

CHAPTER

4

Transportation

Introduction

Transportation is one of the main infrastructure items that is a critical element to every jurisdiction. The street network is intimately related to the Future Land Use Plan as it forms the means of connection between residences, employment, shopping, and recreation. Concern about safety, access, and mobility of people, farm equipment, and freight must be balanced with available funds and longterm sustainability.

The design of a street plays a significant role in establishing the character of an area. Gravel roadways may suffice for low volume and low speed traffic while establishing a rural character. A wider and faster paved street, with large building setbacks, typically establishes an area where vehicular efficiency is most important. A narrower, lower speed road, with sidewalks, landscaping, and close building frontage typically establishes an area where walking and viewing the adjacent land uses is most important.

This plan does not proposed any future streets as part of the county's network; however, as new development takes place, road improvements, road extensions, and roads in new subdivisions will be needed. Future streets will form the transportation network and character of future development. Therefore, it is important to recognize the function current streets provide and also plan for future streets that can provide continuity, mobility, access, and the desired character for future development.

Connection to Major Transportation Network

Regional Transportation System

Jasper County is fortunate to be located along several major US and State roadway systems. The county is bisected from east to west by US Interstate 80. Interstate 80 sees approximately 36,000 vehicle trips daily. The county is bisected from north to south by Highway 14 from Laurel to Monroe. This roadway sees 3,000 to 5,000 vehicle trips daily. Other major roadways in the county include Highway 6 from Newton to Grinnell (3,000 to 4,000 AADT), Highway 163 from Prairie City to Monroe (12,000 AADT), and Highway 65/330 at the northwest corner of the County (8,000 to 10,000 AADT).

Jasper County is located adjacent to Polk County and the Des Moines Metro. Therefore, the county is in a prime location making transportation to, from and through the county, imperative. Regional and statewide travel is projected to increase concurrently with the growth of the Des Moines metro and statewide. According to the American Community Survey, about 9,173 people live and work in Jasper County. Approximately 7,872 workers live in the county but commute elsewhere for work, primarily the Des Moines Metro. That leaves only 68 workers that commute to Jasper County for work from the surrounding region. Over time, this commuting pattern may change with additional employment opportunities in the county, resulting in fewer county residents commuting to other jurisdictions and more people entering the county for employment.

Existing Roads + Highways

Roadway Functional Classification

Major Arterials

Major arterials serve centers of metro areas, provide a high degree of vehicular mobility, and can also provide vehicular mobility through rural areas. They are generally wide, have high speed limits, and have limited access along the route to allow travel to and through an area. These roads are regional in nature and link interstate, intrastate, and regional activity centers. They are built to accommodate the highest traffic volume and longest travel routes. The existing transportation network in Jasper County contains 80 miles of major arterials, consisting of Interstate 80, Highway 65/330, Highway 14, and Highway 163.

Minor Arterials

Minor arterials provide service for trips of moderate length, serve geographic areas that are smaller than their higher arterial counterparts, and offer connectivity to the higher arterial system. Minor arterials should be identified and spaced at intervals consistent with population density, so that all developed areas are within a reasonable distance of a higher level arterial. Highway 117, Highway F17, Highway 224 and Highway 6 make up the minor arterials in Jasper County, totaling 53 miles.

Collectors

Collectors are responsible for gathering vehicular traffic from local roads and funneling them to the arterial network. Collector streets prioritize access to property over mobility, and are more locally oriented. Most of the remaining paved county roadways are currently classified as collectors in Jasper County. A total of 152 miles are classified as major collectors and 245 miles of minor collectors hold this classification.

Local Roads

Locally classified roads account for the largest percentage of all roadways in terms of mileage. They are not intended for use in long distance travel, except at the origin or destination end of the trip. They are often designed to discourage through traffic. Local roads usually have frequent controlled intersections. Compared to other roadway types, local streets are narrower with slower speeds through areas such as residential neighborhoods and are friendlier to bicycle and pedestrian travel. The rural gravel roadways in Jasper County are classified as local roads.

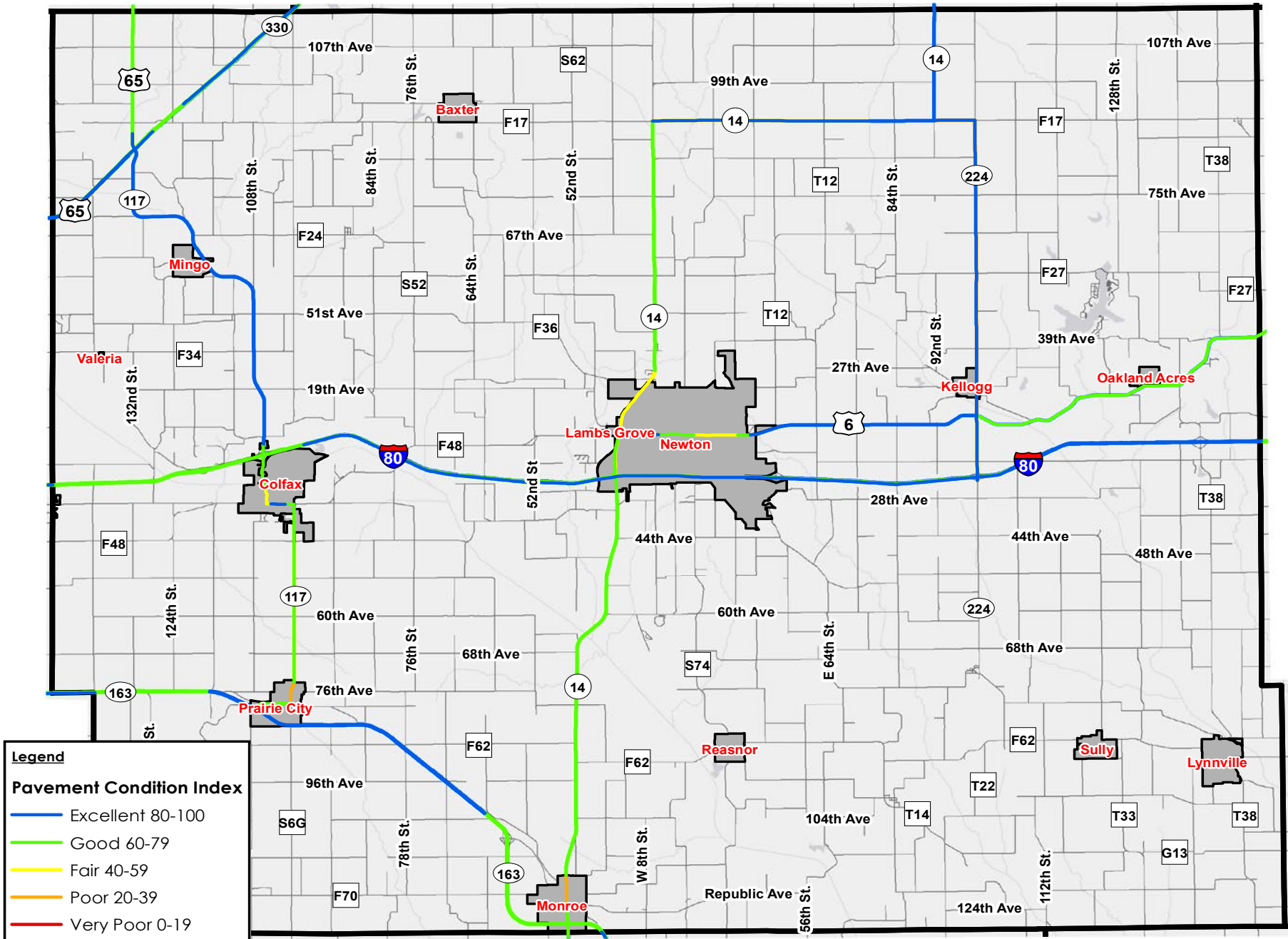
Condition of Existing Roadways

Jasper County maintains almost 1,200 miles of roadway, but private roads that are maintained by associations serve some rural properties. There are some county roads that are not maintained by the county. Jasper County identifies a gravel roadway that drives “well” as a road that has a balance of being too wet (mud, ruts, slippery) and being too dry (potholes, washboards, corrugations and dust). The condition of the road can go from good to bad in a matter of a few hours depending on rain, snow, temperature, and traffic.

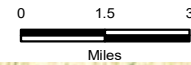
Jasper County, like many rural counties, have experienced poor rural road conditions due to weather-related factors. In 2019, Jasper County allocated \$1.75 million to County Highway and gravel road maintenance. This number has been amended twice to provide additional funds and will continue to increase in years to come.

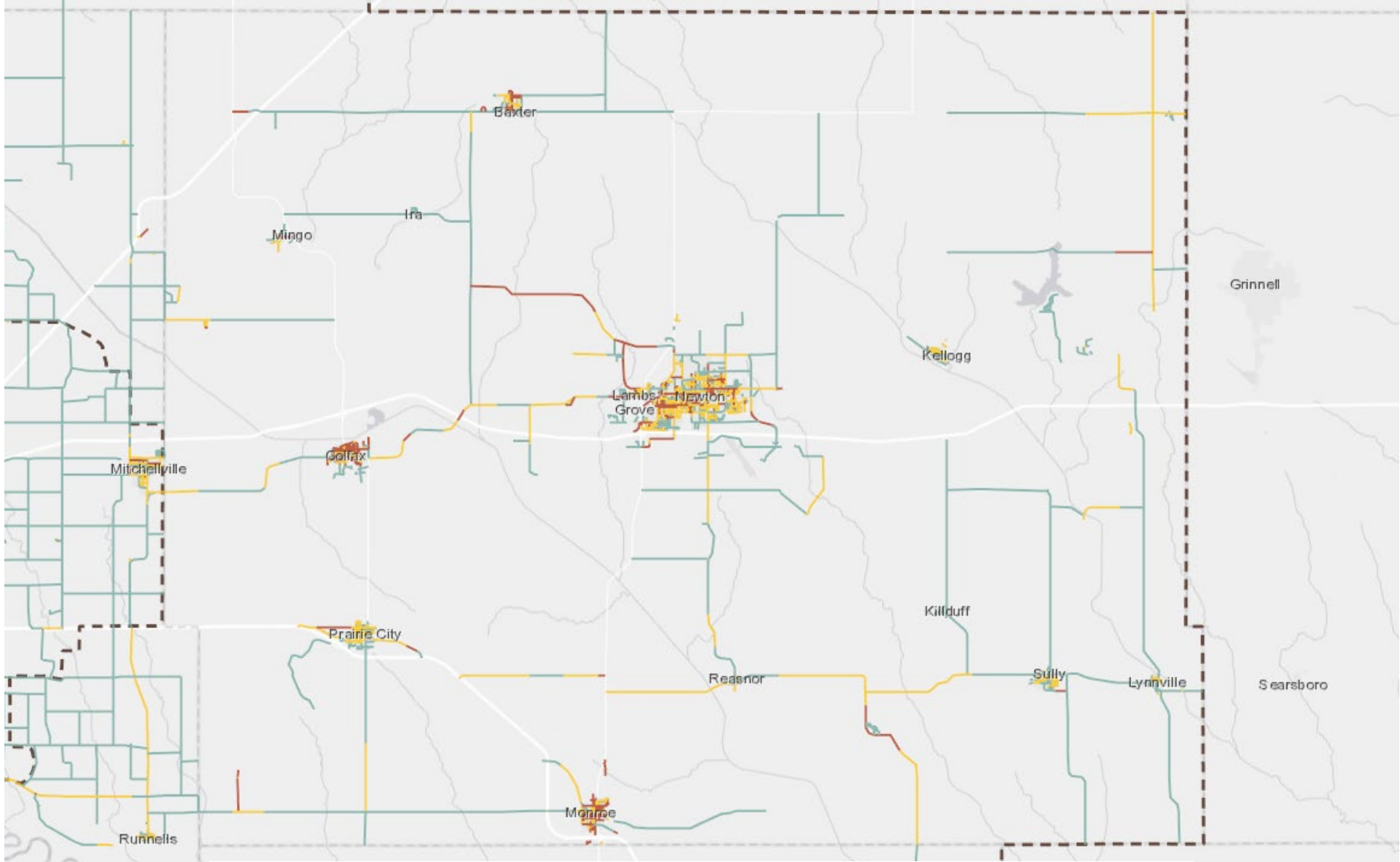
Iowa DOT Pavement Condition Index

The Iowa DOT measures pavement conditions on a 0-100 scale using the Pavement Condition Index (PCI). The PCI is a numerical index developed by the United States Army Corps of Engineers used to indicate the condition of pavement. The survey process involves breaking the pavement section into sample units; and recording the extent and severity of



Pavement Condition Index (2017)





CIRTPA Pavement Condition 2017

Poor & Very Poor

Fair

Good & Excellent

MPO Pavement Condition 2017

Poor & Very Poor

Fair

Good & Excellent



distress based on age, percent of life used, cracking, International Roughness Index, durability, thickness, friction value, patching, asphalt depth and base thickness. The Pavement Condition Index helps officials make decisions on funding needs and pavement improvement needs. Of the roadways that were studied in 2017, Jasper County has approximately 49.13 miles in the excellent category (rating of 80 or higher), 74.23 miles in the good category (rating of 60-79), 3.61 miles in the fair category (rating of 40 -59), 1.53 miles in the Poor category (rating of 20-39) and zero miles in the very poor category.

CIRTPA 2017 Pavement Conditions

In addition to the Iowa DOT Pavement Condition Index, CIRTPA also created a 2017 Pavement Conditions map. This map categorizes road conditions into Good & Excellent, Fair, and Poor & Very Poor. This data was obtained from the Iowa Department of Transportation (DOT) and the Institute for Transportation at Iowa State University (InTrans). This map shows pavement condition data for different roadways than the Iowa DOT PCI map, so the two maps should be used in conjunction when determining road repairs.

Relationship to CIRTPA Long-Range Transportation Plan

CIRTPA's Long-Range Transportation Plan is intended to provide a blueprint for the development of the area's transportation system over the next 20 years.

The goals identified in the plan were:

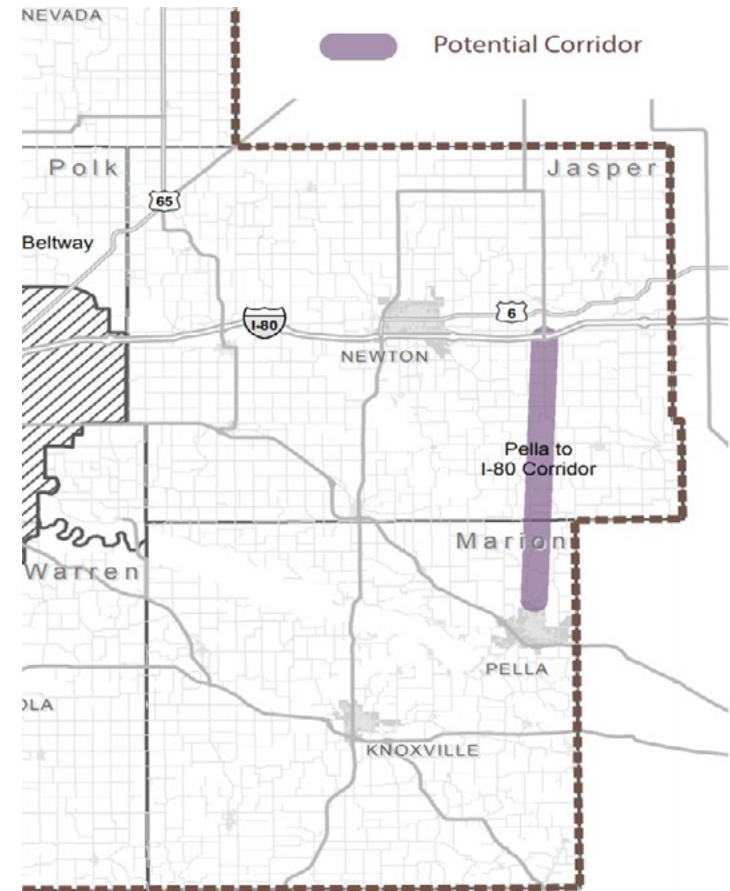
1. Maintain our existing transportation system
2. Provide a safe transportation system
3. Promote livability
4. Protect the environment and conserve resources

The plan also calls attention to transit ridership in Jasper County. In 2012, there were an average of 99 people riding to or from Jasper County via DART per day, and 1,436,968 rides provided by HIRTA between 2006 and 2012. This number continues to increase and indicates a demand for such mobility alternatives.

The LRTP also brings to light potential future corridors. In relation to Jasper County, the plan identifies a Pella to I-80 Corridor for future consideration. Jasper County no plans to allocate any funds to the Pella to I-80 Corridor project.

Public Feedback + Best Practices

Transportation Options ranked third out of eight options on the online public survey. Within that topic area, Road Maintenance was ranked as the most desired strategy. Road safety and paving were also high on the list. Multi-use trails and Ride Share/Transit options were viewed as relatively split on the preference scale. When asked to distribute the county's hypothetical capital improvement budget, respondents allocated most funding to road maintenance and expansion. The survey comments strongly supported maintaining the rural roadways, particularly the gravel roads; some comments were in favor of paving the gravel roads. There was also strong support for improving bridges and providing affordable public transportation options, particularly for seniors to and from Des Moines. There were also comments supporting more paved trails for biking and walking, with one example of connecting the county's cemeteries, while other comments were not in favor of creating a paved trail system. The public feedback from community events clearly identified the rural transportation network as the most important area for the county to focus its attention.



Transportation-related best practices advocate for expanded transportation options for all ages and all abilities. Consideration should be given to transportation options that maximize mobility, reduce congestion, conserve fuel, and improve air quality. Demographic factors such as the aging population have an impact on transportation needs. According to the 2017 American Community Survey, there are over 6,786 individuals aged 65 and older and nearly 5,000 individuals with disabilities in the county. These trends indicate the need for a variety of mobility options. Changes in technology may also have an impact on future needs with increasing options for shared-use transportation and the future of vehicle automation.

Recognizing the relationships between the transportation network and land use and between street design and community character is also a best practice. A grid roadway network is considered to be a best practice since it disperses traffic on parallel roadways, provides for alternative routes should one route become blocked, and creates a predictable network and simpler land development. Cul-de-sacs, dead-end roads, and looped roadways are generally not considered to be part of a grid network and should only be used when natural or historical features prohibit a more connected transportation network.

The transportation network must be designed with consideration not only to transportation safety and efficiency, but also to protection of natural resources, agricultural land, and cultural and historic landscapes; and promotion of equitable mobility, walkability, and bikeability. As a highly visible element of the county, streets play a role in establishing character through placemaking.

An emerging best practice is the use of Intelligent Transportation Systems (ITS) (aka Smart Transportation), which integrates technology to improve the transportation system. This may include a wide range of applications such as navigation systems, use of cameras to enforce traffic control laws, real-time feedback on traffic conditions (e.g. crashes, hazards, congestion) and provision of alternate routes, locations of available parking spaces, or updated transit times. It may even allow a transit bus or emergency vehicle to have priority at signalized intersections by turning the signal green upon approach or change a speed limit based upon current conditions.

Goals + Objectives

Goals

TN: Develop and maintain a complete transportation system to benefit residential, agricultural, and economic purposes

Objectives

TN-1: Ensure that the transportation network is safe and efficient

TN-2: Use street design to establish a character within cities and villages

MO: Provide mobility options for all ages and abilities

Objectives

MO-1: Develop non-motorized connectivity for transportation purposes

MO-2: Support motorized travel without individual motorized vehicle ownership



