

Section VIII. Process Improvement Proposals

Street and highway improvements are a critical planning consideration because of the interactive relationship between transportation and land use.

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This section of the Long-Range Plan will outline various documents in the transportation process and improvements that can be beneficial in implementing the plan.

A. Transportation Improvements Program

The Sioux Falls Metropolitan Area Transportation Improvements Program (TIP) represents a prioritized program of transportation improvements in the following multimodal areas: streets and highways, public transportation, aviation, railroads, bicycles, and pedestrian. Projects are prioritized within each program year by funding category.

The TIP is developed through a series of meetings between state and local transportation officials where the transportation-related needs, concerns, and priorities of each participant are discussed and evaluated. Project-oriented solutions are then developed and initiated into the TIP by the governmental entity having jurisdiction.

TEA-21 requires that all MPO TIPs be financially constrained and include a financial plan that indicates how projects can be implemented while the existing transportation system is being adequately operated and maintained using existing or expected revenues. The Sioux Falls area TIP has been developed to be financially constrained for each of the five calendar years and is coordinated with the CIP.

Projects programmed for the upcoming year will be adopted as a part of the City's budget. Projects scheduled for subsequent years are tentatively programmed for implementation in those respective years. All projects beyond the current year are subject to future annual review.

The South Dakota Transportation Commission approves the State Transportation Improvement Program after the MPO acts on the TIP. The State sees this process as allowing, "...for a combined effort to solve transportation problems, to find more cost-effective solutions, and to improve the level of transportation services. In the future, continued coordination and preparedness will be essential to meet the demands of growing populations in the MPOs."

B. Unified Planning Work Program

The Unified Planning Work Program (UPWP) is the document which describes the annual objectives, work activities/products, and planning research studies to be accomplished by the agencies with the Sioux Falls MPO. The planning work that is

conducted and the products and plans that are produced are used in a formalized local decision-making process to formulate and approve area transportation plans that address the unique challenges of the study area.

The Work Program is comprised of seven sections: Long-Range Transportation Planning, Transportation Improvements Program, Management Systems, Process Operations, Capital Resources, Special Studies Development, and Implementation and Other Planning.

C. Efficiency of System and Operations

The City of Sioux Falls engages in a number of low-cost, short-range actions, which are implemented through the local transportation system to increase the efficiency and safety of the transportation network. Various studies are also conducted to gain an insight into the existing transportation system. These studies are used to identify problems by type, location, and severity, as well as to determine the impact of the improvements.

The following activities are engaged in the area of streets and highways:

Accident/intersection studies	Four-way stop studies
Accident statistics and analysis	Channelization projects
Through street changes	Capacity analysis
Signal installations	Travel time and delay study
Signal warrant studies	Parking surveys and parking restriction studies
Signal inventory	Parking lot layout review
Sign inventory	Turning movement counts
Flashing signals	Permanent traffic counts
Traffic sign face/blank inventory	School studies
Sign changes	Special studies
Signal timing changes	

The following activities are engaged in the area of transit and paratransit:

Local transit planning committee	Marketing program
Task force on transit	“Transit Tracks” newsletter
Dakota Transit Association	School information program
American Transit Corporation	Utilization of free labor
Defensive driving class	Central transfer facility
Safety	Route and schedule changes
Security guards	Passenger shelters
Security ride check	Section 16 (b)(2) applications
Passenger meetings	Section 504-program plan
Mini courses	Triennial review

As discussed in the Strategic Planning Process Section, three systems need to be enhanced to measure and track transportation improvements:

- Pavement Management Report–The City of Sioux Falls in cooperation with the South Dakota DOT has established this program to assist in street inventory,

street condition, and maintenance scheduling. The program is designed to efficiently monitor pavement surface conditions on an annual basis to improve the quality of the streets of Sioux Falls.

- Safety Management System Report—This report is used to monitor accidents within city limits. The Sioux Falls Engineering Department uses a statistical method to determine high-accident areas of the city. A field study is performed by personnel to investigate an evident problem. Different alternatives are discussed and then the most logical cost-effective solution is chosen and implemented.
- Congestion Management System—While not in a report form, the goal is to develop strategies that may alleviate congestion and improve mobility of people and goods on our existing transportation system.

These management systems need to be enhanced by each representative agency completing the various reports and reporting on the findings. At that point, the TIP and Unified Planning Work Program would represent the tracking of the transportation system to a much greater extent.

Anthony Downs states in his book Stuck in Traffic that the long-term causes for increased traffic congestion are:

- Concentration of Work Trips in time.
- Desire to choose where you live and work.
- Desire for low-density neighborhoods.
- Preference for low-density workplaces.
- Desire to travel in private vehicles.

“Unfortunately, reducing congestion will be difficult because its causes are rooted in behavior that most Americans dearly cherish—especially driving to and from work alone in private autos. Rush-hour congestion cannot be reduced much unless many people are persuaded or pressured into abandoning that practice.” *Stuck in Traffic*, p. vii

D. Land Use and Transportation Improvements

People travel from home to work (HBW) and to shop (HBO). Employees are based in within numerous land uses: commercial, industrial, retail, service. Less intense employers (offices) should be used as transition areas between commercial centers and residential areas. Industrial areas should take advantage of the major transportation corridors. Much of the projected development can be accommodated on existing vacant land within the city. If properly located and developed, these sites will support the goal of creating major employment centers in greater proximity to workers’ residences. As stated earlier, the three primary employment centers are the northern industrial park area, downtown, and the southwest commercial area. These are also projected to have the largest increases in new jobs by the year 2025.

Sioux Falls 2015 states that “neighborhood centers” and “community centers” provide local convenience shopping facilities for surrounding residential neighborhoods, and include grocery stores, drug stores, strip centers, and other personal services ranging from 10,000 to 100,000 square feet. Commercial areas should be located near major intersections where conflicts with nearby neighborhoods can be minimized. It is anticipated that these will be integrated into residential growth areas as development in those areas occurs. Larger-sized regional shopping centers with areas over 100,000 square feet will be provided along major street and highway intersections where street and utility services are adequate to accommodate such uses.

Throughout the Long-Range Plan, quotes from the 1996 Comprehensive Development Plan, **Sioux Falls 2015–A Growth Management Plan**, have been used. The use of these quotes helps to signify the direct relationship that occurs between land use and transportation. When land use planning and transportation planning coexist, the efficiency of all the municipal systems can be improved.

In Sioux Falls 2015, emphasis on a community’s neighborhoods play a major role. These segments need to be addressed within transportation decisions.

Development

The specific principles that guide the planning of new neighborhoods should include a variety of housing types and densities, a centrally located elementary school, close access to a neighborhood park or other type of open space which would serve the neighborhood, access to a commercial center serving local needs, a safe pedestrian walkway system and efficient vehicular routes from within the neighborhood to major streets, and provision for other neighborhood services such as day-care, churches, and community centers.

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Conservation

The greater density of older neighborhoods makes public transportation services more practical. The need to move more traffic through the core of the city as greater growth occurs at the outskirts needs to be balanced with the neighborhood conservation goals. Expansion and extension of major arterial streets, which cause barriers and cut up neighborhoods, should be avoided to the greatest extent possible.

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Staff can manage the transportation system by being aware of the impacts land use decisions have on the system. The policy of developing activity centers/commercial nodes should continue to be implemented. The land adjacent to the intersection of two arterials can be defined as an activity center. These centers should consist of a concentration of commercial uses, employment area, or a large trip generator surrounded by transitional land uses. These centers will have higher densities than other locations and will generate a higher number of trips. The increased density land uses create enhanced opportunities for multimodal travel “within” them. For example, an activity center with commercial land uses mixed with office facilities will increase opportunities for workers at the offices to walk to the retail shops versus driving.

The USDOT report, **A Guide To Land Use And Public Transportation**, states, “A density of seven dwelling units/acre has been used as a minimum threshold for transit supportive density for local bus routes with 30-minute headways, while densities of 15-dwelling units per acre are generally required for 10-minute headways.” By reviewing a wide range of land use scenarios, whether or not they can currently be implemented, helps to educate the public and decision-makers on the link between land use and multimodal transportation.

Due to the direct role that a decision on one aspect will have on another, serious consideration needs to be given when development occurs. All aspects of the impact that a land use will have on a transportation system, or the impact that a transportation system will have on the adjacent land uses must be considered.

E. City of Sioux Falls Arterial Street Code

15A.07.030 Arterial Street Development.

In order to maintain the traffic-carrying capacity of the arterial streets by limiting access to it from individual lots, and in order to protect the residents of property adjacent to arterial streets from the high traffic volumes associated with the street, property along such arterials shall be subdivided in the manner set forth below:

- a. Double frontage lots. Where double frontage lots are used, an extra lot depth or width shall be required to provide for an extra setback to offset the impact of high traffic volume. When double frontage lots are proposed, the developer shall be required to escrow a sufficient amount of money to pay for the assessments on the arterial street or shall finance and complete construction of the arterial street to City specifications prior to plat approval.
- b. Blocks on to arterial streets. In order to avoid private access from individual lots on to arterial streets, lots should be arranged on blocks so that their side or rear yards are adjacent to the arterial street. Lots adjacent to an arterial street shall have an additional width to provide for an extra setback to offset the impact of high traffic volume. This design will be accepted only for a limited distance due to the number of streets which would intersect with the arterial.
- c. Access roads. Access roads may be used as the city grows into the areas in the county where they have been required. Under some circumstances they would also be appropriate for commercial and industrial development. Access roads shall be constructed to City standards with a right-of-way width of 50 feet.
- d. Rear access roads. Rear access roads are recommended for commercial developments. In this way, the access can serve two tiers of lots and alleviate the dangerous turning movements onto and off of arterial streets.
- e. Townhouses, multiple-family units, and other nontraditional housing styles. These types of development are particularly suitable for the intersection of two arterial streets. Any development of this type should have limited access to the arterial street.

- f. Plats for residential development. Plats for residential development adjacent to functioning railroad rights-of-way shall provide extra lot depth or width to provide for an extra setback to offset the impact of the railroad traffic.
- g. Minimum building setback. Lots adjacent to the major drainageways and detention ponds as shown on the drainage plan adopted as a part of the comprehensive development plan shall be designed with an increased depth to allow for building setback requirements. Greater backyard depth will increase the functional separation between the developed subdivision and the drainage facilities.

F. Design Standards

The Infrastructure Review Advisory Board updated the Engineering Design Standards for Public Improvements in 1999. This document outlines design criteria and procedures for public improvements.

As arterials and collectors get more and more “congested,” commuters will move onto local streets that do not have as many physical features to slow them down. The City needs to be proactive in reviewing and implementing traffic-calming measures.

Landscaping should also be used to successfully integrate and soften the impact of street improvements within a community. Landscape architecture and design features that complement the aesthetic character of the surrounding neighborhood should be considered as part of the overall street design.

G. Traffic Impact Analysis Requirement

An analysis of the traffic impacts that development proposals in Sioux Falls may have upon the transportation facilities may be required if an initial review of the proposal warrants one. The primary responsibility of such an analysis will rest with the development applicant, with City staff serving in a review capacity.

H. Access Control

In Sioux Falls, an access permit must be obtained from the City Engineer for any public or private access constructed to a public street. Access to streets or highways under the jurisdiction of the SDDOT will be governed by requirements of the SDDOT. In addition to obtaining a permit from the City Engineer, it will also be necessary to obtain a permit from the Area Engineer of the SDDOT.

The SDDOT is currently studying the concept of Access Management as it relates to streets and highways. In general, too many curb cuts (access points) on an arterial street will have a negative impact on the ability for that street to handle arterial traffic volumes safely and effectively. Where possible, the number of curb cuts should be limited. A preferable alternative is the use of side streets and/or shared driveways to gain access to properties.

I. Intelligent Transportation Systems (ITS)

The incorporation of today's technology into the existing "asphalt and concrete" street system has been grouped into an Intelligent Transportation System (ITS) philosophy. Across the United States, ITS efforts have been directed in five main areas. Three of these are actively being implemented in the Sioux Falls MPO area:

- Intermodal transportation systems.
- Intelligent traffic control systems.
- Traveler advisory systems.

Due to the regional nature of the Sioux Falls MPO area, initiatives within the intermodal transportation systems realm were inevitable. The Sioux Falls Regional Airport Authority's master plan works to ensure the uncongested transfer of people and goods from one transportation mode to another. The Bus Stop, an intermodal facility in downtown Sioux Falls, allows a focal point for transferring between routes, taxis, private autos, and pedestrian travel.

In 1992, the City installed a closed loop system along four miles of a major arterial route. The cost was approximately \$330,000, however the annual driver timesavings are equivalent to over \$5 million. Since installation of the closed loop system along the major arterial route in 1992, eight other routes have been improved with **intelligent traffic control systems**. These routes are being planned to be as comprehensive as possible with the anticipated future installation of a central control system, video cameras, message signs, and emergency equipment preemption.

Through recent surveys, the public has responded positively to having access to information on roadway conditions. Through ITS, the MPO is able to disseminate travel time and road condition information over the Internet or by cellular phone, including area congestion maps, interactive route programming, incident reports, and construction reports.

Planning is currently underway to complete a Metropolitan Intelligent Transportation System Comprehensive Plan for the Sioux Falls MPO area. The plan will use practical and cost-effective ITS technologies in an integrated intermodal methodology to enhance transportation management and traveler information. This will lead to increased safety and efficiency of the metropolitan transportation system.

Key variables of this ITS Comprehensive Plan will be an integrated ITS communications system that is endorsed by all agencies involved in the Sioux Falls MPO area and a system that can be built within the parameters of common ITS architecture. Special emphasis will be given on advanced traveler information and traffic management systems, advanced public transit systems, and emergency response systems.

J. Traffic Forecasting

During the fall of 2000, the SDDOT and the three South Dakota MPOs will be working together to coordinate the selection and purchase of a new traffic forecasting model which will aid in examining the future demand on the metropolitan area's transportation system. Staff training and calibrating the model will take place during 2001.

The model is developed using existing traffic counts, Traffic Analysis Zones, and proposed land uses. The model will be used to "model" various transportation improvements and their impact on the transportation system.

K. On-Street Parking

Sioux Falls' streets are intended to provide safe, efficient travel, and to provide access to homes and businesses. Vehicle parking is a secondary use of the city streets and should not occur where the parking interferes with safe traffic movement. The Traffic Engineer will determine where parking interferes with safe traffic movement and restrict unsafe or inefficient parking in compliance with state law and city ordinance.

As a general guideline, parking will be dictated by street classification. The following table displays parking conditions by street classification.

Roadway	Parking Conditions
Arterial Streets	Parking will not be allowed due to high traffic volumes and high speeds. Some sections of arterial streets retain parking from past uses and street classifications. Parking on those sections will be removed as streets are rebuilt, land use changes, or traffic demand dictates.
Collector Streets	Parking will be determined by land use and traffic volumes.
Local Streets	Parking will be allowed, except where it creates safety problems, or where adjacent landowners petition to have it removed or restricted.

L. Improvements in Historic Districts

The Sioux Falls area is fortunate to have a significant amount of historic places and buildings. These locations reflect Sioux Falls' positive image and help to characterize the area as a clean, attractive city. This is an image we will continue to enhance and protect. "All public actions, which affect historic resources, should consciously and publicly consider the individual and cumulative effect of the decision on the community's pool of historic buildings." *Sioux Falls 2015 X-5.*

This commitment is further spelled out in an agreement between the City and State Office of History outlining the methods for dealing with projects with potential historic impacts. The agreement states that the City is responsible to submit to the History Office for review all projects which will affect buildings, structures, sites, objects, or districts or their environs listed on the State Register or the National Register.

The state recognizes that certain projects, such as installation of traffic control devices and repair and maintenance of traffic devices and utilities, have no adverse effect on historic properties and does not require them to be submitted for State review.

M. Other Process Improvements

◆ Drive to Arrive

The latest “buzz word” in the transportation field is “road rage.” As drivers are becoming more and more stressed by their daily commutes, crowded roadways, and by speeding and cutting through traffic in residential neighborhoods, their emotions behind the wheel turn to anger and rage. The technology that has come along with this problem is “traffic calming.” In the Sioux Falls area, a program entitled “Drive to Arrive” has been undertaken to address these two issues.

◆ Traffic Calming

Congestion on major arterials tempts drivers to use local roads as shortcuts to destinations. To a commuter, even winding one-ways on a circuitous route is better than sitting in stop/start traffic, inching up toward a full intersection. Gradually, quiet neighborhood streets become more heavily traveled, with higher speeds increasing the crash possibilities, noise, and pollution levels.

The concept of traffic calming attempts to address this issue by “guiding” drivers into safer, more neighborhood-friendly driving practices. Construction designs are intended to slow vehicles down and reduce crashes, while addressing neighborhood concerns.

◆ Vehicle Miles Traveled (VMT)

As a community grows, the public tends to travel further to work, services, and recreation. The number of vehicles upon a given roadway counts against the capacity of that roadway, therefore increasing congestion. The number of vehicle miles traveled equals more wear on the roadway. A high rate of growth in VMT, with a limited increase in street capacity, starts to explain the increased perception of congestion.

◆ Travel Demand Management (TDM)

Travel demand management aims to reduce the number of trips made by single-occupancy vehicles, particularly during peak traffic periods. TDM can be accomplished through many means, including but not limited to: providing information about the location, availability, and cost of mass transit services, vanpools, ridesharing, and telecommuting.