponent of integrating the following **roadway improvement strategies** in the plan, as appropriate:

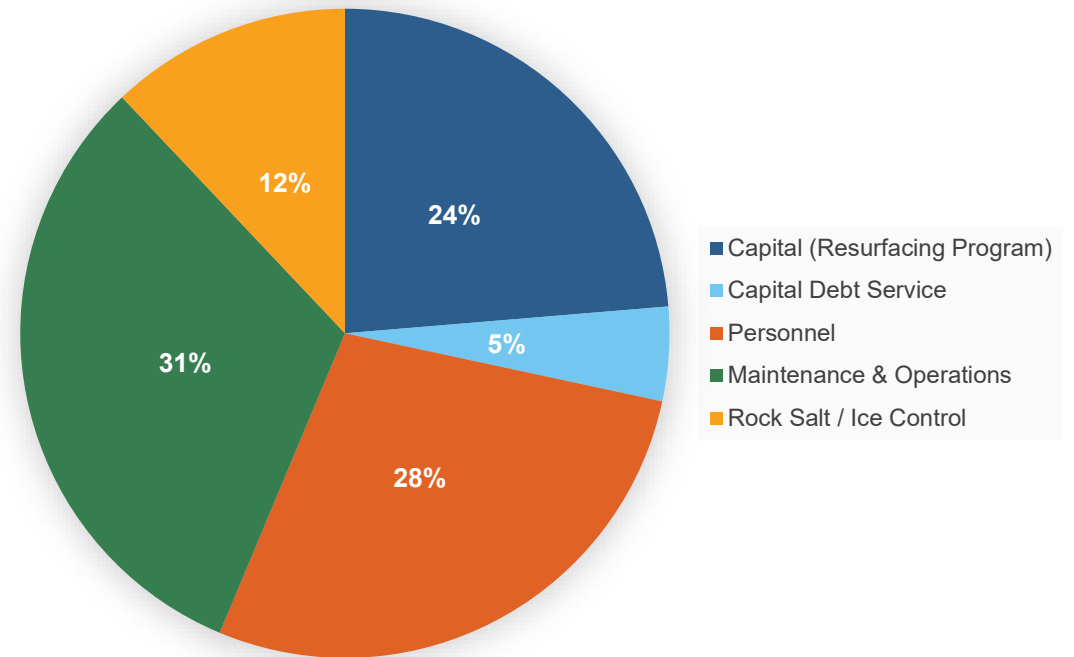
- **Connectivity** refers to the continuity of the roadway system for each roadway classification (e.g. freeways, arterials, local roads, etc.) and the compatibility of design and capacities of the roadways within the County
- **Access Management** is the process by which access to land development is provided while simultaneously preserving the flow of traffic on the surrounding system in terms of safety, capacity, and speed
- **Complete Streets** is a movement that ensures roadways are designed and operated to enable safe, attractive, and comfortable access and travel for all users, including motorists, pedestrians, bicyclists, public transportation users, and people of all ages and abilities
- **Transportation System Management (TSM)** is the concept of more efficiently using existing transportation systems by means other than largescale construction
- **Future Trends in Transportation Technology** have the potential to reduce congestion in the future and to shift how people in the Chicago metropolitan area get around. Emerging technologies and mobility trends considered for Kane County's future transportation system include but are not limited to TSM technologies, connected and automated vehicles (CAVs), ride-sourcing/ridesharing, pavement innovations, and flood mitigation.



The 2050 LRTP considers a broad spectrum of needs based on, at first, a financially unconstrained basis, and then subjects the roadway improvements to a prioritization process that forms the basis for a financially constrained plan

- Funding for KDOT comes from a variety of sources, including federal, state, and local resources
- Additionally, the County is investigating future funding alternatives such as building projects in phases, cooperative planning and intergovernmental agreements
- KDOT expenditures can be aligned with the following categories: maintenance, operations and administration, bond repayment, and capital for capacity improvement projects
 - Funding available for capital improvements could be more than \$217.6 million

Summary of 30-Year Expenditures



The 2050 LRTP is composed of roadway improvements to the Kane County transportation system

- The 2050 proposed improvements included widening of arterials and the tollways, creation of new bridge and road corridors, realignments, and the promoting of a local collector road system
- All of the roadway projects identified in the CMAP 2050 Transportation Plan and Impact Fee CRIP are included in the 2050 LRTP
- The plan is focused on expanding the highway system and will be supported with locally funded collector road networks, transit and non-motorized improvements, and through the use of additional transportation strategies such as Transportation Demand Management and Transportation System Management



The 2050 LRTP is multimodal; it incorporates considerations for public transit, paratransit, bicycle, and pedestrian facilities together with those for motor vehicles

- A core goal of KDOT's Mission Statement is to provide a multimodal transportation system that is safe for all users. Strategies to accomplish this goal include:
 - Considering transit and multimodal supportive infrastructure and connectivity when designing and improving roadway facilities
 - Encouraging Transit-Oriented Development (TOD) and Transit Corridor Planning strategies in new developments or redevelopment projects where appropriate.
- Kane County's 2040 LRTP included Complete Streets as a County strategy. As part of all new project starts, KDOT completes a Complete Streets assessment which includes examining access for all modes of travel.
- The 2050 LRTP examines effect of land use policies on transportation and how supportive land use patterns and design of developments can result in:
 - Reductions in the growth of VMT, pollutant emissions, and energy consumption
 - Increased transit use and productivity
 - Pedestrianization of activity centers
- Kane County's *Transit Plan* and *Bicycle/Pedestrian Annual Plan* provide additional information about Travel Demand Management (TDM) strategies for the County



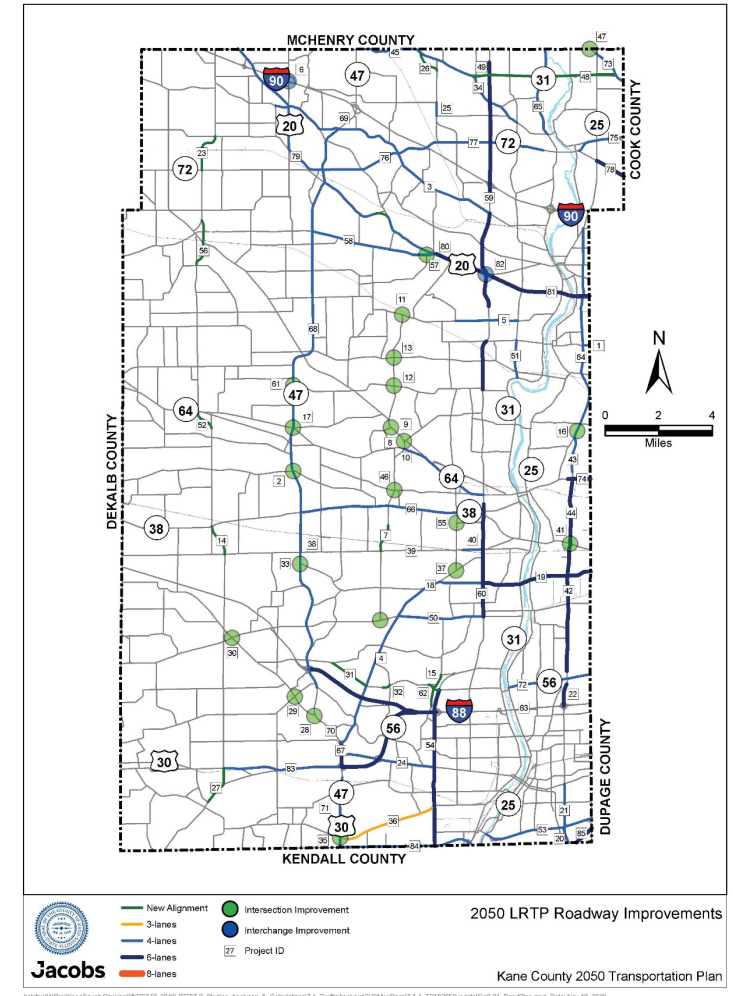
Kane County is not able to fund all the capacity expansion projects within the planning horizon of the 2050 LRTP

- Given limited revenues projected for capital improvements, the following priorities have been established:
 - Improvements that address public safety
 - Capacity enhancements on Randall Road and Orchard Road
 - Various Intersection and Capacity Improvements Countywide



Implementation of roadway projects included in the Kane County 2050 LRTP would result in improved performance

- All improvements are based on the completion of the arterial and freeway projects, which would add approximately 360 new lane-miles to the existing 2,749 lane-miles in the County.
- With the 2050 Plan projects in place, the vehicle hours of travel (the number of hours traveled on the system) decreases 14% from 2015 to 2050 on roadways in Kane County.
- Similarly, the vehicles hours of delay (the hours spent in congested conditions) decreases by 27% from 2015 to 2050.





Thank you!

To view the full report or to provide comments on the Kane County 2050 Long-Range Transportation Plan, please visit the Kane County Division of Transportation [website](#).