# Executive Summary

This Transportation Plan document will serve as a tool to guide the Greater Helena Area transportation planning efforts and transportation infrastructure improvements over the next twenty years. The development and implementation of a Transportation Plan is one of the best tools for managing growth and accommodating development needs.

Not only do Transportation Plans provide analysis and mitigation for the existing transportation system currently being utilized, they also "look into the crystal ball" to try and predict future growth where it is likely to happen, when it is likely to happen, and how much of it is likely to occur. More importantly, by predicting this growth the community can be primed to deal with it before infrastructure problems become apparent. This is one of the fundamental goals of developing a Transportation Plan - identifying transportation system needs before it is too late. By doing so, planners and community leaders can begin to plan and program needed infrastructure improvements pertinent to the transportation system.

This plan complies with and addresses the planning vision, goals and objectives as delineated in **Chapter 1** of the plan. The planning vision and goals were devised and identified by the Technical Working Group (TWG) set up to guide this project's development, and complements the stated transportation goals and objectives contained in the *Lewis & Clark County Growth Policy* and the *City of Helena Growth Policy*.

For the most part, the transportation system in the Greater Helena Area is functioning adequately and will continue to do so in the future. There are several problematic corridors and intersections that have been identified, and without expansion or revision in the near future, congestion and "levels of service" will deteriorate. Perhaps the biggest challenge will be to keep up with current development trends that are impacting the transportation system, and also to make sure appropriate infrastructure is in place to accommodate the anticipated growth over the next twenty years.

Several major travel corridors will be pushed to their limits in the coming years. These major travel corridors that are experiencing heavy amounts of traffic volumes are Custer Avenue, Montana Avenue, Canyon Ferry Road, and Euclid / Lyndale Avenues. As the community grows over the next twenty years, these corridors will experience the majority of the growth in traffic volumes, and subsequently will push the acceptable limits of capacity for the roadway geometries currently in place.

Another interesting feature of the community's transportation system that will have a major impact is the proposed work along the Interstate 15 corridor. The multitude of projects recommended in the *Interstate 15 Final Environmental Impact Statement (FEIS)* will have a very positive effect on the community's transportation system. Although the only "committed" projects from the Interstate 15 FEIS are the new South Helena Interchange and associated connecting roads, the other projects contained in the study add considerable value to improving traffic congestion regionally. An example is the proposed Custer Avenue Interchange.

Traffic modeling has showed that the minute the Custer Avenue Interchange is "turned on", traffic volumes will decrease substantially on the Montana Avenue corridor, the 11th / Prospect Avenue "one-way" couplet, and Washington Street. This effect will improve traffic flow and reduce intersection delay immediately. Of course, the surrounding infrastructure will need to be in place to accommodate a new Custer Avenue Interchange. The projects recommended in the FEIS document are also recommended herein, and their implementation will greatly improve traffic characteristics in the community.

This Transportation Plan studied all the roadways contained on the major street network developed for this project (see **Figures 2-3** and **2-4**). This street network included most collector, minor arterial and principal arterial roadways in the community. Roadways classified as "local" were not included on the major street network, and consequently were not studied in any great detail. In addition, over 77 intersections, comprised of both signalized and unsignalized locations, were studied in depth under existing traffic conditions and projected future traffic conditions.

The socio-economic projections completed for this project did identify areas where growth is likely to cluster over the next twenty years. The "Land Use Advisory Committee" set up for this project predicted significant new housing development in the outlying areas of the city of Helena proper. Intensive residential development will be occurring to the southeast of the City limits near the area between Helena and East Helena, south of U.S. Highway 12. Additionally, current development patterns in the north valley, east towards Canyon Ferry reservoir, and west towards the Fort Harrison complex will continue. Another area predicted to experience substantial residential growth is immediately north of Custer Avenue.

Considerable commercial development and employment will occur both north and south of Canyon Ferry Road (and east of Interstate 15). The area around the Helena Regional Airport will see significant growth over the coming years and will exhibit a variety of mixed-use development. Areas south of the old airport terminal, and further east, will also see industrial growth. Other areas to see intensive commercial growth are the previously mentioned Highway 12 corridor (east of Interstate 15 and south of US Highway 12 East), the McHugh Lane area (just north of Custer Avenue), areas along Montana Avenue (north of Custer Avenue), and other miscellaneous locations. The "mid-town" area will inevitably go through a revitalization process that will change land uses and generate different traffic characteristics. Some commercial development is expected to occur west of the City proper (i.e. along Euclid Avenue) and also in the downtown core area.

Obviously, the result of all of this combined residential and employment growth translates into additional traffic and higher demands on the transportation system. A more in-depth discussion on growth trends and development areas is discussed in **Chapter 3** of the Plan.

# Executive Summary - continued

Traffic volume growth in the Greater Helena Area was projected using a computer traffic model. The model used current socio-economic data and growth trends to project traffic volumes. These projected traffic volumes were used to help identify future traffic problems within the area. The projections indicate that most sections of the current street network can be sufficiently utilized to meet the traffic demands generated by future growth, with conditions. Several corridors will need expansion, and the revisions to the Interstate 15 corridor will be a necessity to allow the system to function acceptably into the future. The anticipated traffic demand in the year 2025 will produce considerable traffic congestion on some facilities, and excessive vehicle delays at approximately 46 major intersections. This is detailed in further depth in **Chapter 4**. Several major corridors will need to be expanded to handle the additional traffic, including Custer Avenue, Cedar Street, Montana Avenue, and Washington Street.

In order to efficiently respond to the traffic demands identified within the community, a Traffic Demand Management (TDM) strategy is provided. Possible TDM strategies include ride-sharing, carpools, non-motorized forms of transportation, and public transit. Another possible strategy is to encourage local businesses to allow employees to use flex-time to help shift traffic demand away from the peak hours. TDM strategies are presented in **Chapter 5**.

This Plan also supports the development of "non-motorized" transportation. The Plan encourages the use of transit and non-motorized modes of travel by recommending development of necessary infrastructure. This primarily relates to bicycle travel and complements the recently completed *Helena Area Non-Motorized Transportation Plan*. Although that particular Plan was not formally "adopted", it should be used as a guide when considering non-motorized transportation. The top eighteen priorities from the *Non-Motorized Transportation Plan* have been reiterated in this Plan. This information is contained in **Chapter 6**. It is important to recognize that non-motorized opportunities should be evaluated whenever infrastructure projects are undertaken. This includes the multitude of Transportation System Management (TSM) and Major Street Network (MSN) projects contained in this Plan. Every TSM and MSN project should be reviewed at different levels to address potential improvements to the non-motorized transportation network. Additionally, a snapshot of transit services is contained in **Chapter 7**. A *Transit Development Plan* will be undertaken in 2006 that will look at transit service in a more "in-depth" manner.

The analysis of the future traffic conditions indicated a need for a variety of improvements in the area. These improvements are presented in two categories: Transportation System Management (TSM) improvements; and Major Street Network (MSN) improvements. It should be recognized that many of the projects contained in this Plan Update were also contained in the 1993 Transportation Plan. In most cases, needs and issues identified in 1993 have only compounded further into bigger problems. A total of fifty-three TSM projects are recommended, at an estimated cost of about $4.9 million. The MSN projects focus on upgrading entire road corridors and the construction and/or rehabilitation of roadways. Thirty-nine MSN improvements are recommended, at a total cost of approximately $154.9 million.

It should be recognized that the recommended Interstate 15 FEIS projects account for approximately $80 million of the entire amount, and potential railroad grade separation projects account for $17.5 million. Clearly, these two categories of potential MSN projects will not be funded by conventional transportation funding mechanisms available in the past. The Transportation System Management improvements are listed in **Chapter 10**, with Major Street Network improvements shown in **Chapter 11**. No effort has been made to prioritize any of the MSN projects. That responsibility falls on the Transportation Coordinating Committee (TCC). However, ten MSN projects have been identified as being very important to the successful operation of the future transportation system. They are listed in the next column in no particular order.

**Ten Important Major Street Network (MSN) Projects**

Project MSN-1: Custer Avenue (Montana Avenue to Green Meadow Drive) Reconstruct to a five-lane minor arterial roadway.

Project MSN 31(e): Cedar Street (Montana Avenue to Interstate 15)
Expand to five-lane principal arterial roadway.

Project MSN 31(a): Custer Avenue Interchange
Construct new interchange with associated improvements to Custer Avenue between Washington Street and Montana Avenue (as per I-15 FEIS).

Project MSN 31(c): Capitol Interchange
Reconstruct Capitol Interchange, with appropriate connections to US Highway 12 East and Colonial Drive (as per I-15 FEIS).

Project MSN-2: Montana Avenue Grade Separation
Construct a new grade separation of the railroad crossing at Montana Avenue, as per the recently completed *Montana Avenue Grade Separation Feasibility Study.*

Project MSN-17: Montana Avenue / Lyndale Avenue / Helena Avenue
Reconstruct the intersection of Montana Avenue / Lyndale Avenue / Helena Avenue.

Project MSN-31(d): Lincoln Interchange
Reconstruct the Lincoln Interchange (as per I-15 FEIS).

Project MSN-3: Custer Avenue (Westerly Extension)
Construct the westerly extension of the Custer Avenue corridor between Green Meadow Drive and Joslyn Street.

Project MSN-39: Henderson Street Railroad Underpass
Reconstruct the railroad underpass crossing at Henderson Street to

# Executive Summary - continued

provide needed clearance and acceptable roadway width under the bridge structure.

Project MSN-10: Montana Avenue (between Cedar Street and Custer Avenue)
Reconstruct Montana Avenue between Cedar Street and Custer Avenue to provide for a fifth lane to accommodate left-turning movements.

One of the most important pieces of information that is provided in this Plan is a projection of the recommended "major street network". A map(s) showing this projection is presented in **Chapter 12**, and identifies where the future arterial and collector routes of the community should be located as the area develops. This map is an important planning tool and is essential for the City and County planners, because it provides a blueprint of how the arterial network should be developed. It enables the planners to locate future arterial corridors, and to request appropriate amounts of rights-of-way and new road sections throughout the development process. This will allow the community to create a logical and functional road network for the future.

It is important to note that identifying the desired general alignment of future road corridors is significantly different from building roads to encourage development. The socio-economic trends indicate that steady and sustainable development will occur within the 20-year planning horizon of this Transportation Plan. This map of the future road system will insure that anticipated development also produces an appropriate road system.

Miscellaneous transportation system issues are presented in **Chapter 13.** Topics include: the current Greater Helena Area "federal aid system" and whether revisions to the urban aid network are necessary; potential revisions to the current city of Helena traffic counting program; potential criteria to assist Lewis and Clark County in prioritizing their maintenance program; suggestions for roadway corridor preservation and building setbacks along new corridors; exploring ways that local authorities can become more involved in overall transportation system planning, and lastly a look at potentially revising the Transportation Coordinating Committee (TCC) membership and responsibilities.

The combined cost for both types of recommended projects exceeds the funds estimated to be available through the federal-aid programs that traditionally finance transportation improvements. This should not be interpreted to imply that this Transportation Plan is not fiscally sound. What does need to be recognized, though, is that many future projects will need to be financed by the private sector during the development process to assist with the building and expansion of the transportation infrastructure. Additionally, alternative finance mechanisms should be explored on a project-by-project basis.

This is especially true for County projects located outside of the urban boundary limits but within the Study Area limits of the Transportation Plan. Several of the recommended projects that may experience funding shortfalls are predicted for projects within the County that are not eligible for conventional Federal funding participation and do not fall within any identified Federal funding program. These projects especially will require other measures to fund the improvements (such as transportation bonds, developer impact fees, RID's/SID's, etc.). A detailed discussion of funding opportunities and constraints is contained in **Chapter 14** and **Chapter 15**.

Recommended Transportation System Management (TSM) projects should be completed as needed and as funding allows. Implementation of the TSM projects will keep most of the transportation system functioning at a satisfactory level during the 20-year planning period. However, a select group of MSN projects must be implemented in order for the system to function effectively.

Although this document is a tool that can be used to guide development of the transportation system in the future, local and state planners must continually re-evaluate the findings and recommendations in this document as growth is realized and development occurs. If higher than anticipated growth is realized in the community, or if growth occurs in areas not originally planned for, transportation needs may be different from those analyzed in this Plan. An update and re-evaluation of this document should occur every ten years, at a minimum, as per current transportation planning practice in the State of Montana. If explosive growth occurs, the potential exists for doing a shortened update to the Plan on a five-year planning cycle. It would also be recommended that County and City officials complete cursory reviews of the Plan every three years to determine how progress on the regions transportation system is progressing.

Lastly, a comment about the current status of rising gas prices and the worlds energy supply is appropriate. As gas prices continue to rise, innovative transportation measures will become more needed. The development of new technologies, such as hybrid cars and bio-diesel fuels, will certainly help ward off future energy concerns. A clear effort and directive to contemplate TDM strategies and non-motorized travel will be viable methods to counter future resource deficiencies. Community leaders should continually search for ways to incorporate these alternate travel modes into infrastructure projects.

# Definitions/Acronyms

## Definitions

**Access Management/Control** - Controlling or limiting the types of access or the locations of access on major roadways to help improve the carrying capacity of a roadway, reduce potential conflicts, and facilitate proper land usage.

**Average Daily Traffic (ADT)** - The total amount of traffic observed, counted or estimated during a single, 24-hour period.

**Annual Average Daily Traffic (AADT)** - The average daily traffic averaged over a full year.

**Americans with Disabilities Act (ADA)** - The Federal regulations which govern minimum requirements for ensuring that transportation facilities and buildings are accessible to individuals with disabilities.

**Bikeway** - Any road, path, or way which in some manner is specifically designated as being open to bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes.

**Bike Path** - A bikeway physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right-of-way or within an independent right-of-way.

**Bike Lane** - a portion of a roadway which has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists.

**Bike Route** - A segment of a system of bikeways designated by the jurisdiction having authority with appropriate directional and informational markers, with or without a specific bicycle route number.

**Capacity** - The maximum sustainable flow rate at which vehicles can be expected to traverse a roadway during a specific time period given roadway, geometric, traffic, environmental, and control conditions. Capacity is usually expressed in vehicles per day (vpd) or vehicles per hour (vph).

**Central Business District (CBD)** - The downtown area which is bounded by Cruse Avenue, Park Avenue, and Neill Avenue.

**Collector Street** - Provides for land access and traffic circulation within and between residential neighborhoods, and commercial and industrial areas. It provides for the equal priority of the movement of traffic, coupled with access to residential, business and industrial areas. A collector roadway may at times traverse residential neighborhoods. Posted speed limits on collectors typically range from 25 mph to 45 mph and can carry between 2,000 and 10,000 vehicles per day. (City of Helena Defines 2,000-5,000 vpd) (Lewis & Clark County defines 1,500-3,500 vpd - [Minor], greater than 3,500 vpd - [Major])

**Congested Flow** - A traffic flow condition caused by a downstream bottleneck unable to pass through unsignalized intersections.

**Context Sensitive Design (CSD)** - A fairly new concept in transportation planning and highway design that integrates transportation infrastructure improvements to the context of the adjacent land uses and functions, with a greater sensitivity to transportation impacts on the environment and communities being realized.

**Delay** - The amount of time spent not moving due to a traffic signal being red, or being unable to pass through an unsignalized intersection.

**Facility** - A length of highway composed of connected section, segments, and points.

**Level of Service (LOS)**- A qualitative measure of how well an intersection or road segment is operating based on traffic volume and geometric conditions. The level of service "scale" represents the full range of operating conditions. The scale is based on the ability of an intersection or street segment to accommodate the amount of traffic using it, and can be used for both existing and projected conditions. The scale ranges from "A" which indicates little, if any, vehicle delay, to "F" which indicates significant vehicle delay and traffic congestion.

**Local Street** - Comprises all facilities not included in a higher system. Its primary purpose is to permit direct access to abutting lands and connections to higher systems. Usually through-traffic movements are intentionally discouraged. Posted speed limits on local roads typically range from 25 mph to 35 mph and are designed for less than 3000 vehicles per day. (City of Helena defines less than 2,000 vpd) (Lewis & Clark County defines less than 1,500 vpd)

**Major Street Network (MSN)** - The network of roadways defined for the Transportation Plan effort that include the interstate, principal arterials, minor arterials, collectors and some local streets.

**Minor Arterial Street** - Interconnects with and augments the Principal Arterial system. It also provides access to lower classifications of roads on the system and may allow for traffic to directly access destinations. They provide for movement within sub-areas of the city, whose boundaries are largely defined by the Principal Arterial road system. They serve through traffic, while at the same time providing direct access for commercial, industrial, office and multifamily development but, generally, not for single-family residential properties. The purpose of this classification of road is to increase traffic mobility by connecting to both the Principal Arterial system and also providing access to adjacent land uses.

# Definitions/Acronyms - continued

Posted speed limits on minor arterials typically range from 25 mph to 55 mph and they can carry between 5,000 and 15,000 vehicles per day.

**Multi-modal** - A transportation facility for different types of users or vehicles, including vehicles, transit, bicycles, and pedestrians.

**Oversaturation** - A traffic condition in which the arrival flow rate exceeds capacity on a roadway lane or segment.

**Peak Hour** - The hour of greatest traffic flow at an intersection or on a road segment. Typically broken down into AM and PM peak hours.

**Road Failure** - A condition by which a road has reached maximum capacity or has experienced structural failure.

**Principal Arterial Street** - Is the basic element of a city's road system. All other functional classifications supplement the Principal Arterial network. Access to a Principal Arterial is generally limited to intersections with other principal arterials or to the interstate system. Direct access is minimal and controlled. The purpose of a principal arterial is to serve the major centers of activity, the highest traffic volume corridors, and the longest trip distances in an urbanized area. This classification of roads carries a high proportion of the total traffic within an urban area. The major purpose is to provide for the expedient movement of traffic. Posted speed limits on principal arterials typically range from 25 mph to 70 mph and typically carry between 10,000 vehicles per day and 35,000 vehicles per day. (City of Helena defines over 15,000 vpd)

**Running speed** - The actual vehicle speed while the vehicle is in motion (travel speed minus delay).

**Service Life** - The design life span of roadway based on capacity or physical characteristics.

**Technical Working Group (TWG)** - The oversight committee set up for the sole purpose of guiding the development of this Transportation Plan Update. The committee is comprised of 15 members and includes representatives from the City of Helena, Lewis and Clark County, the TCC (defined below) and the Montana Department of Transportation (MDT). The committee is not a permanent committee and will be disbanded upon completion of this Transportation Plan Update.

**Transportation Coordinating Committee (TCC)** - One of the committees in the Greater Helena Area responsible for overseeing transportation planning. The committee is comprised of 12 members, of which nine are voting members and three are not voting members. The TCC includes representatives from the City of Helena, Lewis and Clark County, the Consolidated City/County Planning Board, the Montana Department of Transportation (MDT), and the Federal Highways Administration (FHWA).

**Transportation Analysis Zone (TAZ)** - Geographical zones identified throughout the study area based on land use characteristics and natural physical features for use in the traffic model developed for this project.

**Transportation Demand Management (TDM)** - Programs designed to maximize the people-moving capability of the transportation system by increasing the number of persons in a vehicle, or by influencing the time of, or need to, travel.

**Travel speed** - The speed at which a vehicle travels between two points including all intersection delay.

**Volume to Capacity (V/C) Ratio** - A qualitative measure comparing a roads theoretical maximum capacity to the existing (or future) volumes. Commonly described as the result of the flow rate of a roadway lane divided by the capacity of the roadway lane.

## Acronyms

**AASHTO -** American Association of State Highway and Transportation Officials
**CFR -** Code of Federal Regulations
**CIP -** Capital Improvement Program
**FAA** - Federal Aviation Administration
**FHWA** - Federal Highway Administration
**HCM** - Highway Capacity Manual
**HCS** - Highway Capacity Software
**ISTEA** - Intermodal Surface Transportation Efficiency Act
**ITE** - Institute of Transportation Engineers
**MDT** - Montana Department of Transportation
**MPO** - Metropolitan Planning Organization
**MUTCD** - Manual on Uniform Traffic Control Devices
**TEA -21** - Transportation Efficiency Act for the 21st Century
**TIP** - Transportation Improvement Program

**This Page Intentionally Left Blank**

GREATER HELENA AREA TRANSPORTATION PLAN 2004 UPDATE