2030 Transportation Plan

Columbia Area Transportation Study Organization
Columbia, Missouri
June 20, 2008

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2030 CATSO LONG-RANGE TRANSPORTATION PLAN
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SECTION ONE CATSO Transportation Systems and Planning Issues

CHAPTER ONE: 2030 TRANSPORTATION PLAN

"Columbia and central Missouri, a growing urban community, will have a modern transportation system, which allows its citizens to move about freely within the region using whatever means are desired – automobile, bus, bicycle, walking – and to do so safely, within a reasonable time frame, and without encountering needless congestion."

--- Vision Statement, Transportation Citizen Topic Group, Imagine Columbia's Future (2007)

1.1 Introduction

Transportation planning in the Columbia area has enjoyed a long history beginning with the adoption of "A City Plan for Columbia, Missouri" in 1935. The first Major Thoroughfare Plan depicting the location of future roadways in Columbia and Boone County was developed by the Columbia Area Transportation Study Organization (CATSO) in 1968. In 1994, CATSO revised and adopted the 2015 Transportation Plan. In 2001, CATSO adopted a revised 2025 Transportation Plan. The Major Roadway Plan element of the 2025 Plan was amended by CATSO in 2005, 2006 and 2007.

Over the years this series of transportation plans have provided guidance for development of facilities that serve the transportation needs of Boone County and the City of Columbia. The plan goals have been to move people and goods within and through the community in an efficient, cost-effective manner and to minimize disruption to neighborhoods and other sensitive areas. The implementation of a transportation plan has a direct effect on the form and character of a community by influencing development decisions. For this reason, land use and land use planning have traditionally been tied to transportation issues.

The Intermodal Surface Transportation Efficiency Act (ISTEA) passed by Congress in 1991 brought about significant changes in the MPO transportation planning process. The ISTEA planning process required updates to transportation plans for a 20-year time horizons, placed emphasis on reducing the growth in vehicle miles traveled by individuals, implementing Clean Air Act requirements, intermodal means of transportation, and examining the land use implications of transportation decisions. Equally significant was the ISTEA requirement that the transportation plan be financially constrained. Funding for transportation investments (roads, aviation, transit, and bicycle/pedestrian) identified in the plan must be shown to be available over the twenty year period. It is the intent of this plan is to continue the process begun with ISTEA, continued with the Transportation Equity Act for the 21st Century (TEA-21), and to address requirements of the 2005 Safe, Accountable Flexible Efficient Transportation Act: A Legacy for Users (SAFETEA-LU) to develop a plan that meets the needs of Columbia and Boone County through the first third of the 21st century.

1.2 Goals

The goals for the CATSO 2030 Transportation Plan are as follows:

1. Plan and develop a coordinated and comprehensive intermodal transportation system to provide for safe and efficient movement of people and goods within and through the community;

2. Provide coordination with applicable land use and development plans in order to insure that the transportation system contributes to orderly development of the community;

3. Identify policies to make more efficient use of the existing transportation system by integrating all forms of transportation, where possible, focusing in particular on alternate forms of transportation to the auto in order to reduce congestion and environmental impact, save energy and provide a reasonable alternative to driving.

4. Expand significantly the pedestrian and bicycle facility network and project listing, including the construction of additional sidewalks, multi-use trails, on-street bicycle lanes, and pedestrian connectors

between trails and public streets, primarily through the implementation of the Get About Columbia Project; in particular to facilitate work trips by non-motorized means.

5. Analyze the socioeconomic and environmental impacts of all transportation projects.

The 2005 SAFETEA-LU legislation mandates the following for transportation planning: "The metropolitan (and statewide) transportation planning process for a metropolitan area (of State) under this section shall provide for consideration and strategies that will:

A) Support the economic vitality of the metropolitan area (or State), especially by enabling global competitiveness, productivity and efficiency;

B) Increase the safety of the transportation system for motorized and nonmotorized users;

C) Increase the security of the transportation system for motorized and nonmotorized users;

D) Increase the accessibility and mobility of people and for freight;

E) Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;

F) Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;

G) Promote efficient system management and operation; and

H) Emphasize the preservation of the existing transportation system."

1.3 Study Organization

In November 1964, the Columbia Area Transportation Study (CATSO) was designated by the Governor of Missouri as a Metropolitan Planning Organization (MPO). Along with the MPO designation came access to federal funds for street and bridge improvement projects as well as a responsibility to perform transportation-related planning in accordance with the federal "3-C" process. The "3-C" process of continuing, cooperative and comprehensive planning is funded in large part by the Federal Highway Administration and the Federal Transit Administration in Columbia, and is required in order to continue to receive federal/state capital and operating monies.

The Columbia Area Transportation Study Organization relies on two committees to perform its 3-C planning. The technical committee is comprised of staff level planners, engineers and other transportation professionals from the Missouri Department of Transportation, Boone County, and the City of Columbia, who, as the name implies, undertake technical aspects of plans, studies and reports for the metropolitan area. The coordinating committee is made up of upper level city and county staff members, local elected officials, Missouri Department of Transportation staff, Federal Highway Administration staff and Federal Transit Administration staff. This is a policy making group which directs the activities of the technical committee and approves documents prepared on behalf of the MPO. Staff support for CATSO is provided by the City of Columbia Department of Planning and Development.

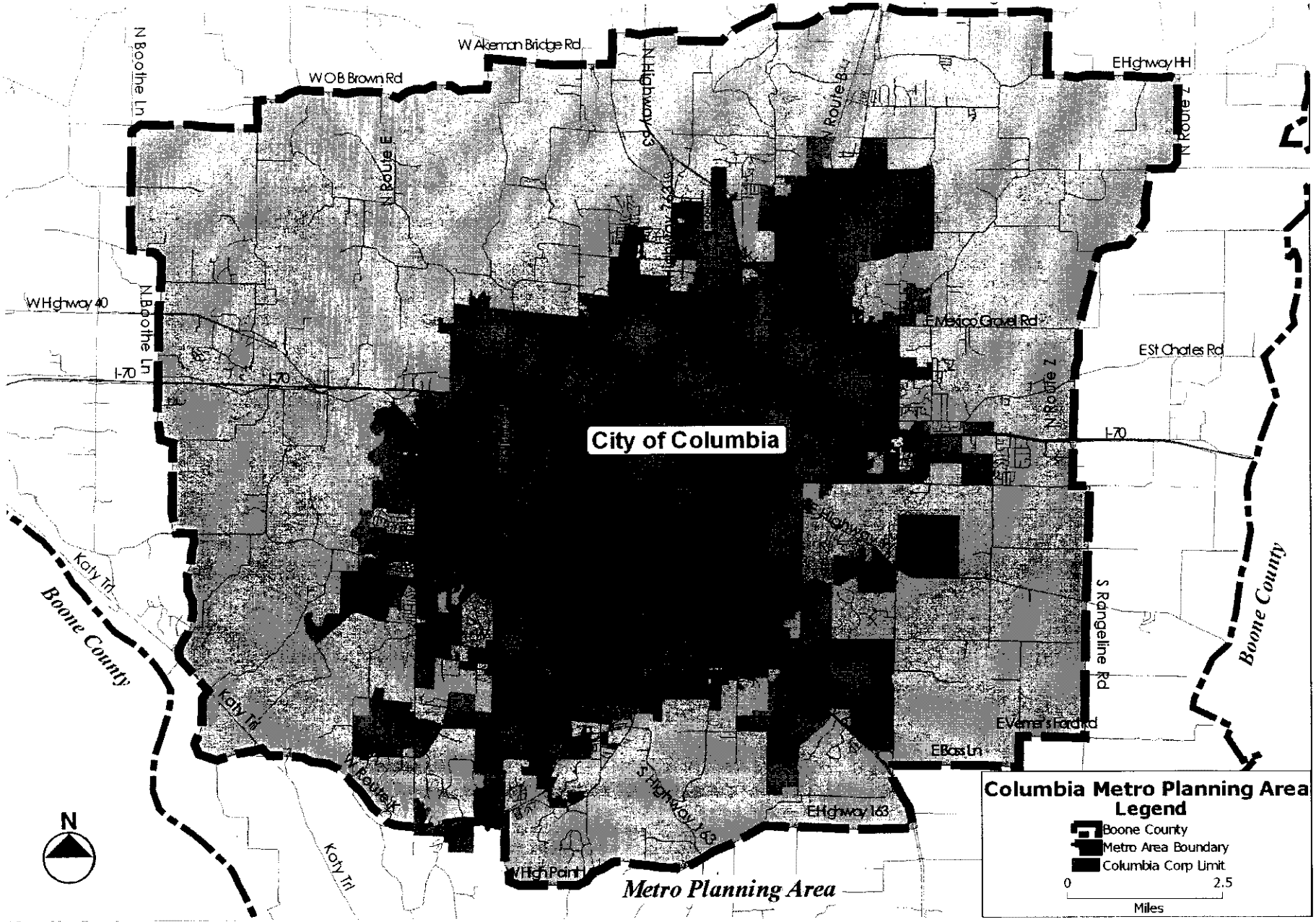
1.4 Study Area

Map 1: Columbia Metropolitan Area; shows the City of Columbia and the portion of Boone County addressed by this plan. The Metropolitan Planning (Metro) Area includes the City of Columbia and the surrounding areas in unincorporated Boone County that are projected to urbanize within the next 20 years. The current Metro Area boundary was adopted by the Coordinating Committee in 2002. Transportation Analysis Zones (TAZ's) have been developed for the entire area for eventual traffic analysis. Much of the data found in this report are a mix of Columbia and Boone County statistics which were extracted from 2000 census information or have been developed for the entire area for eventual traffic analysis.

See Map 1 Columbia Area Transportation Study Organization – Metro Area Boundary

1.5 Travel demand model

CATSO uses a travel demand model to develop estimates of the future usage of existing and future roadway corridors. Additional discussion of the travel demand model is presented in Chapter 6 – Project Plan.



Map 1. 'Columbia Area Transportation Study Organization' Metro Planning Area.

CHAPTER TWO: *POPULATION AND EMPLOYMENT: 2030*

This chapter states the underlying assumptions of growth in the metropolitan area for transportation planning purposes. Transportation planning responds to assumed growth in the number of jobs, probable employment locations, projected population growth, and probable housing locations.

2.1 Population Forecast: 2030

There are several methods and sources available for projecting population growth for Boone County and the Metro planning area to the year 2030. A number of these were examined as have their underlying assumptions about migration, birth and death rates, and other factors. After considering a variety of potential growth rates, a projection was chosen based on a percentage of population growth that is in the mid-range of the 1980's (1.15%) and 1990's (2.05%) Metro growth rate. The projection assumes an average effective annual growth rate of 1.5% (annual compounded growth rate of 1.24%).

This growth rate results in a projection of 196,045 people in the year 2030 for the county. The metro area population is expected to retain the current share of total county population, approximately 80%.

Regular monitoring of local growth will allow for the adjustment of these figures over time, and formal adjustment will occur as the transportation plan is updated every 5 years. In 2008, CATSO and the City of Columbia will partner with the University of Missouri Community Policy Analysis Center (CPAC) to develop a more robust model of future employment growth.

Forecasting population growth for the Columbia Metro Area for the year 2030 was partly based on local housing demographic data including the 2000 Census and building permit information from Boone County Planning and Building Inspection and the City of Columbia.

The population of the Metro Area is expected to increase to 156,836 persons by 2030. This is 80% of the total Boone County population, slightly (1%) higher than the Metro Area percentage of the Boone County total in the 2000 Census figures. This is an increase of 43,138 persons from the 2005 Metro estimated population of 113,698. It is projected that 90% of this increase, or 38,824 persons, will occur within the City of Columbia by 2030.

2.2 Employment Forecast: 2030

A number of sources were examined to arrive at 2030 employment projections. Woods and Poole Economics, Inc., Bureau of Economic Analysis, Regional Projections to 2040, and the U.S. Census all show a steady relationship between population and employment throughout the planning period. In 2000, there was a ratio of .56 jobs per person in Boone County. This ratio has increased slowly over the years. This is partially because more women have entered the work force, with more persons delaying retirement another factor.

Furthermore, all sources indicate decreasing rates of growth in employment. For these reasons, the plan continues to use the 0.56 jobs per person ratio. When applied to the 2030 projected population, it yields an employment projection of 109,785 in Boone County. It must be emphasized that this number does not represent the total number of employed persons within the county. Rather, it is employment within the county, regardless of place of residence. Numerous persons employed within Boone County have places of residence in surrounding counties. The total employment figure and employment locations provide essential data needed for transportation modeling.

Since the Columbia Metro Area is the principal job generator of the county, it is projected that employment growth in the Metro area will occur at a faster rate than in the rest of Boone County. Assuming approximately 93% (92.7%) of the jobs will be in the study (Metro) area, the plan suggests 101,890 as the projected employment figure for 2030. With this assumption, employment in the Metro area would increase by 33,426 persons.

For 2030, it is projected that the above classifications will have minor changes, with some percentage growth in government and services, and minor declines in manufacturing and commercial. The following percentages are estimated for the new jobs to be created through 2030:

Table 1: Projected Metro Area Population and Employment Growth through 2030 by Type

Growth category	2005	2030	Net change 2005-2030
Metro Area Population	113,698	156,836	+34,507 (+30.3%)
Employment - Total	68,464	101,890	+33,426
Commercial: Retail	16,959	22,530	+5,571
Commercial: Non-Retail	13,406	23,016	+9,610
Office	13,600	23,448	+9,848
Industrial/Mfg	3,407	6,068	+2,661
Warehouse/Storage	1,325	2,124	+799
Hospital/Medical	11,570	14,867	+3,297
University of Missouri/Colleges	8,197	9,837	+1,640

Source: CATSO 2030 Projections for Population & Employment

Both the CATSO Technical and Coordinating Committees reviewed potential alternatives for forecasts and gave approval to staff suggestions.

2.3 Metro 2030 Land Use Forecast

To plan for improvements to the transportation system, it is necessary to anticipate where the 2030 population will live and work. For travel demand modeling purposes, the projected increase and location of future housing and employment is allocated by Transportation Analysis Zone (TAZ). To estimate future travel demand, U.S. Census Journey-to-Work information from the Census Transportation Planning Package is included with the growth allocation. This data is used with a travel demand model to produce trip generation estimates and to assign trips to a model street network.

Future population (dwelling units) and employment were allocated to individual TAZ's within Columbia and Boone County. For unincorporated portions of the study area, Boone County Planning Department officials were consulted. For TAZ's within Columbia, the City of Columbia's Metro 2020 Plan provided a base for the allocation based upon the Plan's recommended land uses.

It is projected that 21,049 new housing units will be constructed in the Metro area. This projection assumes a 10% vacancy rate, and an average of 2.2 persons per household. Of these, 8,218 are projected to be single-family houses, with 5,774 duplex units and 7,057 multi-family units. For single family homes, a range from 1-6 units per acre could be expected, with two or three units per acre the typical density. Land requirements for the total of 8,218 projected dwelling units could vary from 1,370 acres at the highest density, to 8,218 acres at the lowest density. Given typical range of densities, it is estimated that between 2,739 to 4,109 acres would be necessary for new single family development. At 2.5 units per acre, the midpoint of the range, 3,287 acres would be required for the construction of the projected 8,218 new single family residences.

Duplexes are typically constructed at densities ranging from five to seven dwelling units per acre. The projected 5,774 duplex dwelling units could require the development of between 1,155 acres at the lowest density to 825 acres at the highest density. At six units per acre, the midpoint of the range, 962 acres would be required for the construction of the projected new duplexes.

Multi-family units are built to the highest densities, and can range from 7 to 17 units per acre. This group includes townhouses, condominiums, single and two-story apartments. Acreage requirements for the projected 7,057 units could run from 1,008 acres at the lowest density (seven units/ acre) to 415 acres at the highest density of 17 units per acre. A density of 10 to 11 units per acre is most typical. At 11 units/acre, 642 acres would be necessary.

The estimated total acreage needed to build the projected 21,049 new housing units to be added to the Columbia metro area by the year 2030, at the typical densities constructed, would be approximately 4,891 acres, or 7.6 square miles.

Estimated acreage requirements for this employment will vary by the type of classification. For purposes of estimating the acreage necessary to accommodate new employment, the above employment types are combined and assigned to either office, industrial, or commercial categories. Industrial (3,460 new jobs) includes manufacturing, construction, transport & utilities, agriculture, and mining. Office (14,785 new jobs) includes government and finance, insurance, and real estate and fifty percent of the estimated employment for

services. Commercial (15,181 new jobs) includes retail and non-retail uses such as hotels and services. Office uses are estimated to have on average 29 employees/acre, industrial uses an estimated 18 employees/acre, and commercial uses have an estimated 20 employees/acre.

To accommodate the projected additional 33,426 employees in the Metro Area by 2030, it is estimated that a total of approximately 1,461 acres will be needed. This includes; 192 acres for industrial, 510 acres for office, and 759 acres for commercial.

Additional land is needed for the institutions and infrastructure that support the projected growth. Parks and recreational open space, storm water management areas, energy supply and distribution, landfill cells, and community buildings are examples of land use that are not captured by the population and employment projections.

2.4 Future Efforts

The 2010 Census will be undertaken in the spring of 2010. The provision of new Census data for the Columbia Metro area will be an opportunity to review the Metro area boundary. Increased population densities in outlying areas reflected by the 2010 Census data may facilitate an expansion of the Metro boundary. This could also lead to a review of 2030 housing and population projections.

The City and CATSO in 2008 will partner with the University of Missouri Community Policy Analysis Center (CPAC) for the following tasks:

- Provide projections or estimates of Columbia's growth over the next 10-20 years in terms of employment change, land use change, and physical growth.

- Develop a tool that could be used by the City of Columbia and local stakeholders to envision how a change in local employment might affect land use or physical infrastructure locally and regionally, and conversely how land use changes or physical infrastructure might affect employment locally and regionally. Ideally, the tool would allow users to test multiple scenarios and would serve as a model or tool for other communities statewide and / or nationwide.

Once the CPAC work is completed, CATSO staff will revisit 2030 population and employment projections for possible modifications using the improved data and tools available.

CHAPTER THREE: *EXISTING TRANSPORTATION FACILITIES AND SERVICES*

This chapter describes the existing improvements and associated services that make up the CATSO transportation system. Later chapters analyze the relationships between different modes of transportation and planned improvements to maximize performance of the system in the future.

3.1 Streets, Roads, and Highways

Within the Metro Area, there are approximately 980 miles of roadway. Boone County is responsible for 285 miles (a number calculated by measuring the segments that are within the Metro Area but outside the City of Columbia city limits. Included are 182 miles of local streets. Freeway miles are calculated as "lane miles," not "centerline miles"). The City of Columbia maintains approximately 491 miles of street (any street segment that bordered Boone County but was partially maintained by both the County and the City were counted as City road miles). Included are approximately 364 miles of local streets. There are 204 miles of streets and highways maintained by the State of Missouri (including Interstate 70). The mile numbers were provided by the City of Columbia Public Works Department. Table 2 provides a breakdown of centerline miles of arterial and collector streets by jurisdiction.

Streets within the metro area are planned and designed according to the hierarchy of functional classification. The MPO uses a somewhat different classification system than does the State of Missouri and the Federal Highway Administration. Roadways are classified in order of function, such as property access, length and purpose of trip, traffic volumes and relationship to the rest of the system. Highways and expressways, for example, typically carry the highest volumes of traffic, carry through trips or cross-town traffic, offer limited access to adjoining property and are the "receivers" or "senders" of large amounts of traffic to and from the rest of the system. Arterial streets are the next in order of importance; collectors carry traffic from and to neighborhoods and activity centers, while local streets carry low volumes of traffic and provide direct access to adjoining property. This concept is meant to achieve efficiency and order in the street system.

The Missouri Department of Transportation (MoDOT), Boone County, and the City of Columbia are the three agencies in the metro planning area responsible for the maintenance and construction of the transportation infrastructure. The following table provides a summary of the arterial and collector street mileage by agency (as of 5/2007):

Table 2 Major Street Mileage by Jurisdiction

AGENCY	Miles of Arterial Streets	Miles of Collector Streets
MoDot	64.49	32.76
Boone County	26.30	76.83
City of Columbia	41.42	85.95
Totals	132.21 miles	195.54 miles

Highways on the state and federal systems provide much of the roadway network structure and capacity in all the roadway corridors in the metro area. Of the 204 miles of roadway under MoDOT jurisdiction, approximately 40% (80.94 miles) is comprised of high speed, limited access facilities.

The MPO uses the street classification system adopted by the City of Columbia as Appendix A of Chapter 25 of the City Code of Ordinances (Subdivision Regulations). See Appendix E for the street standards for the City and other jurisdictions.

There are private streets in the metro system of roadways but most serve to connect a single development, often a small group of dwellings, to the public roadway system. Many are dead-end roads that resemble shared driveways.

The University of Missouri-Columbia also has jurisdiction over several local streets through campus, such as Carrie Franke Drive, Missouri Avenue, Virginia Avenue, Mick Deaver Memorial Drive, Monk Drive, Hospital Drive, and Providence Point. The University has funded signalization where UMC roads meet MoDOT roadways. One notable contrast between city- and university-maintained streets in the campus area is that city streets often include metered parking whereas the university does not maintain parking spaces on its streets.

Appendix A: Functional Classification of Roadways; provides a summary of the total mileage of roadways in the Columbia Urbanized Area, and the mileage by functional classification for streets and highways in the CATSO Major Roadway Plan.

The private automobile is by far the preferred mode of transport on the Columbia street network.

A. Public Parking
The availability of compact public parking is a key factor in the creation of walkable destinations, such as the City of Columbia central business district and the University of Missouri-Columbia campus.

a. City of Columbia
The City of Columbia parking utility owns and operates five multi-level parking structures in the downtown as well as an inventory of surface parking lots and on-street parking spaces. According to a 2001 parking study, out of a total parking space supply of 5,918, the city had 2,075 parking spaces in parking structures and surface parking lots, and 1,220 metered on-street spaces within a 48-block study area in the central business district.[1] The remaining 2,623 parking spaces were privately owned. The study found that the City should boost parking supply north of Broadway by approximately 300 spaces to accommodated projected demand for parking.

A study completed in January 2007 for the University of Missouri, Stephens College, and the City of Columbia by the Sasaki Group, *Campus-City Downtown Land Use Opportunities Study*, endorsed the concept of "park once" to support downtown redevelopment. Because the central business district is compact and organized in short blocks with wide sidewalks and centralized parking in parking structures, as well as on-street parking, this allows visitors and employees to park once for any number of visits to buildings. The city zoning ordinance allows a waiver of on-site parking in the central business district and in fact requires a conditional use permit for any proposed off-street, on-site surface parking.

Additional city-owned parking is available at city parks and city buildings for the convenience of city customers and city employees. Parking is generally provided according to the anticipated demand of the facilities as required by the city zoning ordinance.

The City is currently working towards implementation of the 2001 study's suggestion to provide additional parking on the north side of Broadway. A Council report in 2008 provides a variety of options for the construction of a new parking garage between Broadway and Walnut Street, between Fifth and Sixth Streets, a site now occupied by a public surface parking lot. The options under consideration would provide from 600 to 830 public parking spaces upon completion. The City in 2008 also was considering the addition of a parking structure on Short Street between Walnut and Broadway in conjunction with the redevelopment of a hotel.

b. University of Missouri-Columbia
The university maintains six parking structures and several surface parking lots on its campus. The campus parking utility administers approximately 23,000 off-street spaces. Metered on-street parking, maintained by the City of Columbia, is available on city streets within the campus. The university does not install parking meters on university-owned streets, given the prohibition of on-street parking on those streets. The university does have approximately 3,000 metered spaces off-street. The majority of the university-owned parking is by assignment, mostly by permit.

3.2 Transit

A. Columbia Transit
The City of Columbia operates Columbia Transit, which serves as the sole publicly funded bus service in the metro area. The City of Columbia began providing public transportation service in 1965 with the creation of the Columbia Municipal Bus System.

Columbia Transit runs seven full service fixed routes, two commuter routes and offers complimentary ADA paratransit service within the City of Columbia. Map 2: CT Service Area; shows those areas of the metro area covered by public bus service. The estimated population served is estimated to be 73,892. Fixed route and paratransit ridership for FY-2006 was 581,635, down somewhat from FY-1999 when ridership was 602,547.

[1] Boundaries of the 2001 study: Park Avenue on the north; Orr-Short-Hitt Streets on the east; Elm Street on the south; and Providence Road on the west. *Parking Study Update* , May 2001, performed for the City of Columbia by TransSystems Corporation.

The City of Columbia policy on providing transit service is:

1) Provide public transportation in the most cost efficient manner possible;

2) Develop public confidence in the public transportation system;

3) Establish and maintain a direction for growth of the public transportation system and a level of commitment to future service; and

4) Encourage the use of public transportation as an alternative to travel by automobile to promote the preservation of the environment through the conservation of fossil fuel resources and improved air quality.

Household survey information indicates that the average transit travel time to work is 29 minutes, which is double the average for all other modes except carpools. For transit to begin to attract ridership from other modes, the average travel time will need to be approximately 21 minutes.

The annual ridership in 1980 was 1,100,000+. From that high in 1980, ridership declined from 1981 to 1990. The decline in ridership follows the national trend of reduced transit ridership. Locally, the decline in fixed route ridership was off set by an increase number of riders from the University of Missouri Parking Lot Shuttle Bus. The Parking Lot Shuttle Bus is operated by the City of Columbia under a year to year contract with the UM/C. The combined ridership in 2006 was 1,400,000 (up from 1,100,000 in 1993). The shift to the UM/C system can be attributed to the increase in the parking supply on and near the campus and the increase in off-campus housing available for rent in neighborhoods beyond the typical 0.5 mile walking distance to campus.

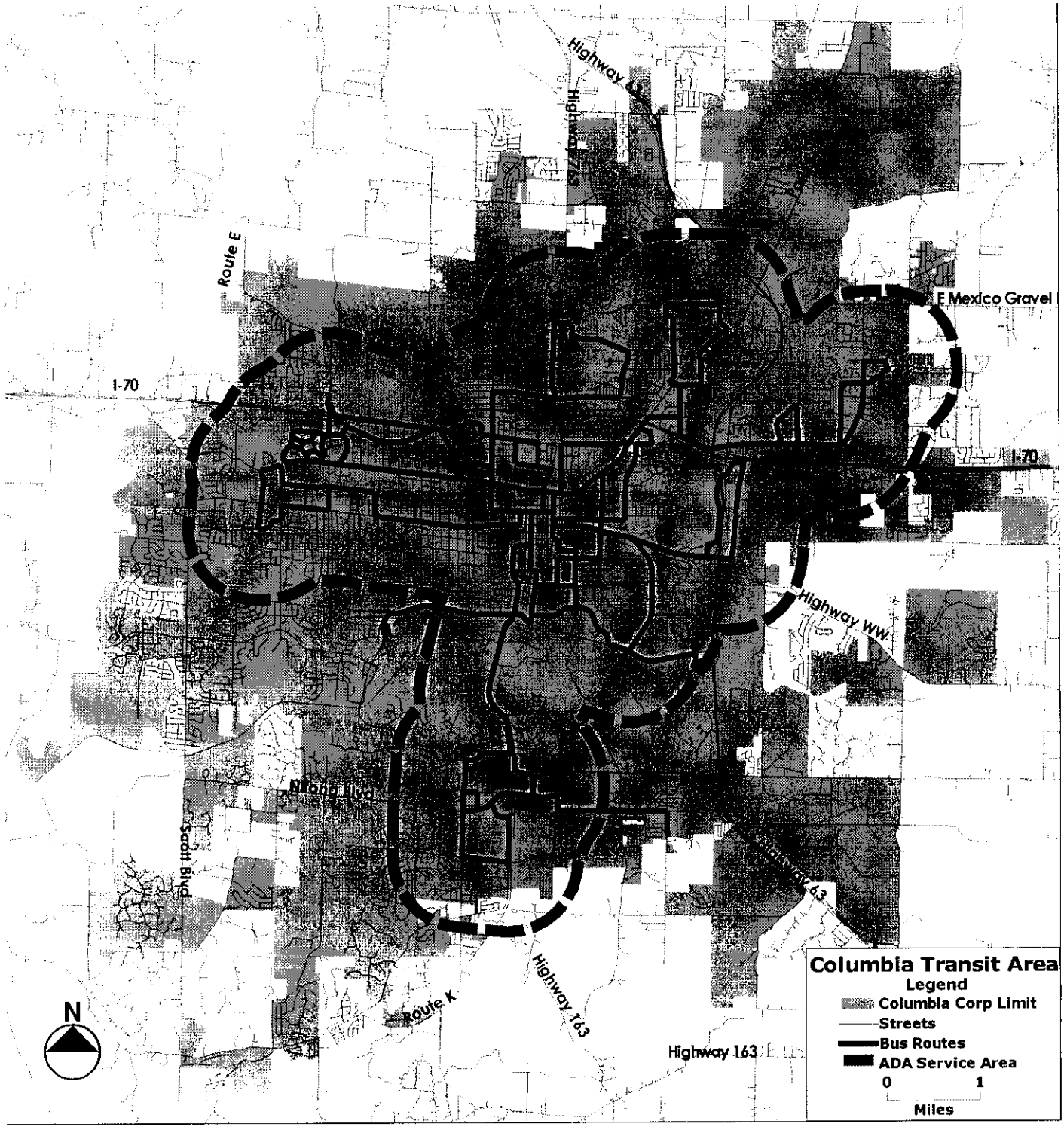
In August 1993, the previous ten route looping bus system designed in 1965 was replaced with a five route crosstown routing scheme. The effect of the changes were reduced travel times for transit riders and a greatly reduced transfer rate, from 35% to 14%. The time spent per trip was reduced from a maximum of one hour and five minutes to a maximum of thirty-five minutes.

CT maintains a fleet of 17 fixed route transit buses, all equipped with wheelchair lifts. All of the buses fully comply with ADA design standards and feature a "low floor" design which utilizes ramps instead of lifts providing unassisted boarding for riders using wheelchairs. The low floor/ramp system is more reliable than the conventional lift system and has significantly fewer operational problems. See table 3 for CT ridership totals.

In January 1993 para-transit service was started at CT for individuals with disabilities that prevent them from using fixed route service. Initially this service was operated with three vans converted to ADA specifications locally. The system currently has eleven vehicles running a peak service. See Table 4 for paratransit ridership numbers.

CT fixed route transit and Paratransit services are available from 6:25 a.m. to 6:25 p.m., Monday through Wednesday and from 6:25 a.m. to 10:25 p.m., Thursday through Friday, and 9:45 a.m.to 10:25 p.m. on Saturday. Buses run on 40 minute headways during the peak morning and evening periods and 80 minute headways midday, night, and Saturdays. Paratransit service is operated on a one hour response time, reservations must be made 24 hours in advance. Paratransit serves the whole city with priority given to ADA service area (3/4 mile from a fixed route). Fares are $0.50 per ride while the service cost is slightly below $4.00 per customer.

See Map 2 Columbia Transit System Service Area



Map 2. Columbia Transit System Service Area

Table 3 – Columbia Transit Ridership 1998-2007

Year	Total # of Riders
1998	697,444
1999	645,952
2000	480,575
2001	517,387
2002	536,820
2003	456,961
2004	491,019
2005	508,015
2006	533,931
2007	1,588,931 *

*Note: in 2007, CT began including rider numbers from the Campus shuttle routes to the Fixed Route ridership totals.

CT's transfer facility is located downtown in the Wabash Station building. Presently undergoing renovation in order to improve service delivery, this facility should remain in its current location, serving the City Center and adjacent neighborhoods. Higher density development promotes greater transit ridership. As such, the higher density residential in the City Center and adjacent areas, and the three campuses with their student populations are prime locations for transit service. Major employment areas should also be served by transit. Such areas include the University of Missouri campus, the Columbia Mall, and other commercial areas such as those in the Interstate 70 corridor and near the S. Providence Road/Route AC intersection in the southern portion of the city.

Table 4 - City of Columbia Paratransit Ridership 1995 – 2007

Year	Total # of Riders
1995	17,411
1996	18,932
1997	20,981
1998	25,498
1999	26,335
2000	28,877
2001	29,940
2002	29,697
2003	24,821
2004	23,647
2005	21,632
2006	21,263
2007	22,444

Appendix C: Columbia Transit Equipment; provides a description of the inventory of transit vehicles in service.

B. School Bus

School buses are a major part of daily transit patterns. The Columbia Public School District is a k-12 school district with an enrollment of approximately 17,000 (2007). It covers an area of 230 square miles including most of the metro area. The Hallsville School District serves part of the north metro area. First Student (formerly Laidlaw) is the provider of transportation services to Columbia Public Schools. It uses 141 buses daily on more than 500 routes to carry approximately 8,000 students to 29 schools in the district, of which 27 are in the metro area.

The Columbia School District Board of Education approves bus routes each year. By policy, students residing more than one-mile from their assigned school are eligible for free bus transportation. The District also will furnish free transportation to students residing within one mile of a school if the route to school is considered hazardous. Disabled students are eligible for free transportation anywhere in the district.

C. Private Transit Services

Several private organizations provide paratransit and other transportation services. According to the *Boone County Coordinated Transportation Services Study* (2006), 59 transportation and human service agencies provide some form of transportation services in Boone County. The majority of these organizations are active in the Columbia Metro area.

OATS, Incorporated, is a private not-for-profit transportation service provider serving 87 of Missouri's 114 counties. OATS' corporate offices and the Mid-Mo operation, serving 15 central Missouri counties, share a facility at 2501 Maguire Boulevard, Suite 101 in Columbia, Missouri.

OATS' door-to-door services are prioritized for seniors and persons with disabilities. The City of Columbia and Boone County are served with a total of 15 vehicles, some of which are back up equipment. In the urbanized area of Boone County, services are available to seniors over the age of 60 and those aged 18-59 with a disability. In the rural portion of Boone County, general public service is available on a space available basis to the general public whose needs can be met by OATS schedules. Operating funding is through a variety of contracts, including Section 5311 funding from the Missouri Department of Transportation, rider donations, Columbia Area United Way, City of Columbia, Boone County Commission along with other local contracts. Capital funding is obtained from FTA Section 5309 discretionary funds.

3.3 Bicycle Facilities

Facilities for bicycle travel include dedicated trails, multi-use sidewalks ("pedways"), bike lanes, and bike routes. The City of Columbia has approximately 14 miles of trails, consisting of the MKT Parkway, the Hinkson Creek Trail, and the Bear Creek Trail, and Boone County maintains 3.5 additional miles of the MKT trail within its jurisdiction. The State of Missouri's Katy Trail, part of the 200-mile long Katy Trail State Park from St. Charles to Clinton, crosses the southwest metro area between Route K and Highway O, a distance of approximately 2.25 miles. The University of Missouri-Columbia maintains the MU Recreation Trail, accounting for an additional 1.5 miles of trails. The City of Columbia has a Trails Plan element in its Park, Recreation, and Open Space Master Plan that lists 11 additional future trails within stream corridors, extensions of the existing Bear Creek and Hinkson Creek Trails, miscellaneous trail "connectors," and a trail parallel to the Columbia Terminal Railroad (COLT). Several of the trails have been programmed for design and construction in the City Capital Improvements Program (CIP) which will expand the trail system.

Multi-use sidewalks are present along several major roadways. The CATSO Bicycle and Pedestrian Network Plan identifies numerous corridors as "Pedways" and the City of Columbia street standards, Appendix A of the Subdivision Regulations, include an eight-foot "pedway" sidewalk on one side of the street in several of the optional cross sections. Locations of pedways are typically determined on a case-by-case basis.

Together, trails and pedways are sometimes identified as "Class I" bike routes, or routes designed for exclusive use by bicyclists, pedestrians, and wheelchair users.

Bike lanes, varying in width from 4 to 6 feet, are located on 14 roadways in the City of Columbia, including several roadways under MoDOT jurisdiction. Twelve miles of these "Class II" bicycle routes are within city-maintained right-of-way. Specific locations for future bike lanes are planned as part of the Get About Columbia Project Working Infrastructure Plan. The City street standards also include provisions for bike lanes in several of the optional cross-sections.

There are 16 miles of "Class III," or on-street bike routes, in the city of Columbia. On-street routes are designated on streets where dedicated trails, pedways, or bike lanes are not present or are not feasible, and where street conditions and destinations are conducive to bicycle travel.

Finally, bicycle parking is required for new development in the City of Columbia and the city has installed bicycle parking in its downtown parking structures. A portion of the non-motorized transportation pilot project federal funds will be spent on bicycle parking installations in centers of significant activity, such as the central business district.

The City of Columbia established the Commission on Bicycling in 1977, in response to citizen concerns about bicycling issues. The Commission serves as an advisory board, examining problems relating to bicycling and

suggesting solutions. The most recent Bicycle Master Plan developed by the Commission and Staff was adopted by the City Council in November, 1993.

After renaming it the Bicycle & Pedestrian Commission and expanding its membership to 11 in 1998, the Commission now has responsibility for advising the City Council on pedestrian issues, as well as on matters pertaining to bicycling.

In summary, Columbia has three types of existing and proposed bicycle routes (Table 5).

Table 5 Miles of existing dedicated bicycle routes in the metro area

Facility type	Class I Bicycle routes used exclusively by bicycles and pedestrians	Class II Bicycle lanes within existing public streets	Class III Signs on existing public streets designating bicycle routes	Totals
Length in miles	23.35 miles of trails*	12 miles	16 miles	51.35 miles

* Figure includes all trails in the Metro area including City, County, University, and State-maintained trails. This figure does not include "pedways," which in the City of Columbia refers to a wide (typically 8 foot) sidewalk designed for use by cyclists and pedestrians.

The Bicycle/Pedestrian Network Plan element of the 2025 Long Range Transportation Plan (adopted by the City Council in 2002) replaced the 1993 Bicycle Plan as the principal plan for bicycle transportation. This network includes both major streets and greenbelt trails. The Bicycle and Pedestrian Network plan includes approximately 375 miles of corridors. The 2030 network adds a minimal amount of additional facilities – approximately 15 projects to the 2025 network. (See section 6.6 for the 2030 Bicycle & Pedestrian Network Map).

The latest Network plan addresses the need to eliminate the fragmentation of the existing system of bicycle routes. It proposes a number of Class I bicycle routes (also called shared use paths), some of which would follow the course of the major creeks in the area ("greenbelt trails"). The use of these greenbelts is the most workable way of accommodating Class I routes. Unlike the 1993 Plan, the Network contains the connections necessary to facilitate bicycling as a serious mode of travel. The Class I routes have greater recreational potential than other types of routes, in addition to providing a facility for non-recreational travel.

Additional Class I routes will be constructed along the major roadways included in the Network Plan where implementation is practical. The pedways serve as the Class I routes in major street corridors. Part of the network will be implemented with Class II routes in those locations where Class I routes cannot be built.

As of 2007, the Columbia area has three Class I routes. One of these is the MKT parkway, which extends to the southwest approximately 9 miles from the Fourth and Cherry Street intersection to the statewide Katy Trail near the town of McBaine. The second route is the Hinkson Creek Trail. This extends for 3.7 miles from Old 63 to the MKT Trail. The third route is the Bear Creek Trail which currently extends 3.4 miles from Cosmo Park east to Albert-Oakland Park.

Numerous Class I routes are planned for the future. Additional phases of the Hinkson Creek Trail are currently in the design stages. The next segment of trail will extend the Hinkson Trail approximately 1.8 miles to the northeast from Grindstone Nature Area to Stephens Lake Park. Other projects, such as Hominy Branch, County House Branch, and Cow Branch, are in the planning and design stages, as is the next phase of Bear Creek Trail. The latter would extend the trail from its existing terminus south of Blue Ridge Road to the Boone County Fairgrounds. Other trail projects, including those Perche Creek and Scotts Branch, are in the planning stages.

Other Class I routes are also present in non-greenbelt locations, with notable examples including the section of Broadway between Old 63 and Brickton Road, and Brown School Road east of Route 763.

A number of locations present problems for bicycle travel. Some of these are so-called "pinch points," frequently bridges, where the narrowing of the road makes bicycling dangerous. Others are major roadways or intersections which present a barrier to bicyclists.

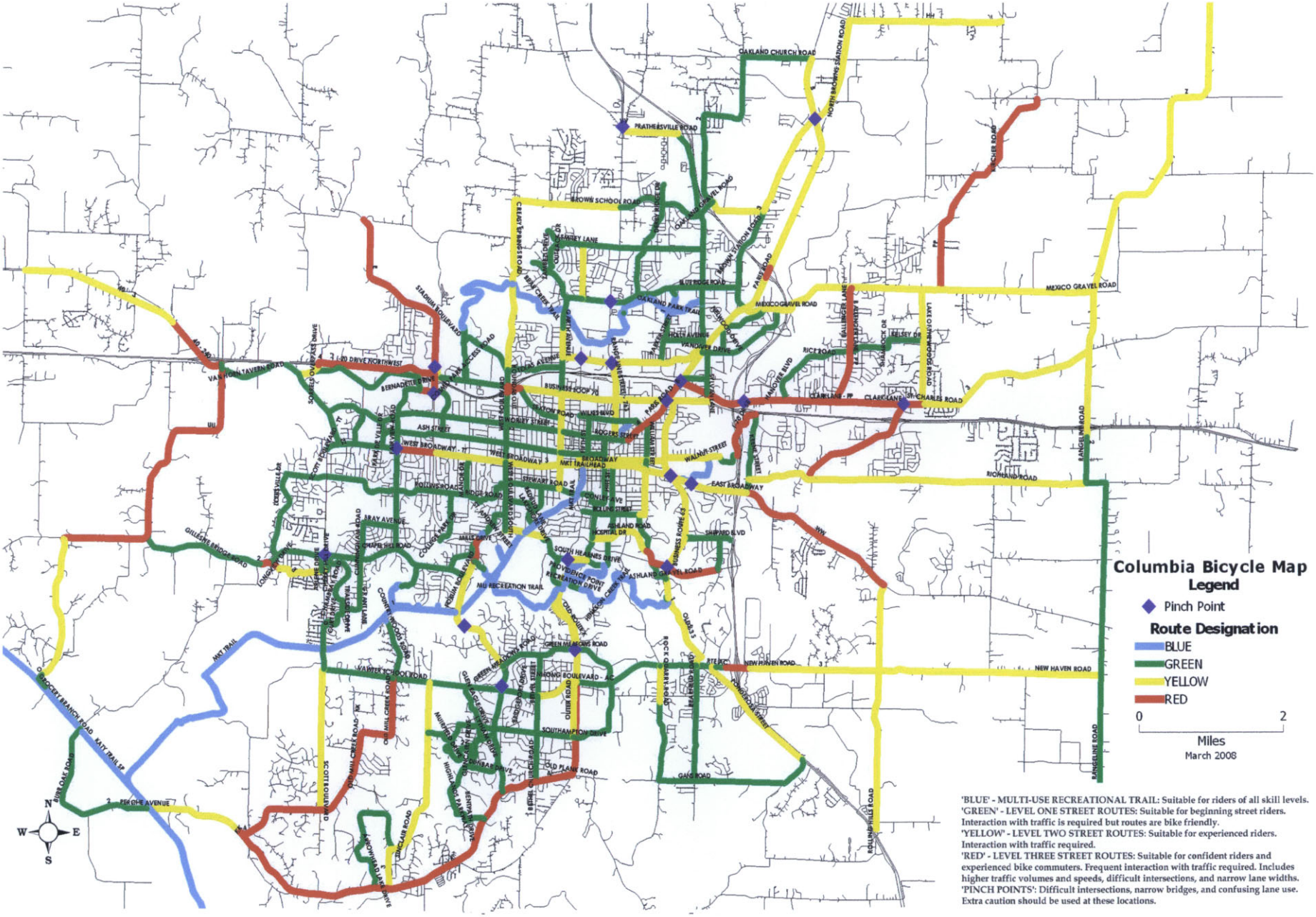
In May 2003, the Bicycle and Pedestrian Commission identified 20 such problem areas on the existing street system in a bicycle ratings map they prepared with staff assistance. The Commission studied other problem areas in 2005 and produced a list of another 14 problem intersections.

Included are a number of narrow bridges, such as the Paris Road bridges over I-70 and the Business Loop. Other problems include the Forum Boulevard-Nifong Boulevard and Stadium Boulevard-Bernadette Drive intersections, both of which pose serious obstacles to cyclists attempting to cross them. Along with identifying pinch points, the map also rated various street routes for their suitability for bicyclists of varying abilities. An updated map was completed in March, 2007. See Map 3.

See Map 3 – Columbia Bicycle Map (Rating Bicycle Suitability on Specified Major Streets)

In 2005, the City of Columbia was named the recipient of Non-Motorized Pilot Program funds as part of the SAFETEA-LU transportation legislation. The City is receiving approximately $22 million over a four-year period, the goal of which is to "develop a network of....transportation facilities, including sidewalks, bicycle lanes, and pedestrian and bicycle trails", in order to test the degree to which walking and bicycling can take the place of motorized trips. The City's project is entitled Get About Columbia. A number of bicycle facility construction projects will be funded with this federal money, and are outlined in the Infrastructure Working Plan. Included are over 100 miles of facilities, including bike lanes, bike routes, multi-use paths (trails), and bike boulevards. These are included in an Infrastructure Working Plan, which also includes pedestrian facility projects.

In 2005, the City engaged the services of a consultant who performed a "walking audit" and produced a report on suggested techniques to make roadway intersections easier and safer to cross on foot, by wheelchair or by bicycle. Some of the intersections studied are now included in a consultant contract for pedestrian and bicycle design improvements, funded by the Non-Motorized program. Appendix N lists the Pedestrian & Bicycle Construction Projects.



MAP 3. Columbia Bicycle Map.

3.4 Pedestrian Facilities

In order to accommodate walking as a mode of travel, both residential and other types of subdivisions need to provide facilities for pedestrians. Most important is a sidewalk system along public street right-of-way, allowing pedestrians to be separated from vehicle traffic.

Within the Columbia metro area, a system of sidewalks exists only within the boundaries of the City of Columbia. Outside the city limits, no such facilities are present. Current city subdivision regulations require sidewalk construction on both sides of new streets. In the early part of the century, sidewalks were constructed as urbanization took place. There was an extended period after World War II, however, during which sidewalks were not constructed as part of new development. In 1974, new city subdivision regulations took effect which required sidewalk construction on both sides of new streets as new development occurs, except in industrial areas. As a result of the years of development without sidewalks, there are a number of neighborhoods that have no sidewalks, or only a partial sidewalk system. This has left gaps between the older central parts of Columbia and newer neighborhoods. A Master Sidewalk Plan adopted in 1976 attempted to address this problem.

The most recent Master Sidewalk Plan for Columbia was adopted in 2007. The amended plan identifies 50 new sidewalk construction projects. These potential projects fall into two categories: 1) Sidewalk projects along major roadways in generally developed areas; and 2) Safe routes to school which may be on any class of street serving as a route to an elementary or middle school. The plan focuses on improving the existing system by constructing important connections, particularly near transit stops, schools, parks and other facilities where pedestrian traffic can be expected. The plan proposes sidewalk construction along a total of 22 miles of improved streets. All of these projects are effectively retrofits of existing older residential and non-residential subdivisions. Also included are 11 existing street reconstruction projects for which sidewalks will be built as part of the project.

Implementation of the 2007 Sidewalk Plan is already underway. The Capital Projects section of the FY 2008 adopted City of Columbia budget includes 18 projects from the Sidewalk Plan in the current and 1-2 year project section. Of these, 16 are contained in the 2030 Pedestrian and Bicycle Network Plan.

Boone County requires sidewalks only in residential subdivisions with densities higher than one unit per .5 acre, including multi-family developments.

A large percentage of the street mileage (both City and MoDOT maintained) within the City of Columbia itself has no sidewalks. This is true in all categories of streets as classified by the Major Roadway Plan. Of the 41.4 miles of arterial streets within Columbia, 18.3 miles have no sidewalks. For collector streets, of the 85.9 miles total, 36.2 have no sidewalks. Local streets in the city comprise 364 miles, with 150 miles of the total having no sidewalks. The three street categories have a total of approximately 204 miles of streets lacking sidewalks. While there are two other categories of streets in the Major Roadway Plan, Interstate-Freeway and Expressway, which also lack sidewalks, no sidewalks are recommended for these classifications.

Appendix N: Pedestrian & Bicycle Construction Projects, is a listing of planned projects. See section 6.6 for the 2030 Pedestrian and Bicycle Network Plan.

3.5 Inter-regional Transportation: Moving Goods and Passengers

There are a number of ways in which goods and services are transported in and out of the Columbia metro area. The majority of the freight and passenger movement is accommodated by the area's highway system, principally Interstate 70 and US Highway 63, with other state routes, such as Route B, carrying large volumes of traffic through the region. Other types of interregional transportation that serve the region and are described in the following sections.

3.6 Railways

Freight service to the area is provided by the Columbia Terminal Railroad (COLT), which is owned and operated by the City of Columbia. The city acquired this line from Norfolk Southern in October 1987. The railroad serves the communities of Centralia, Hallsville, Browns Station, and Columbia.

The COLT has two locomotives and generally uses a two-man or three-man crew for train operations. The COLT infrastructure consists of its track, right-of-way, bridges, signals, crossings, culverts and all other items related to railroad operation.

The railroad's main track runs between Columbia and Centralia and has 21.34 miles of mainline track. The entire main track is maintained to FRA Class 2 standards, which allows for speeds up to 25 mph for freight trains and 30 mph for passenger trains. Train speeds are limited to 10 mph in selected areas of Columbia and Centralia.

In 2006, 2,402 carloads of freight were carried on the COLT line. The 2006 freight load represented a 60.7% increase from 1999, and was a higher traffic load than was transported by Norfolk Southern in the 1980's. The line served 21 commercial customers during 2006, up from 8 in 1999, including the City of Columbia Water and Light Department, which is the department responsible for the COLT operation.

The COLT has 39 at-grade public highway/rail crossings and 23 private crossings. The average number of public highway/rail crossings per mile is 1.8, which is the second highest concentration of all railroads operating in Missouri. There are 13 public crossings with active warning devices.

The at-grade highway/rail crossing on U.S. Highway 63 has been the location of several accidents as a result of the requirement for buses and select commercial vehicles to come to a complete stop prior to proceeding through the crossing. The posted speed limit on U.S. Highway 63 is 70 mph. The potential for serious or fatal injury accidents at the crossing will persist as long as vehicles must stop in the main travel lanes.

A rail to truck trans-load facility, or Rail Terminal, has been in operation on the COLT since January 2004. The facility allows the transfer for freight between trucks and rail cars and allows for storage of materials for later delivery. The Rail Terminal is located on a 15 acre parcel of City owned land in north Columbia, which is leased long term to a private rail facility operator. Steel, lumber, auto parts, and other products have been handled through the facility for about 18 different customers in Columbia and mid-Missouri. Future railroad traffic growth is expected come primarily from further development of rail to truck trans-load freight markets.

A. Inter-regional passenger rail service

The nearest inter-regional passenger rail service is located approximately 30 miles south of the metro area in Jefferson City. There AMTRAK operates four trains daily on track owned by the Union Pacific railroad between Kansas City and St. Louis and points beyond. Because of priority and frequency of freight traffic, the combination of long freight trains and short sidings has created unacceptably long delays for passenger traffic.

3.7 Pipelines

There are two energy transportation pipelines within the Columbia metro area. One is the Williams Pipeline Company line which runs east-west and crosses US 63 southeast of Columbia, and which carries gasoline and fuel oil. The other line belongs to Panhandle Eastern Company, and is located several miles north of Columbia. It runs east-west and has a spur line which runs south to the Prathersville area. This line carries natural gas.

3.8 Interstate Freight

The Columbia metro area's location along Interstate 70 provides access to a major east-west route for interstate freight movement. Up to thirty percent of the daily traffic on sections of I-70 through Columbia are multiple-axle trucks. US Highway 63 provides north-south access to the area. A number of motor freight companies have terminals located in Columbia. These companies are listed in Appendix G: Local Freight Haulers.

Local freight companies had several concerns related to the condition and design of roadways and intersections in the metro area. The primary issue was geometrics at intersections which do not meet the requirements of truck movement. Inadequate intersection geometrics restrict or prohibit a truck from making a turn. This situation creates traffic delays, breaks down curbs, and can damage vehicles. A list of problem intersections in the urbanized area will be developed for future attention.

3.9 Airports

The Columbia metro area is served by the Columbia Regional Airport, which is located approximately 5 miles southeast of the metro area boundary. The airport is owned and operated by the City of Columbia, and consists of approximately 1,516 acres.

Initial construction at the site was completed in 1968, with the passenger terminal building being constructed in 1969 and the air traffic control tower in 1973. Major east-west highway access to the Columbia airport is provided by Interstate 70. Principal access to the airport is provided by US Highway 63, and State Route H provides direct access to the airport access road on the west side of the facility. This access road is an internal circulation road providing access to the facilities, including the terminal, on the west side of the airport. It forms a one-way loop around the vehicle parking lot west of the terminal, and also accesses the general aviation area, the FAA Automated Flight Service Station, the US Postal Service facility and maintenance hangar. Another road provides access to the air traffic control tower on the east side of the airport. Access to this road is provided by Range Line Road.

Terminal facilities include the terminal building, ramp, hangar storage, auto parking, fuel facilities, and aircraft servicing areas. The terminal area includes almost 21,000 square feet of space for lease purposes. Parking facilities are included for the public, employees, and rental car operations. Public parking is provided for about 270 vehicles, with about 30 spaces for employee and rental car parking. The facility also has an overflow parking lot containing about 50 spaces.

The airport facility includes two runways. At present, one commercial airline is providing regularly scheduled passenger service.

According to a recent study, the airport has a catchment area of over 400,000 persons, however the airport captures only five percent of passenger air travel within the catchment area.

The airport is served twice daily by Airborne Express, an air freight service. Central Missouri Aviation, Inc. (CMA) provides aircraft charters, rentals, maintenance and repairs, aircraft and aviation fuel sales, and flight instruction. CMA also provides terminal handling for unscheduled air freight shipping and receiving.

Both Hertz and Enterprise car rental agencies are based in the passenger terminal.

3.10 Regional Bus Lines

Regional bus service through the Columbia metro area is provided by the Greyhound Bus Lines which operates the only regularly scheduled service. An average of seven buses a day traveling east and west provide connections to Kansas City and St. Louis. Megabus, a discount regional bus service, began operations out of Wabash Station in 2007.

MoX, located at 203 Parkade Center, 601 Business Loop 70 West, also provides daily shuttle transportation between Columbia and the St Louis and Kansas City Airports.

Charter services are available from a variety of vendors, including Show-Me Coaches, White Knight Coaches, and First Student Transportation Services.

CHAPTER FOUR: LAND USE & TRANSPORTATION FACILITIES

This chapter describes the land use-transportation relationship. Urban areas are organized into districts, zones, and neighborhoods, and the intensity and character of land use within these areas affects demand for transportation services and improvements and the manner in which facilities must be designed.

Figure One: Traffic Mobility and Land Use

4.1 Land Use and Access

Traffic movement and land access are two functions of roadway systems which are both necessary, but often conflicting. A variety of roadway designs are utilized to provide the movement/access function. Freeways and expressways are designed with limited access to provide entirely for the efficient movement of traffic. Arterial streets are primarily intended for the movement of through traffic. Collector streets, residential or commercial, provide equal service to the access and through movement functions. Local streets provide access to individual tracts at the expense of through traffic movement.

Access must be provided to residential areas and to trip destinations where people work and shop. Along the desired travel paths, mobility is the most important feature.

4.2 Transportation System Connectivity

The phrase "transportation connectivity" refers to the continuity of the roadway system within each of the functional classifications and the compatibility of design and capacities of the roadways within the metropolitan planning area. To insure system continuity, the requirements for main lane capacity, functional classification, roadway design and access must be balanced into a roadway system which will provide continuous travel paths and avoid abrupt transitions between these elements along the length of the roadway.

The classifications of roadways within the metro area relate to both the service function and access function the road provides. The basic roadway types and their functional descriptions are shown in Table Four: Roadway Function by Facility Type.

Table 6: Roadway Function by Facility Type

Classification	Principal Function	Trip Length	Land Use Linkage
Freeway	Through movements Access by frontage roads and ramps.	3 – 5 miles	Central Business District Major Generators
Expressway	Through movements. Interchanges at major Intersections. Restricted driveway access.	3 – 5 miles	Central Business District Major Generators
Arterial	Through movements. Limited driveway access.	1 – 3 miles	Central Business District Secondary Generators
Collector	Through movements and land access.	1 mile	Local areas
Local	Land access.	½ mile	Individual tracts

The access and through movement functions described form the basis for designing the future transportation system. System continuity along an individual roadway may address the alignment, functional classification, the length of the roadway, and the roadway design cross-section. The methodology for estimating the functional classification and lane requirements for the 2030 roadway system are initially based on a segment-by-segment assessment of traffic volumes produced from a computerized travel demand model. The projected traffic volumes for 2030 are compared to the assumed capacities of compatible roadway designs and matched by both functional classification and ability to adequately serve the projected demand.

There are six different roadway classifications and three lane configurations which were assessed for the transportation plan. The description of design elements and access management are included in the following examples:

1. Freeway - 4, 6, or 8 travel lanes with a minimum of 400 feet of right-of-way. A limited access roadway with full grade separated interchanges. Access on and off the roadway is accomplished by ramps connecting to frontage roads or interchanges. Access limited to interchanges and driveways on frontage roads.

2. Expressway - 4 or 6 travel lanes with a minimum of 250 feet of right-of-way. A high volume, high capacity arterial roadway with widely spaced signalized intersections at minor intersections. Major intersections are grade separated. Limited or no direct access to the main lanes from property fronting the roadway with access limited to right in-right out movements when access is available.

3. Major Arterial - 4 or 6 lanes with 90 to 150 feet of right-of-way. A high volume roadway with at-grade street intersections and regulated driveway access. Signalized at significant intersections with priority given to the arterial through movement. A raised center median with a minimum spacing requirement for median breaks or a flush median may be provided depending on the access requirements of the properties fronting the arterial.

4. Minor Arterial - 2 or 4 lanes with 90 to 120 feet of right-of-way. A secondary arterial facility to provide access to major arterials or limited access roadways. Serves localized circulation and access needs. The roadway may be either divided or undivided and typically supports the access requirements of concentrations of commercial or residential development.

5. Major Collector - 2 or 4 lanes with up to 90 feet of right-of-way. Lower capacity roadway to provide local access and circulation to the arterial network.

6. Neighborhood Collector - 2 lanes with up to 66 feet of right-of-way. A low volume, low speed roadway to provide access for local residential traffic to the collector and arterial network.

The design and functional classification of each roadway in the Major Roadway Plan must be appropriate to provide for the following; 1) design continuity, 2) adequate main lane capacity, 3) access for adjacent tracts, and 4) functionality with the roadway network. The street standards of the local implementing agencies need to be reviewed to provide for the design and right-of-way requirements for the expanded arterial and collector street functional classifications upon which the CATSO 2030 Roadway Plan is based.

On State maintained roadways, MoDOT requires right-of-way (R.O.W.) consistent with the adopted highway design standards. The state standards for R.O.W. are substantially greater than those of the City of Columbia or Boone County, especially for "rural" roadways which are not constructed with curb and gutter but rely on ditches to provide drainage. The right-of-way requirements for the roadways under the jurisdiction of the City of Columbia have been established by City policy through the Public Works Street Design Standards and the City of Columbia subdivision regulations. For roadways under the jurisdiction of Boone County, R.O.W.. has been established by County Commission policy through the County Street Design Standards and Boone County subdivision regulations. Appendix E: Agency Street Design Standards provide the adopted right-of-way standards for each agency. All R.O.W. must be adequate to allow for the roadway pavement, sidewalks, utility easements, street lighting, traffic control devices and signage, drainage, and bicycle/pedestrian facilities.

The connectivity of streets is a major concern for public transit, delivery, service, and emergency service providers. Collector streets should be through streets, not winding cul-de-sacs, to provide efficient access for bus routes. The street design should include adequate intersection geometrics to accommodate the turning movements of buses, fire trucks, and service vehicles used for trash collection and curbside recycling. One parameter that may be used for comparative purposes is the connectivity ratio. This ratio is determined by dividing the number of intersections, or "nodes," in an area by the total number of dead end streets plus intersections. The closer the ratio is to one, the better the connectivity.

4.3 Street Standards

The streets in the roadway system in the metro area must be designed to safely perform the intended access/mobility function. The right-of-way width, number of lanes, lane width and geometric design features reflect the traffic volumes and speeds anticipated on the roadway. Provisions for transit, pedestrian, bicycle facilities must also be included in the roadway design.

In the Columbia metro area, Boone County, the City of Columbia, and the Missouri Department of Transportation have responsibilities for the design and construction of roadways under their jurisdictions. A review of the street standards indicate that MoDOT design standards do not include sidewalks or bike lanes on any classification of roadway. The City of Columbia has standards which call for sidewalks and bike lanes on all classifications of street. Appendix E: Agency Design Standards provides an outline of each agencies street design requirements.

4.4 Multi-modalism

Multi-modalism is defined as the utilization of transportation facilities and corridors for more than one mode of transport. Some degree of multi-modal activity occurs on most facilities, such as pedestrian, transit, and bicyclist use of major streets designed principally for motor vehicles. TEA-21 placed emphasis on developing a street system that accommodates pedestrians, bicyclists and buses as well as vehicular traffic and SAFETEA-LU continues that emphasis.

The planning and provision of transportation facilities to address the specific needs of alternate transportation modes of public transportation, walking, and bicycling includes:

1. Provide continuous street connections to accommodate point-to-point travel;
2. Provide facilities for persons traveling on foot or bicycle along or on the roadway; and;
3. Eliminate or ameliorate barriers to pedestrian and bicycle movement.

Providing for non-auto modes on the street and the elimination of barriers to travel is intended to provide the same unrestricted access that is available to motorized vehicles. High volume and high speed auto traffic on arterial and collector streets frequently create a barrier for pedestrians and bicyclists who must cross the facility. Transit use is also affected, since pedestrians are a supporting mode for mass transit, and need access to transit stops.

CHAPTER FIVE: TRANSPORTATION SYSTEM MANAGEMENT

5.1 Congestion and Congestion Management

Traffic congestion and travel delay are among the most visible manifestations of an area's transportation problems. Drivers experience congestion for the most part as a personal annoyance although traffic congestion is a problem that wastes time, consumes energy resources, and contributes to lowered air quality.

Traffic congestion in the metro area is typically confined to the morning and evening peak hours of travel. Delays from congestion occur at specific locations such as Interstate ramps, signalized intersections, and bridges. Congestion in the metro area lasts less than 30 minutes in the morning and evening. In the Columbia area, the average travel time to work of 17.8 minutes in 2000 did not change significantly from 1990 when this number was 16.7 minutes. An examination of national trends points to the consistency of the average travel time while the duration of traffic congestion during the peak hours increases.

Expanding the capacity of roadways is not the sole solution to congestion. The new roadways, bridges, and highways built to relieve congestion satisfy latent and shifted demand for travel. The use of alternate modes, land use regulation, access management, and improvements to intersections and traffic signals can all contribute to an overall program to manage traffic congestion.

There are two major methods of gauging congestion, facility-based measures and travel time. The facility-based congestion methods focus on the road itself, and usually are based on traffic volume and capacity comparisons. Such comparisons may include volume-to-capacity ratios and traffic volume per lane-mile. The travel time method of measuring congestion indicates the same conclusion, however. These trip-based measures, which are tied to the individual traveler's congestion problems, are oriented to the length of the trip. Average travel time to work is an example of one such measure.

A 1994 National Research Council report notes that changes in individual behavior keep congestion from getting worse, as travelers make route and other changes to avoid delay. So travel times do not necessarily increase in proportion to congestion on particular sections of roadway. With continued population growth, and with residential development spreading further into outlying areas, vehicle trips have been increasing. Existing streets are forced to carry greater volumes. Traffic volumes are increasing, and an examination of individual streets would likely show that capacity is not keeping up. The conclusion might be drawn that congestion is worsening in the metro area as more roadways are becoming crowded.

A number of indicators may be used to gauge and manage congestion in the Columbia area.
These are divided into four categories:

1. Facility-based measures:
   Average vehicle speed in peak hour
   Ratio between peak volume & nominal capacity (V/C)
   Total vehicle-hours of delay
   Proportion of daily travel by speed or V/C range
   Frequency and duration of incidents
   Average daily traffic (ADT) per freeway lane

2. Personal travel effects:
   Proportion of personal travel by speed range
   Delay added to average person trips by time of day, travel purpose
   Delay added to average person trip by place of residence
   Delay to transit vehicles
   Number of accidents due to congestion

3. Effects on the economy:
   Delay added to average commuter trip by place of work
   Percentage of truck travel by speed or V/C range
   Vehicle-hours of delay to trucks/delivery vehicles
   Truck scheduling costs attributable to travel time uncertainty
   Market perceptions of congestion as an influence on economic activity

4. Environmental impacts

Extra vehicle emissions due to stop-and-go conditions
Extra gas consumption due to stop-and-go conditions

1. Levels of Service
Level of Service is defined as conditions within a traffic stream as perceived by the users of a traffic facility. In practice, levels of service have been defined by measures of effectiveness for each facility type, relating more to speed, delay and density than to qualitative factors or safety.
The following describes levels of service, according to the Highway Capacity Manual.

Level of Service A describes primarily free flowing operations at average travel speeds usually about 90 percent of the free flow speed for the arterial class. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Stopped delay at signalized intersections is minimal.

Level of Service B represents reasonably unimpeded operations at average travel speeds usually about 70 percent of the free flow speed for the arterial class. The ability to maneuver within the traffic stream is only slightly restricted and stopped delays are not bothersome.

Level of Service C represents stable operations. However, ability to maneuver and change lanes in mid-block locations may be more restricted than in LOS B, and longer queues and/or adverse signal coordination may contribute to lower average travel speeds of about 50 percent of the average free flow speed for the arterial class.

Level of Service D borders on a range on which small increases in flow may cause substantial increases in approach delay and, hence, decreases in arterial speed. This may be due to adverse signal progression, inappropriate signal timing, high volumes, or some combination of these. Average travel speeds are about 40 percent of free flow speed.

Level of Service E is the point at which the roadway has reached its maximum capacity. Traffic operations are unstable, speeds and flow rates fluctuate, and there is little independence for driver speed selection or maneuvering.

Level of Service F characterizes forced flow at extremely low speeds below one-third to one-quarter of the free flow which will drop to zero at times . Intersection congestion is likely at critical signalized locations, with high approach delays resulting. Adverse progression is frequently a contributor to this condition.

The Technical Committee of the Columbia Area Transportation Study Organization has adopted Level of Service C as the goal for traffic movement in the community. This is a commonly accepted goal in most communities. Level of Service D is acceptable at certain critical locations during the peak hour of flow at certain locations, but is not considered a design goal for new facilities. The Level of Service at signalized intersections was evaluated using the observed stopped delay method described in the Highway Capacity Manual.

Congestion "hot spots" in the Metro area include the I-70/MO 740 interchange area; MO 740/MO 163 intersection; Broadway/Route WW-US 63 interchange/Keene Avenue intersection area; and the US 63/Route PP intersection. Several traffic studies have been performed since the last transportation plan that identify existing and proposed conditions and recommended improvements.

5.2 Access Management

The management systems outlined in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) improve or maintain the ability of the roadway system to move traffic safely and efficiently.

An important aspect in maintaining roadway capacity is the effective control of driveway and street access to arterial roadways. The functional classification for roadways is based on the movement versus access concept. Arterial streets are primarily intended for the movement of through traffic. Local streets provide access to individual tracts at the expense of through traffic movement. Freeways and expressways are designed with limited access to provide entirely for the efficient movement of traffic. Collector streets, residential or commercial, provide equal service to the access and through movement functions. However, uncontrolled land access often produces conflicts that compromise the movement function of a roadway system.

Although arterials are designed for higher speeds and serve longer travel distances than do collectors or local streets, they often become heavily used for short distance trips as well. The higher traffic volumes are attractive to commercial interests, especially if driveway access is available to the property fronting the arterial. Uncontrolled driveway access for commercial land uses significantly reduces the capacity of an arterial to carry traffic. Depending upon the number of turning movements, number of travel lanes and the arterial traffic volumes, a driveway permitted access to an arterial street will reduce roadway capacity by up to 25%. The movement function of the arterial is quickly degraded to that of a collector street.

Although access to abutting property generally is permitted from arterial streets in the Columbia area, less permissive driveway regulations are needed to control the turning movements into and out of the properties in order to minimize the interference with traffic on the arterial streets. Turning movements from driveways are typically controlled by regulating the spacing, width, and curb return radii of driveways. Left turns into or out of commercial driveways can be a major source of congestion and accidents. Left turns may be prohibited or driveways designed for "right in - right out" movements, although it is difficult to successfully implement either remedy. For full effectiveness, a raised or barrier median is required. Left turn access to abutting properties may be permitted at predetermined median breaks with protected left turn storage provided within the median.

5.3 Right-of-Way and Corridor Preservation

The preservation and acquisition of right-of-way for planned roadways or roadway expansions is the most important element in implementing the 2030 Transportation Plan. The corridor alignments for the planned roadways are identified in the CATSO 2030 Roadway Plan in order to guide the reservation of future right-of-way and avoid the preemption of the roadway by new construction or subdivision activity within the right-of-way corridor. The corridor alignments for the planned roadways are general in nature and subject to adjustment to meet engineering and land use requirements.

The acquisition of right-of-way by Boone County and the City of Columbia is typically accomplished during the subdivision process or as part of a site plan process for planned development zoning districts. The right-of-way is dedicated to the City or County by the developer in order to comply with subdivision regulations and zoning. However, right-of-way dedication cannot be required when a building permit is issued even though a site plan is required. Boone County and the City of Columbia should develop regulatory mechanisms that require developer dedication of right-of-way at all phases in the development process or establish a pool of capital for the County or City to use for purchasing right-of-way.

5.4 Energy Conservation

There are a number of options available to policy makers to reduce the energy consumption of the transportation system. Such options fall into three general categories:

A. Economic Incentives

These include direct taxes, the granting or elimination of tax breaks, subsidies, regulatory exemptions, and making pricing more efficient. The imposition of efficiency standards, zoning, fuel use requirements, speed limits, inspection and maintenance requirements, and travel restrictions can have an impact on energy use. A more recently developed incentive is the so-called parking cash-out. In this program, an employer pays its employees a monetary bonus calculated to be the market value of the employee's parking space, in return for the employee giving up use of the space. The employee then will utilize mass transit, carpool, or some non-motorized mode of travel for work trips.

Some of the above policy options are beyond the scope of the governments of the City of Columbia and Boone County. For example, gasoline taxes and automobile fuel economy standards are mechanisms which may be used by the state and federal government. But others have possibilities for influencing energy use in the Columbia metro area, the parking cash-out technique being a prime example. This mechanism is also noted in the transportation demand management section.

B. Public Investment

Investment in new transportation infrastructure (such as new types of mass transit systems), maintenance and rehabilitation of existing transportation systems, urban development, and research and development are examples of this category.

Mass transit systems are frequently touted by their advocates as having major potential for reducing fuel consumption. This potential could only be fully realized, however, with a shift to transit of a substantial percent of existing work trips.

In addition to the high costs, there are questions whether most American transit systems, as they currently exist, save a significant amount of energy over the amount of consumption that would occur in their absence. Statistics indicate that fuel-use per passenger mile of bus systems increased by 70% from 1970 to 1989. This was primarily due to lower passenger loads, growing urban congestion, and a greater orientation to suburban services that require low or no revenue backhauls. Higher passenger numbers per transit vehicle would obviously increase the amount of energy savings and reduce subsidies necessary for transit system operation.

In Columbia, peak hour commuter routes, one of which serves south Columbia, are an example of the suburban type of service. These routes are higher mileage, as they serve outlying parts of the city, and usually have minimal ridership.

There is no doubt that under the right circumstances, transit systems can save substantial amounts of fuel. These circumstances may include high passenger loads; private vehicles operating in congested conditions, particularly with single occupancy; and transit operating on its own ROW or lane, or sharing an HOV lane. Obviously the above conditions are dependent on a number of other factors in order to occur. Fuel savings realized from bus system operations will vary from the fuel efficiencies created by light rail networks. The Columbia metro area does not currently have the population to support the operation of such a rail system.

C. Regulatory Incentives

The presence of public transit alone does not guarantee that the system can function as a viable transit option. A sufficient density of land uses, particularly residential density, is needed to enable transit systems to operate efficiently. Centralization and a mix of land uses also are important factors in determining the extent to which public transportation is utilized, in addition to being critical to pedestrian and bicycling travel modes.

Cities with high residential densities (e.g. >12 persons/acre), a centralized focus, and a mix of residential, commercial, and employment land uses show a tendency to have a low per capita travel rate and relatively high utilization of public transit, walking and bicycling. This is in contrast to cities with lower densities, widely separated land uses, and a lack of a centralized downtown or major commercial/office area, which tend to have much higher overall per capita travel rates and lower use rates of public transportation, as well as lower rates of walking and bicycling.

In order to increase the opportunities for use of transit, walking, bicycling, and other more energy-efficient modes, the distances required to provide access from residential areas to other types of land uses must be compressed. In order to reduce the travel distances and consequently the energy consumption, there must be a shift in land use patterns to accommodate alternative forms of development.

In the Columbia area, changes to Columbia and Boone County zoning ordinances to allow higher densities and a greater mix of land uses would be one step towards establishing a new pattern of development more compatible with alternative modes of travel. A combination of policies focused on providing better facilities for walking and bicycling, improving transit services, and increasing land use density could potentially reduce auto travel and give substantial energy savings. *Imagine Columbia's Future* includes several references to mixed-density, mixed land use zoning concepts that tend to generate fewer and shorter automobile trips.

5.5 Transportation Demand Management

Transportation demand management (TDM) is a strategic response to roadway capacity deficiencies that does not rely on the construction of new or expanded roadways. TDM actions are calculated to reduce vehicle demand by increasing vehicle capacity or providing an alternate mode. While new construction to eliminate traffic bottlenecks and expand roadways is the most direct and effective practice to resolve congestion, this approach does not offer a complete solution. A variety of strategies are available to reduce congestion by providing incentives to individuals to use alternative modes of transportation or to eliminate the need to make a trip.

The following outlines several approaches that may be taken:

1. Increase Vehicle Occupancy
    a. Ridesharing programs, local and regional
    b. Transportation management associations which coordinate opportunities and incentives for shared travel, usually through employers or business associations.
    c. Cash-out parking subsidies; which allow employees to convert employer paid parking subsidies to transit subsidies or cash.
    d. Restrict availability and/or increase parking cost for single occupancy vehicles.

An example of this strategy is in evidence at the park-and-ride lot located at the southeast corner of US 63 and Route AC. Owned by MoDOT, the commuter lot provides Columbians the opportunity to park their car and share a ride with another motorist traveling to Jefferson City.

2. Enhance Access to Alternative Modes
    a. Mixed use development conducive to walking, cycling and transit alternatives to the private automobile.
    b. Transportation enhancements such as the construction of more and improved bicycle paths and pedestrian facilities to improve choices available to commuters.
    c. Staggered work hours to more evenly distribute the number of commuters on the road throughout the day.
    d. Telecommuting; which allows employees to work out of a home base on at least a part-time basis.
    e. Electronic commerce; which allows individuals to conduct personal and business transactions electronically without physically making a trip.

The *Boone County Coordinated Transportation Study* estimated, using a model, a fixed route potential demand of 2,400 riders daily in the City of Columbia and a paratransit service potential demand ranging from 12,766 to 56,170 annual trips in Boone County. The annual demand for employment-related transit trips was estimated to grow to 262,960 in 2010 from 245,830 in 2000. The study also mapped areas of greatest transit needs, identifying census tracts and block groups in central and northeast Columbia as having the highest need, with corridors along Route B and US 63 also indicating high levels of need.

5.6 Transportation System Management

Transportation system management (TSM) encompasses a broad range of strategies intended to operate the existing roadway system in the most productive, safest, and cost-effective manner. Whereas travel demand management address the congestion by reducing vehicle demand on the roadway system, TSM focuses on engineering improvements which increase the vehicle capacity on the roadway system. Typical traffic engineering improvements for TSM include:

Left turn lanes
Right turn lanes
Intersection widening
One-way streets
Improved signage/pavement markings
Coordinated traffic signal systems
Signal timing optimization
Actuated traffic signals
Roundabouts

These improvements improve the capacity of the street or intersection, reduce travel time, and improve motorist safety.

5.7 Signalized Intersections

There is a physical limit to the number of through movements and turning movements that can be safely accommodated by a signalized intersection. When the demand for any movement at the intersection exceeds the available capacity, congestion and delays ensue; reducing the average travel speed and increasing the travel time. There are three basic strategies available to contend with intersection delays; 1) construct a grade separated interchange, 2) construct a new roadway to divert traffic from the congested intersection, and 3) accept the delay and provide mitigation to improve safety and access.

To preserve the capacity of the major arterials, it is essential that the distances between intersecting roadways with signalized intersections are adequate to provide for smooth, uninterrupted flow of traffic. Signalized intersections are directly responsible for most of the delays experienced on the roadway system. Appendix F: Existing and Future Signalized Intersections, identifies appropriate and anticipated signal locations in the metro area.

CHAPTER SIX: Future Project Plan

6.1 Introduction

To examine the adequacy of the metro area transportation system over the twenty-five year period ending in 2030, it is necessary to develop a metro area forecast for the rate of growth, type of growth, the location of growth, and household travel characteristics.

In the preparation of this transportation plan, information on land use and population was obtained from Boone County, the City of Columbia, and the 2000 Census to establish a baseline for residential and commercial development in 2005. In addition, three major data collection projects were conducted to obtain individual travel characteristics, time/delay and average speed on arterial streets, and peak hour and 24 hour traffic counts. The following databases, studies, and sources were used:

City of Columbia Existing Land Use Inventory
Vacant Land Inventory
City of Columbia Metro 2020 Plan
Boone County Land Use Plan
MoDOT 2006 Traffic Counts on Major Roadways
Household Survey of 1500 households for Work Trips by TAZ
City of Columbia Sidewalk Inventory
2000 Census
2000 Census Transportation Planning Package
CATSO Employment forecast for 2030
CATSO Population forecast for 2030
CATSO Geographic allocation of 2030 population
CATSO Geographic allocation of 2030 employment

Products for all the aforementioned surveys and data sources contributed to the information necessary to develop a travel demand model for the metro area. This model was used to assess the ability of the existing transportation system and the adopted CATSO Major Roadway Plan to accommodate the anticipated growth over the next twenty-five years.

6.2 Forecasting Travel Demand

Travel demand modeling is a tool designed to test the performance of a transportation system based upon a given land use scenario. The assumed land use scenario dictates the total number and the origin and destination of person trips. The output from the model provides the data needed to determine whether the proposed transportation system can adequately serve the projected land use.

The adopted Columbia Area Transportation Study Major Roadway Plan served as the base highway network for the 2030 land use scenario. Each roadway segment in the Plan was coded with distance, facility type, and capacity\hour\lane. Travel demand forecasting relies on a series of mathematical models that produce four primary components; 1) trip generation; 2) trip distribution; 3) mode choice; and 4) trip assignment. This technique is known as the "four-step" approach to travel demand modeling. CATSO's model might be called a "three-step" model because it is not programmed to select mode choice.

Trip generation models translate land use and demographic information into the number of trips created by an area. For this plan, the Columbia metro area is divided into 343 traffic analysis zones (TAZ). The boundaries of TAZs are generally existing roads and occasionally streams or other linear landscape features (See Map 3). Trips originating and or destined outside of the metro area (external trips) have been included. Estimated trips are calculated based upon TAZ information, including number of households, population, number of employees, number of vehicles per household and median income.

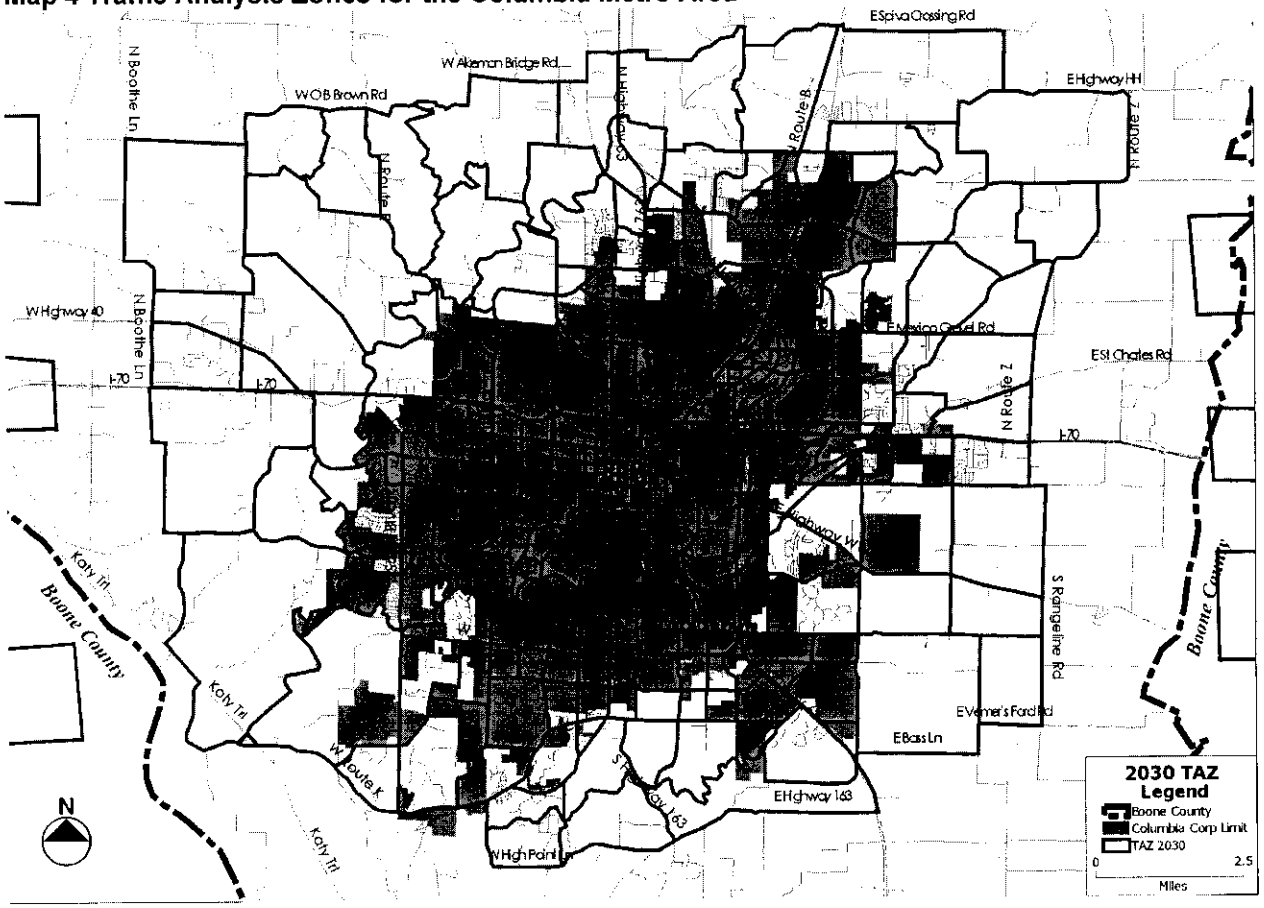
Trip distribution models estimate where trips will be made within the study area. The primary objective is to distribute the total number of trips originating in each traffic analysis zone among all possible destination zones. The distribution model used for this plan is commonly known as the gravity model. The gravity model

assumes that trips are proportional to the number of attractions in all possible destination TAZ's and inversely proportional to the travel time between the TAZ's. The number of attractions in a TAZ is correlated with the number of employees in the TAZ.

Mode choice models assign trips to the various modes of travel available. The basic assumption of the mode choice models is that travelers make rational choices between the available modes based upon economic cost and the time.

Trip assignment models assign the distributed volumes of vehicle trips, by mode, to individual network links representing roadway segments. An incremental capacity restraint trip assignment model was used for this plan. This model assumes that the choice of route is based upon minimizing the total travel time. Using the network and its data, the model estimates the shortest paths between each TAZ and every other TAZ based upon travel time. The incremental capacity restraint assignment model assigns or "loads" a percentage of the total trips onto the network in a series of iterations. For this plan, a series of three iterations were used; 50 percent of the trips assigned in the first iteration, and 25% in the subsequent iterations. The travel times between TAZ's are modified after each iteration to reflect congestion created by the cumulative traffic volumes assigned to each network link in the previous iterations. The basic outputs of the travel demand modeling process are the travel forecasts. These forecasts are summarized by estimated 24-hour traffic volumes on each segment of the roadway network. These volume estimates are used to indicate whether the transportation system can adequately serve the forecasted land use and employment.

Map 4 Traffic Analysis Zones for the Columbia Metro Area



6.3 Capacity Constraints and Recommendations

Overall, the adopted CATSO Roadway Plan, when fully implemented, addresses roadway capacity needs for the metro area in 2030. The CATSO Major Roadway Plan, however, does not address the congestion problems at signalized intersections. Congestion mitigation requires continuous monitoring and management of the transportation system.

To preserve the capacity of the major arterials, it is essential that the distances between intersecting roadways with signalized intersections are adequate to provide for smooth, uninterrupted flow of traffic. Signalized intersections are directly responsible for most of the delays experienced on the roadway system.

Appendix F: Existing and Future Signalized Intersection Locations, catalogues the existing traffic signals and identifies the desired locations for signalized intersections through 2030.

6.4 Future Roadway Projects

In the Metro area, there are several arterial roadways which should be considered for construction or improvement in the next 15 years. The issues related to the roadways include jurisdiction and ultimately funding. Many of the immediate planning challenges facing the City of
Columbia and Boone County will be MoDOT funding priorities, the results of the East Columbia Transportation Study (MO 740 extension and alternatives), and the follow-up of planning studies on I-70 and US 63. (refer to Major Roadway Plan, Map 4, for locations).

1. East Columbia Transportation Study. In progress in 2008, the East Columbia Study in December 2007 presented five reasonable alternatives, all consisting of extensions of MO 740 as an expressway. Two of the alternatives terminate MO 740 at the Lake of the Woods interchange; the others terminate MO 740 at the Route Z interchange. For each interchange there is an option including and an option excluding the Ballenger Road overpass.

2. The Improve 70 Study (2nd Tier Environmental Impact Study) recommended removal of the ramps on and off I-70 to Business Loop 70 East and a new interchange; The widening of I-70 was the preferred alternative to construction of an I-70 bypass.

3. A supplemental Environmental Impact Study was in progress in 2008 to evaluate the need for dedicated truck lanes on I-70. Part of a four-state U.S. Department of Transportation "Corridors of the Future" application, the EIS will determine the feasibility of separation of freight and passenger vehicles along I-70 from Marietta, Ohio to Kansas City, Missouri.

4. The City of Columbia sponsored a study to analyze feasibility of options for creating a grade separation at the Columbia Terminal Railroad (COLT) crossing of US 63. Elimination of the at-grade crossing of the 70 miles per hour freeway will eliminate a major hazard from the roadway system. Its cost is estimated at $5 million.

The issues generated by MoDOT's plans for the expansion of I-70 have highlighted the need for an expanded arterial system to move local traffic within the Metro area. Four roadways have been selected for examination; 1) Business Loop 70, 2) Broadway extension, 3) Providence Road extension, and 4) the creation of a circumferential roadway system.

A. Business Loop 70

Business Loop 70 is a primary arterial and an older commercial corridor within the Metro area. The changes under consideration for the I-70/US 63 interchange and for the widening of I-70 will have impacts on the Business Loop. The following is a section by section description of the roadway issues.

1. Route E to I-70 Drive Southwest

This section of the Business Loop is built as a 2 lane major collector with a continuous center turn lane. Land uses in the roadway corridor include small office, retail, and industrial uses. The primary focus of activity is Cosmo Park and the soccer and baseball fields. While there are no roadway capacity problems along the majority of this roadway, capacity and traffic operations problems are experienced in the vicinity of the I-70/Business Loop 70 Interchange. Some of the deficiencies include:

a. Two through lanes under I-70.

b. Roundabout with 4 approaches, plus on ramp to I-70 westbound.

c. Business Loop 70 intersection with I-70 Drive SW and proximity to I-70 East bound ramps.

d. West Boulevard is terminated at I-70 Drive SW.

e. Lack of pedestrian access along roadway corridors and at intersections, especially a lack of access to Cosmo Park.

The majority of the operational problems occur on MoDOT roadways. Local traffic from Creasy Springs Road and West Boulevard are routed through the I-70 interchange intersections, which complicates traffic control and limits capacity.

The I-70 interchange is an important connection for Business Loop 70. The existing bridge structure on the interchange is inadequate to serve the present needs of the Business Loop. An interchange study should be initiated to develop a design which will eliminate many of the existing operational problems, provide improved collector street connectivity, and provide pedestrian access across the I-70 Corridor to Cosmo Park.

2. I-70 Drive Southwest to College Avenue
This section of Business Loop 70 is constructed as a four lane arterial with a flush median. Land uses along the corridor include shopping centers, restaurants, a high school, car dealers, a hospital, and fast food restaurants, as well as the driveways associated with these uses. The right-of way is crowded with utility poles and there are no sidewalks along most sections of roadway, which limits this corridor's ability to function as a walk-able commercial destination for the residential areas immediately south. The City of Columbia has initiated sidewalk installation, intersection improvement, and utility pole removal on selected segments of the roadway.

The capacity of this section of roadway is adequate, although the numerous driveways and the proximity of utility poles to the roadway is a safety problem.

Access management and utility relocation would be the key issues for this section of roadway. The *Revitalization Study for Business Loop 70* completed in September 2002 explored alternatives for consolidating access points and for providing underground utilities and the City is in the early stages of doing just that.

3. College Avenue to Old 63
From College Avenue east to Route B, this section is constructed as a four lane arterial with a flush median. Near Route B, the number lanes drops to two (2) as the roadway passes under a bridge for the COLT Railroad and a second bridge under Route B. The two lane section continues to the signalized intersection at Old 63. There is an improved railroad crossing in place near the City of Columbia power plant. Land uses along the corridor are primarily industrial. One of this primary problems with this section of roadway is it lacks a full direct connection to Route B. In addition, the pavement narrows to two lanes to pass under two bridges, one for the COLT railroad and the other for Route B.

While pedestrian access problems and the lack of sidewalks still persist in the vicinity of Business Loop 70 and Paris Road/State Route B, a pedestrian bridge along Paris Road/State Route B which crosses Business Loop 70 was completed in 2003, with Surface Transportation Program Transportation Enhancement assistance, at the time of improvements to the State Route B/Business Loop 70 crossing.

The CATSO Major Roadway Plan should be amended to provide for the realignment of Route B with Old 63 to create a four-way signalized intersection that provides the Business Loop direct access to Route B.

The MoDOT I-70/US 63 Major Investment Study (1999) and the Improve 70 Study (2002) recommended a possible new interchange for Business Loop 70 with I-70, just west of Route B. A further evaluation of the interchange options and potential realignment of Route B should be pursued.

4. Old 63 to Conley Road
At present, Business Loop 70 terminates at East Boulevard just east of the ramps onto I-70.
The roadway is constructed as a two lane section with a turn lane at Old 63. Land uses along the corridor include retail and industrial uses.

The I-70/US 63 Major Investment Study (MIS) completed by MoDOT in 1999 recommended the removal of the Business Loop 70 ramps on I-70 to improve the operation of the I-70/US 63 interchange. Removing the ramps to and from I-70 will leave this section of the Business Loop as a cul-de-sac frontage road that serves only an access function until the planned extension of the roadway to Conley Lane can be constructed.

The extension of Business Loop 70 to Conley Road will require a bridge over Hinkson Creek and may be a challenge because the MoDOT preferred alternative for I-70 is to widen within the existing ROW. Right-of-way would need to be acquired from the Columbia Country Club golf course. In 2008, the Broadway Marketplace Transportation Development District (TDD) was working with MoDOT, which recently relocated its maintenance operations facility from the study area, Columbia Country Club, and the City to begin the extension project. Continuity of the planned Hinkson Creek Trail extension will be an issue during the design phase and water quality in Hinkson Creek will be an issue during the construction phase.

As identified in the I-70/US 63 MIS, the extension of Bus. Loop 70 East to Conley Road would improve area traffic circulation. When MoDOT determines the preferred alternative for I-70, a preliminary alignment and design should be developed for the extension of Business Loop 70.

B. Broadway (Route WW and TT)

1. West Broadway Extension (Route TT)

The CATSO Roadway Plan shows the extension of West Broadway as a major arterial from Route UU (I-70/Hwy 40 interchange) to Scott Boulevard. The extension of Broadway is intended to provide an alternative route for traffic entering Columbia from the west. Perche Creek and the associated flood plain present a natural barrier that must be bridged. At present, only I-70 and Gilliespie Bridge Road provide for east/west travel in the western portion of the Metro area. Delays on I-70 during construction or due to accidents are magnified owing to the absence of a viable alternative route parallel to I-70. Local traffic with origins or destinations in southwest and west Columbia must use Stadium Boulevard to enter and exit I-70. The extension of Broadway to the I-70/Hwy 40 interchange would significantly reduce travel times and reduce traffic volumes on Stadium Boulevard, in addition to reducing delays on I-70.

Preliminary engineering needs to be completed to accommodate the proposed realignment of Scott Boulevard and Strawn Road to create a 4-way intersection with Broadway. Residential development limits the available roadway rights-of-ways and need to be protected from further encroachment. Crossing Perche Creek and the flood plain will require a bridge structure that will have a significant cost. The Major Roadway Plan shows the preliminary location of the bridge structure. The roadway extension involves multiple jurisdictions, MoDOT, Boone County, and City of Columbia. Construction of the Broadway extension will require cooperation to acquire right-of way and construct the roadway. Right-of-way will need to be surveyed and purchased through the Perche Creek bottoms to Route UU. Environmental concerns related to water quality and the karst/sinkhole topography in the area, especially during the construction phase, will need to be addressed. The City of Columbia has done a preliminary study of alternative alignments and secured commitment for some of the right-of-way in a future subdivision ("The Overlook").

The roadway corridor offers little development potential owing to the topography and flood plain. However, the scenic potential of the roadway should be evaluated and natural features preserved to create an attractive west entrance to Columbia. The benefits of the Broadway extension occur on the MoDOT system including the redistribution of traffic from I-70 and Stadium Boulevard that would be occur by connecting Route TT with Route UU and Highway 40/I-70. Residents of the Metro area would benefit from significantly reduced travel times to south and southwest Columbia. MoDOT should consider designating the extension of Broadway west to Route UU as Route TT. The City of Columbia should consider assuming maintenance responsibility for Scott Blvd (Route TT) from Broadway south and for Strawn Road (Route ZZ). Should MoDOT choose to widen I-70 along the existing alignment, the Broadway extension would become a high priority to provide an alternative route during the construction of I-70.

2. Completed Project: East Broadway (Route WW) Widening

This widening project was completed in 2006.The CATSO Roadway Plan identifies East Broadway/Route WW as a major arterial from Garth Avenue to the eastern boundary of the Metropolitan Area. Implementation of this project made the roadway cross-section four lanes for the entire length between US 63 west to College Avenue. The inclusion of a four-lane bridge over Hinkson Creek as part of this project eliminated the merging traffic delays at the PM peak hour which disrupted traffic movement at the Broadway/Old 63 intersection east of the bridge. The new bridge also provides sidewalks for pedestrians and bicycle routes, as well as including a connection to the Hinkson Creek Greenbelt trail facility.

C. Providence Road Extension

This project was first shown in its current alignment in the 2025 CATSO Plan, which removed the northern connection to US Highway 63 and connects the northern terminus of the Providence Road extension to Route VV and downgrades the roadway to a minor arterial. The City has developed an alignment and design for the section of the Providence Road extension from Vandiver to Blue Ridge Road. Construction of the project is scheduled to begin in FY 2008.

Land uses proposed in the corridor have transitioned from industrial to residential. Given the developing residential character, the connection to US Highway 63 is not needed to serve an industrial district. Traffic from US 63 to I-70 will use Rangeline Street (Hwy 763). The present interchange of Providence Road with I-70 is underutilized without a northern extension. A parallel route to Rangeline, which is a commercial and industrial corridor, is needed to serve existing and future residential development, particularly the Clearview Subdivision. There is an existing power line easement with electrical transmission towers which interferes with the proposed roadway extension. In addition, development requests in the corridor have been encroaching on future ROW.

The City of Columbia and Boone County will need to cooperate in the planning of the roadway and in the review of subdivision and rezoning requests to facilitate right-of-way preservation and access management. Construction of the Providence Road extension may be a joint City/County project. The extension will cross Bear Creek and the Bear Creek Trail, requiring construction of a bridge. Access to the Bear Creek Trail should be provided from Providence Road as well as sidewalks on the bridge. Water quality in Bear Creek will be an issue during the construction phase.

D. Circumferential Roadway System

The proposed Circumferential Roadway System builds upon many of the roadways already in place within the Metro area. West of US 63, of the 12.2 miles of the proposed system, only .85 miles, or seven percent (7%) of the total length would be along a new street ROW. Beginning with Stadium Boulevard (MO 740) at US Highway 63, the loop would extend along Stadium Boulevard then north along Route E and Blackfoot Road, to Wilcox Road and Obermiller Road to Creasy Springs Road. From Creasy Springs Road, the Circumferential System proceeds northeast along a new alignment to meet Brown School Road east of Clearview Road and proceeds along the Brown School Road alignment to the interchange with US Highway 63. East of US Highway 63, the Circumferential System follows Starke Lane to Brown Station Road. From Brown Station Road, a new roadway would be extended across the COLT railroad to Route B. From Route B, the roadway would follow a new alignment heading southeast to intersect with Route PP. From the intersection with Route PP, the Circumferential System would use the Ballenger Road alignment to Clark Lane, then extend across I-70 following the Ballenger Lane extension alignment to connect with the alignment for the extension of Stadium Boulevard (MO 740) to complete the system at U.S. Highway 63. With the exception of the existing section of Stadium Boulevard and the section from Route PP to US 63, the Circumferential Roadway System would ultimately be constructed as a four lane, primary arterial with a raised barrier median to control access. The following sections provide a section by section description of the proposed system.

1. Blackfoot Road from Route E to Wilcox

At present, Blackfoot Road is a 18-20 foot paved collector street with substandard geometrics, inadequate right-of-way, steep grades, and poor horizontal geometrics (sharp turns). The existing rock quarry operation west of Blackfoot Road will generate industrial traffic, especially large trucks. The City of Columbia Public Works Department is in the process of negotiating for additional ROW on Blackfoot Road to upgrade the present roadway to an arterial cross-section. In addition, a proposal has been made to realign Route E to create a "T" intersection with Blackfoot Road. MoDOT is currently evaluating this proposal. Blackfoot Road would be upgraded to a Major Arterial. The City of Columbia should provide MoDOT with the supporting material to create a "T" intersection for Route E into Blackfoot Road. Sufficient right-of-way to accommodate a four lane major arterial should be acquired.

2. Obermiller Road from Wilcox to Creasy Springs Road This section is a two lane roadway built to County standards. The existing roadway alignment has a 90 degree turn which may limit the design speed on this section of the Loop. Additional right-of way may have to be purchased to provide a minimum of 100 feet. Additional ROW should be acquired along Obermiller Road to provide a 4 lane roadway with raised barrier median. The curve on Obermiller Road should be engineered to accommodate 45 mph traffic speeds.

3. Northwest Arterial from Creasy Spring Road to Brown School Road and U.S. Highway 63 This is a new roadway alignment starting from the intersection of Obermiller Road and Creasy Spring Road. Using the

platted ROW for Sanderson Lane from the intersection with Creasy Springs Road, the proposed Northwest Arterial section would be aligned to the northeast to meet the present alignment of Brown School Road approximately 1500 feet east of Clearview Road. Smiley Lane and Clearview Road would have "T" intersections with the Northwest Arterial, maintaining a minimum distance between the intersections of 1320 feet.

Inadequate ROW along the existing Sanderson Lane alignment is a problem, along with the proximity of several residences to the future roadway. Boone County is currently considering the construction of the extension of Smiley Lane. The Northwest Arterial relies on the Sanderson Lane portion of the Smiley Lane alignment and would have Smiley Lane form a "T" intersection. This section is the key piece of the western portion of the system. It completes the connection of US Highway 63 with I-70. If the extension of Smiley Lane is constructed to Obermiller Road, provisions should be made in the design to facilitate the construction of the Northwest Loop and create a "T" intersection for Smiley Lane.

4. Starke Lane from the US Highway 63 Interchange to Route B The construction of the interchange at US 63/Oakland Gravel Road in the early 1990's improved access to the Boone County Fairgrounds and prompted changes to the road alignments of Oakland Gravel Road, Roger I. Wilson Memorial Drive, and Brown School Road. Brown School was subsequently upgraded from a collector to an arterial road. At present, Starke Lane is a narrow, two lane roadway that ends at Brown Station Road. The primary land use along the corridor is the Boone County Fairground. East of US 63, Oakland Gravel Road and Starke Lane meet at a "T" intersection with Brown School Road just 200 feet east of the north bound ramps of US 63. The present intersection configuration requires all vehicles heading east across US 63 to stop and then turn. To eliminate this intersection configuration and provide for through traffic along the proposed arterial loop, the 2025 CATSO Roadway Plan realigned Starke Lane and its extension eastward to Route B. Starke Lane was shown realigned through the Fairground property to serve as an extension of Brown School Road. In 2006, the CATSO Coordinating Committee voted to amend the Major Roadway Plan to show the existing alignment of Starke Avenue as the plan alignment. This minimizes impact of the roadway to the Boone County Fairgrounds in the future but it creates a number of challenges. Starke is a critical segment of the northern loop circumferential system. If the "T" intersection at Starke and Oakland Gravel Road remains, the continuity of the northern loop will be interrupted. CATSO will need to revisit the Starke Corridor as planning of the northern loop advances. Most of the available roadway corridors for the extension are developed with small residences and duplexes. Acquiring ROW to construct the Starke Avenue extension would most likely involve the purchase on a number of residential properties. Boone County is the key stakeholder in this corridor. Improved access to the Boone County Fairground and surrounding property would be a direct benefit of the roadway realignment. To accomplish the realignment, a significant quantity of fill will be required east of US 63. Oakland Gravel Road would be shifted east to create a new intersection with Starke Avenue.

5. Northeast Collector from Route B to Route PP
From Route B, the Northeast Collector would run east, then turn south as a major collector to intersect with Route PP. The roadway would cross Hinkson Creek and its flood plain. The area adjacent to the proposed roadway corridor is sparsely developed with residences. Industrial uses on the east side of Route B limit the opportunities for intersection locations for the Northeast Collector. A major bridge would be required for the crossing of Hinkson Creek.

Water quality in Hinkson Creek will be an issue during the design and construction phase. This section is the key piece of the eastern portion of the loop. It completes the connection of US Highway 63 with service roads in the I-70 corridor. Access to a future Hinkson Creek Trail should be provided from the Northeast Loop, as well as sidewalks on the Hinkson Creek bridge. An alignment study needs to be completed for this section of the Circumferential Roadway System to evaluate the alternatives, costs, and impacts.

6. Ballenger Lane Extension from Clark Lane (Route PP) to St. Charles Road
The Ballenger Lane Extension would cross I-70 via an overpass to intersect with I-70 Drive SE and with St. Charles Road on the south as a major arterial. The overpass at I-70 would also bridge Hominy Branch Creek. The extension of Ballenger Lane was added to the Roadway Plan in 1997 in response to the growing traffic volumes and delays being experienced at the Clark Lane (Route PP) US Highway 63 intersection and the need to identify and preserve a possible alignment for the planned extension of Stadium Boulevard (MO State Route 740). Currently, there is a 2.1 mile interval between crossings of I-70 at St. Charles Road (Lake of the Woods) and US 63 which inhibits efficient circulation of traffic. The key feature is an overpass over I-70 to provide north/south access for the northeast Columbia area. The proximity of the overpass to the existing I-70/US Highway 63 interchange limits the addition of ramps to create a new interchange for Ballenger Lane or

Stadium Boulevard. There is considerable development pressure and subdivision activity in what would be the roadway corridor, especially adjacent to I-70 Drive SE and Clark Lane. At present, there is no existing development that would be directly impacted by the proposed arterial street, however the proposed alignment does divide several large residential tracts developed with a single residence. The Ballenger Lane Extension will require a bridge crossing of Hominy Branch Creek and the City of Columbia's Hominy Branch Greenbelt. The greatest threat to the water quality of Hominy Branch Creek and downstream at Hinkson Creek will occur during the construction of the street and bridge structure. The construction of the I-70 overpass was included in the MoDOT I-70/US 63 Major Investment Study as an important improvement for relieving congestion to the I-70/US 63 interchange. The cost and responsibility for the roadway and overpass is a significant issue. At present, MoDOT has not committed to including this roadway section in the State's Long Range Transportation Plan, and is still considering whether to add it to the State system. Given the cost of the bridge structure required for the overpass and the connection/extension to existing MoDOT roadways (U.S. Highway 63 and Route PP), jurisdictional responsibility for this improvement needs to be clearly established.

E. Stadium Boulevard (MO 740)

The extension of Stadium Boulevard (MO-740) is described as part of the Circumferential Roadway System (MO 740 eastern terminus to Richland Road) and is identified as an expressway from Richland Road to the Lake of the Woods interchange with I-70. The extension of MO-740 has been in the CATSO Major Roadway Plan for several decades, and was a identified project in the "Fifteen Year Plan."

From its intersection with Richland Road, Stadium Boulevard would run southwest to intersect with Broadway (Route WW) just east of Grindstone Creek as an expressway. The CATSO Roadway Plan indicates a preliminary alignment which has been selected for this section of the Circumferential Roadway System. There is subdivision activity in the roadway corridor. The connection of this section with the I-70 overpass was included in the MoDOT I-70/U.S. 63 as an important improvement for relieving congestion to the I-70/U.S. 63 interchange. Agency responsibility for this roadway has not been determined.

From the intersection with Broadway (Route WW) just east of Grindstone Creek, Stadium Boulevard would run southwest to connect with its existing eastern terminus near US Highway 63 as an expressway. The proposed roadway corridor is developed with single family residences on large acreages.

Right-of-way will need to be purchased and will likely require the acquisition of property by condemnation. Existing development at and near the Lake of the Woods interchange will likely require the purchase of businesses and homes. Issues related to water quality and impacts on the greenbelt are likely given the proximity to Grindstone Creek.

The eastern portion of the U.S. Highway 63/Stadium Boulevard interchange is developing as a commercial center. There Maguire Boulevard is to be extended north to Stadium, completing an old plan to provide northern access to the Concorde Industrial Park.

F. Rangeline Street (MO 763)

MO-763 (Rangeline Street) is designated as a major arterial and would be widened to four lanes with a median from U.S Highway 63 to Big Bear Boulevard. The corridor is rapidly developing and in need of access control. The design of the roadway should anticipate the redevelopment of older, existing industrial properties to commercial and residential uses. The existing bridge over Bear Creek should be retrofitted to provide for bicycles and pedestrians, and convenient access to the Bear Creek greenbelt and future trail.

The 763 project is currently in the design phase, and it is anticipated that construction will begin in 2008.

G. Vandiver Road and Mexico Gravel Road

The extension of Vandiver Drive from its current eastern terminus on the east side of U.S. Highway 63 to Mexico Gravel Road as a major arterial. The roadway should be designed to accommodate bicycles and pedestrians to facilitate the connection with the Hinkson Creek Greenbelt and trail which is located just east of the present terminus of Vandiver Drive. A roundabout at the east side of the interchange will allow for the future extension of Creekwood Parkway through the future Center State commercial development.

East of U.S. Highway 63, Mexico Gravel Road is shown as a major arterial with a new alignment. The new alignment runs from the intersection of the northbound ramps of the U.S. Highway 63 interchange and Lakewood Parkway, east then north along the eastern side of Hinkson Creek to rejoin the existing Mexico Gravel Road alignment approximately 2,000 feet west of Route PP (Ballenger Lane).

The roadway realignment will require a new bridge over Hinkson Creek. The bridge structure should be designed to accommodate bicycles and pedestrians and to provide a convenient connection to the Hinkson Creek Greenbelt and trail.

The City of Columbia has programmed the Vandiver extension and Mexico Gravel Road two-lane improvement as a 2009 construction project in the capital improvement program. Right-of-way will need to be purchased and will likely require the acquisition of property by condemnation. Issues related to water quality and impacts on the greenbelt require special attention given the bridge construction in the greenbelt and the roadway's proximity to Hinkson Creek.

H. Gans Road

From Providence Road to U.S. Highway 63 along the existing alignment as a minor arterial with a new alignment east of Bearfield Road to an interchange at U.S. Highway 63. The intersections of Gans Road with Ponderosa Street, Bearfield Road, Rock Quarry Road, and Hwy. 163 are identified as future signalized intersections.

Gans Road is designated as a minor arterial due to the limited development potential of the areas south of the roadway. The roadway is located in the drainage area for Clear Creek which flows into Rockbridge State Park. The construction phase presents the greatest threat to the water quality of the creek and potential impacts to Rockbridge State Park.

Gans Road should be considered for local designation as a scenic road, to create an attractive southern entrance into south Columbia and preserve the unique character of the corridor. The City and County, using Section 303 of the Clean Water Act 60/40 federal/local funding, in 2007 initiated a geomorphic stream study of Gans and Clear Creeks. The findings of the study should be taken into account in future roadway planning and design.

I. Maguire Boulevard (Lemone Industrial Boulevard)

The extension of Maguire Boulevard as a major collector from the existing northern terminus across Grindstone Creek to MO-740 (Stadium Boulevard). This will include a future signalized intersection at Maguire Boulevard and MO-740. The bridge structure should include provisions for bicycle and pedestrians and provide for convenient access to the future Grindstone Creek trail.

Construction of this roadway will require a substantial bridge structure to cross the confluence of the North and South Forks of Grindstone Creek and the Grindstone Creek greenbelt. Serious issues related to water quality and impacts on the greenbelt must be addressed given the threat to the water quality of Grindstone Creek and downstream at Hinkson Creek that would occur during the construction of the street and bridge structure.

J. MO 163 (Providence Road)

The widening of Southampton Drive to Route K to four lanes. The right-of-way for the widening is available, although additional right-of-way may be required for the intersection of MO 164 with Route K and Old Plank Road.

MO 163 is identified as part of the PedNet Backbone and provisions to accommodate the appropriate pedway design need to be included in the widening project.

K. Route TT (Scott Boulevard)

The widening of Route TT to a four or five lane urban section south of Route ZZ (Strawn Road) to end of State maintenance north of Chapel Hill Road. Right-of-way will need to be acquired for the widening.

The widening will affect the existing residences along the Route TT in the King's Meadow Subdivision, and the Rothwell Heights neighborhood south of Mt. Carmel Lane to Smith Drive, and in the Georgetown subdivision south of Ludwick Boulevard to Georgetown Drive.

L. Scott Boulevard

The extension of Scott Boulevard south from Route KK to Highway K as a two lane minor arterial. Right-of-way for the extension will need to be acquired through the subdivision process or purchased outright.

6.5 Other Roadway Improvements and Plan Amendments

A. Other Roadway Improvements

1. COLT Railroad Overpass

The construction of a grade-separated crossing for the COLT Railroad at U.S. Highway 63. U.S. Highway 63 is a four lane divided limited access highway with a posted speed limit of 70 mph. The Columbia Terminal Railroad (COLT) crosses US 63, in north Columbia at an at grade intersection. Certain classes of commercial vehicles and school buses are required to come to a complete stop at the railroad crossing, creating a safety hazard. In addition, the entrance and exit ramps for Route B are located within the highway-rail crossing area. While the COTL railroad crossing is a safety hazard, U.S. 63 was built in this way due to the uncertainty surrounding the future operation of the railroad line at that time (early 1980s). The current railroad track was realigned and an at grade highway/rail crossing was constructed in lieu of a grade separation, anticipating the abandonment of railroad service.

Following this, the short line railroad was purchased by the City of Columbia and operates two trains per day over the U.S. Highway 63 highway/rail crossing. The proposed project will construct a railroad bridge over U.S 63 on the original alignment of the railroad. By placing the track back on its original alignment, sufficient vertical clearance will be created between US 63 and the railroad. The bridge will be approximately 300' in length. In addition, the existing highway-rail crossing surface, track, and active warning devices will be removed. The project is estimated to cost $3.8 million.

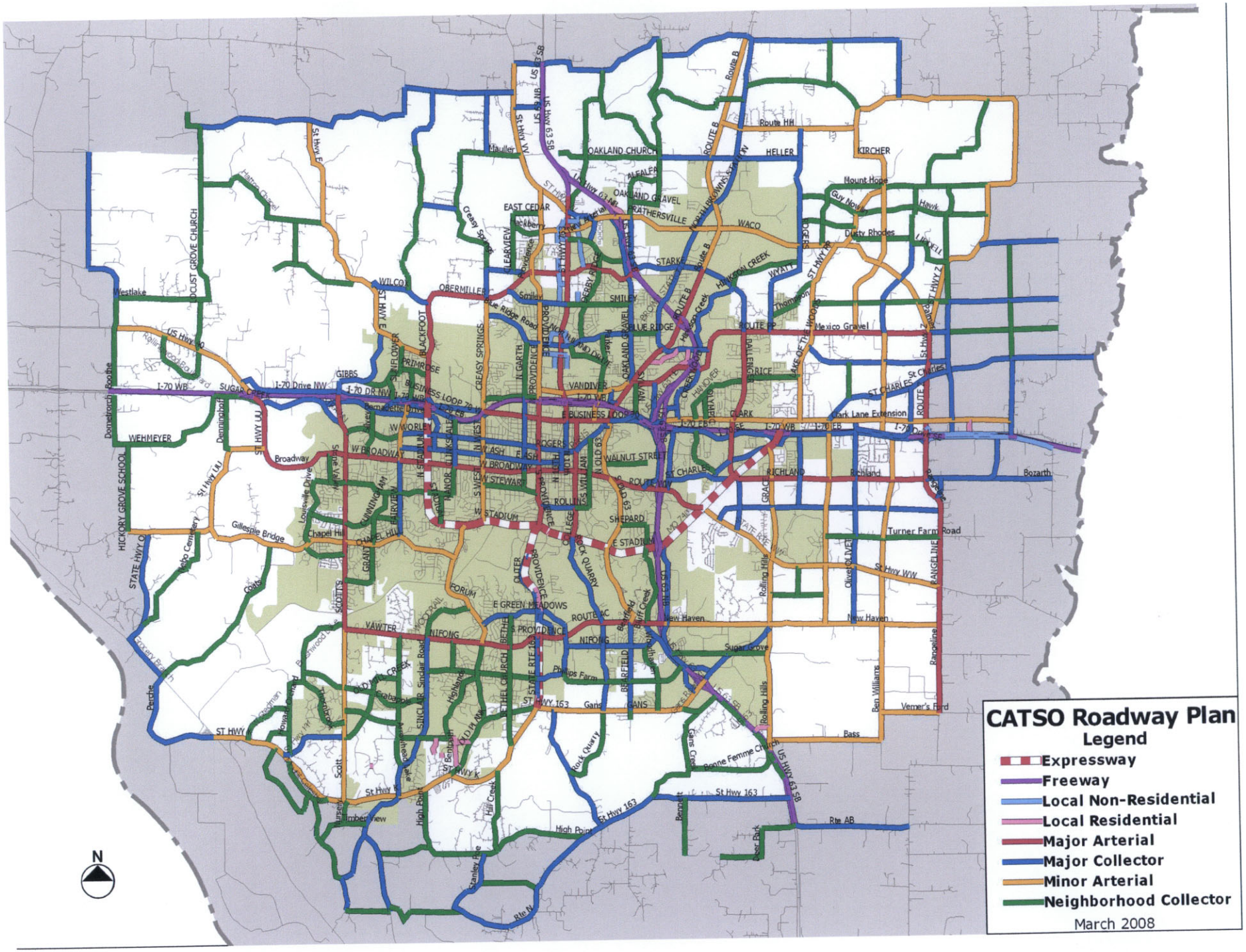
2. I-70/U.S. 63 Interchange: Limited Build Alternative

The Major Investment Study completed by MoDOT in 2000, identified a "Limited Build Alternative" as one of the preferred strategies to address the capacity deficiencies at the I-70/U.S. 63 interchange. This alternative was a series of intersection and on/off ramp modifications intended to relieve traffic congestion at the interchange for an interim period of five to ten years. The improvements have been completed as of this writing (July 2007).

B. Major Roadway Plan Amendments

A number of collector streets have been added to the updated Roadway Plan. A number of existing Boone County collector streets are included, as well as additional local non-residential streets (for connectivity purposes) in the Route 763 corridor. Additional roadways have been added in the northeast, southeast, and southwest portions of the Metro Area. Some of the roadways in the following list are existing roadways and others are new facilities.

Roadway projects plus additional long-term needs are depicted on the Major Roadway Plan, Map 5. This includes amendments approved by CATSO Coordinating through December, 2007.



MAP 5. Columbia Area Transportation Study Organization Roadway Plan.

6.6 Bicycle/Pedestrian Facilities

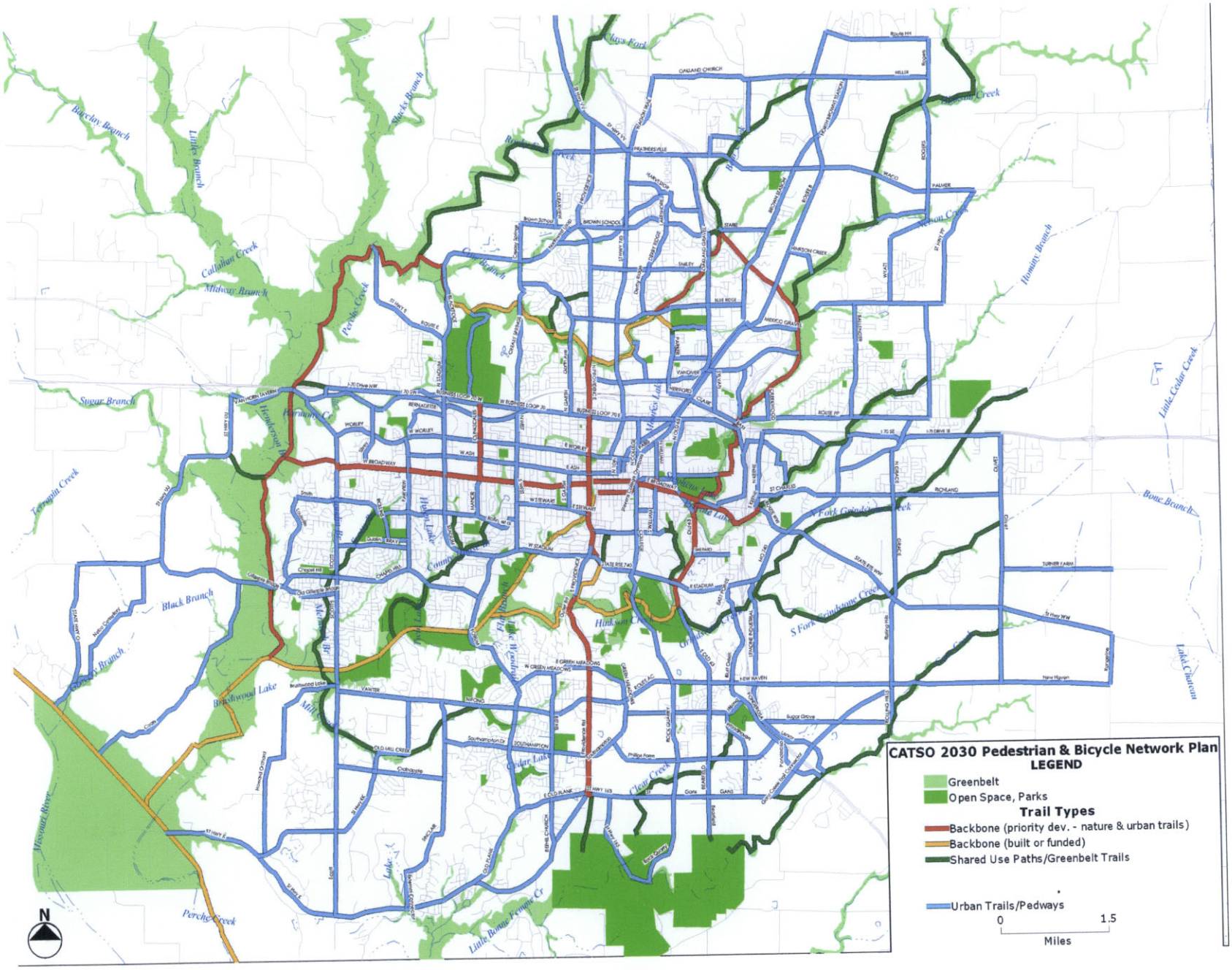
A. Bicycle and Pedestrian Network Plan

The current adopted bicycle and pedestrian plan is a comprehensive pedestrian/bicycle network for the entire Columbia metro area. This plan was previously known as the "Pednet." Its implementation will create a comprehensive network for non-motorized travel. The pedestrian/bicycle network includes 129 miles of trails, 259 miles of pedways and 388 miles of bicycle routes and lanes.

The new pedestrian/bicycle plan is designed to provide greater opportunities for bicycle and pedestrian travel throughout the City and metro area through the construction of a system connecting to all parts of the area. In particular, it will be designed to allow children, the elderly, and the disabled to walk or bicycle across the community in safe and attractive surroundings. The construction of the trails system will provide an entirely separate transportation system for bicyclists and walkers to use in moving from one part of the metro area to another. This will complement existing sidewalks and bicycle routes, as well as the pedways that will be part of the pedestrian/bicycle network. The sidewalk system includes two types of facilities. "Pedways" are paved, typically eight-foot wide sidewalks. Conventional sidewalks are typically five feet wide except in the central business district (10 feet) and exceptional corridors like Broadway (six feet is recommended).

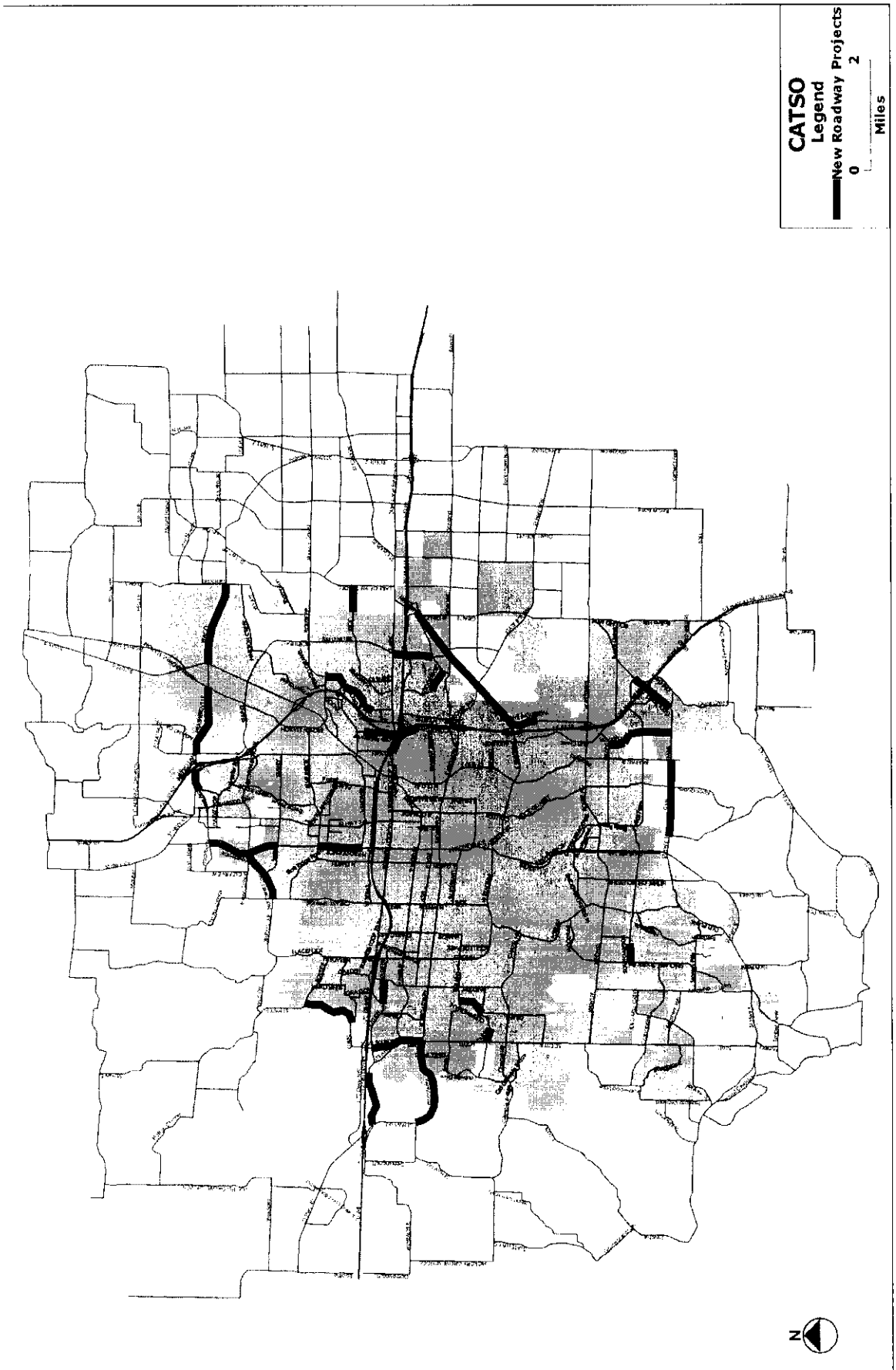
The network also classifies facilities in terms of their importance to connectivity. Those facilities which are called the "backbone" include on-street lanes and routes, pedways, and trails. Included are the pedways along Broadway and Providence Road (Missouri Route 163), which are the centrally located major roadways in the metro area. These pedways are critical to providing east-west and north-south access across the city. Other backbone pedways provide access off Broadway to the community recreation center (The ARC) and Cosmo Park, and additional downtown access. Also included in the backbone are trails which form a complete loop around the community. These include greenbelt trails in the Hinkson, Bear, Perche, and Grindstone creek corridors, as well as the existing MKT Trail and along the COLT corridor. The MKT Trail not only forms a portion of the loop, but provides connections to downtown Columbia and to the statewide Katy Trail. Trails to be part of the backbone have been constructed along Bear Creek and Hinkson Creek, and more are in the planning and design stages. The backbone system also provides access across Interstate 70 and U.S. Highway 63, which are major barriers to pedestrian and bicycle travel. See Map 6 for a depiction of the Pedestrian & Bicycle network.

See Map 6 CATSO Pedestrian/Bicycle Network Plan

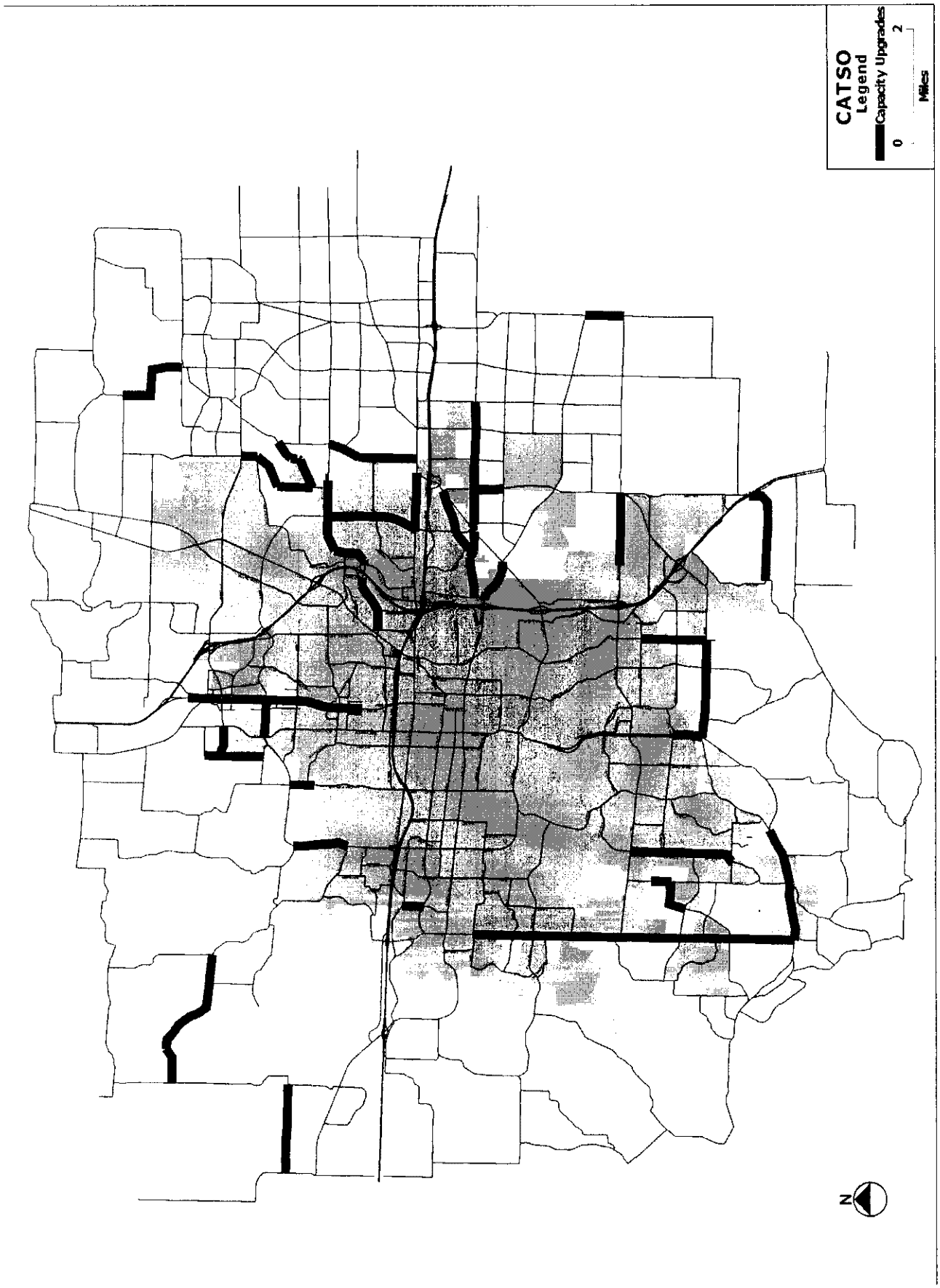


MAP 6. CATSO Pedestrian and Bicycle Network Plan.

Map 7 CATSO New roadway construction projects



Map 8 CATSO Roadway capacity upgrade projects



B. Sidewalks

As stated in Chapter Three, the existing street system is inadequately served by sidewalk facilities. Approximately 229 miles of streets within the City of Columbia have no sidewalks. The 1997 City of Columbia Master Sidewalk Plan revision proposed 41 projects, including 25 individual sidewalk projects, and 16 sidewalks to be built in conjunction with a street reconstruction project. These totaled 19.7 miles of new sidewalks. The Plan focused on identifying those segments in most critical need of sidewalks. As of 2007, twenty of the projects have been completed, adding 9.5 miles of new sidewalks.

The new 2007 Sidewalk Master Plan contains a greater number of individual projects (50) and an increased emphasis on sidewalk provision on major streets. Thirty-six of the fifty total individual projects are on streets included in the major roadway plan. Eleven of the sidewalk projects to be built in conjunction with street reconstructions remain from the 1997 plan. The focus on major street sidewalks is to facilitate improved connectivity and safety for pedestrians, which hopefully will result in increased numbers of walkers and reduced numbers of vehicular trips.

Boone County requires sidewalks on new streets only if the lot sizes are urban in character (i.e., 7,000 square feet to 0.49 acres), the subdivision is for "multi-use" development, or when administering development of a subdivision that is subject to a City of Columbia "pre-annexation agreement" (i.e., an annexation agreement on property that is not yet contiguous to City boundaries).

The City of Columbia's capital improvements program lists 27 individual sidewalk projects scheduled for funding by the Non-Motorized Transportation Pilot Program (NMTPP) funds. Of these, 17 are projects listed in the 2007 Master Sidewalk Plan.

A number of policy recommendations are appropriate for improving the pedestrian environment within the Columbia metro area. The provision of continuously connected walkways is a major factor in accommodating pedestrian traffic. Connectivity is critical to allow walking as a serious travel mode. Sidewalks should be provided on both sides of major streets, particularly major traffic ways such as arterial streets. Walkways should be a minimum of 5 feet wide to allow disabled persons access. A separation from the roadway should be provided, with a 6 to 7 foot space recommended by the accessibility guidelines of the Americans with Disabilities Act (ADA). The minimum width of five feet would likely apply in residential areas, while in areas of greater pedestrian use, such as downtown Columbia and other commercial areas, wider walkways are appropriate. A 50/50 ratio of vehicle space to pedestrian space is suggested for public spaces in downtown areas, both for public safety and to maximize economic development. Intersections are significant locations for pedestrian travel. and pedestrian safety needs to be a prime consideration in intersection geometry. A suggested maximum length for pedestrian street crossings is 48 feet. The intersection design should incorporate features such as medians to minimize pedestrian exposure to vehicle traffic. General roadway design needs to keep vehicle turning speeds to safe levels, below 20 mph for left turns, and below 10 mph for right turns. It is suggested that left turns be minimized or even eliminated in downtown areas and other locations with large numbers of pedestrians. Pedestrian signalization should be timed for a maximum walking speed of 3.5 feet per second. Intersection approaches and pedestrian crossing and waiting areas should be well illuminated, ideally creating backlighting to make pedestrians clearly visible to approaching vehicles.

On major streets, particularly those with four lanes, the construction of raised medians provides a refuge for pedestrians from traffic, and allows them to more safely cross the street. The median should be cut at the crossing point to meet ADA requirements.

To maximize student safety, school areas need specific pedestrian access points, including some which avoid crossing points with vehicles. Roadway design needs to minimize vehicle travel speeds to 15-20 mph. Raised crossings, traffic diverters, and on-street parking are some of the possible methods for slowing traffic. All school approaches should have curb and gutter sections, and street geometry should insure maximum sight distance on all pedestrian accesses and crossings.

Commercial and office areas should provide independent access ways for pedestrians separate from vehicle access. Ideally, there would be direct pedestrian access for adjacent residential areas. Site planning should minimize the amount of walking that must occur in vehicle parking areas, to lessen the chances of collisions with pedestrians as vehicles back out of spaces. Side lot and on-street parking are two ways to avoid having vehicles back over walkways. Another possibility, particularly for the downtown area, is to restrict vehicle traffic to particular spaces or times of day. Such auto restricted zones (ARZ's) offer protection for pedestrians. Limiting parking and instituting true cost parking measures are further incentives to encourage walkers.

The use of access management, ARZ's, parking restrictions, and other such mechanisms alone will not provide for functional commercial or office developments. An example can be found in the communities that closed downtown streets and eliminated parking to create pedestrian malls. Shoppers then found it less convenient to get to the downtown, since the majority of them were traveling by auto. The result was frequently the deterioration of the downtown. To counter this possibility, methods for restricting auto access and protecting pedestrians need to be combined with land use planning that emphasizes walkable scale development. A critical element is the provision of a variety of residential options within walkable distance of commercial and office areas. The proximity of a mixture of land uses is necessary to promote the pedestrian mode. Without such land use planning, restricting auto access to commercial areas will only lead to a loss of function.

Walkable scale land use planning needs to be employed in all types of land uses, in both new and infill developments, to maximize the benefit to pedestrians. Mixed use developments and traditional neighborhood designs are two ways of achieving this. Land use ordinances should provide for neighborhood schools, pocket parks, and neighborhood-scale commercial areas. Seating should be provided throughout retail areas and other pedestrian corridors. Ideally, businesses should front on sidewalks, with parking in side or rear areas.

3. Programs and Policies

Education and promotion programs will be an important part of the pedestrian/bicycle network transportation implementation plan. Such programs are key factors that complement pedestrian/bicycle network transportation infrastructure. Per studies in other cities and as a part of the pedestrian/bicycle network Non-Motorized Transportation Pilot Program (NMTPP - federally funded in four areas including Columbia), transportation mode shift can be accelerated with the use of targeted programs. Including education, PR and Marketing, clinics, events, etc. into the transportation plan can reduce single user vehicle travel. The results of the NMTPP will be used to plan and implement programs shown to be effective. Columbia will be addressing certain policy issues, such as possible City maintenance of sidewalks ("complete streets" concepts) that could enhance pedestrian and wheelchair transportation.

6.7 Transit Projects

Columbia Transit staff has developed a three-phase master plan for improvement of the system. The master plan was pending final approval by the Columbia City Council as of this writing. Specific improvements derived from the master plan are included in Chapter 7 Future Project Plan.

The city recently eliminated the limited service purple route, operated between Forum Boulevard and US Highway 63 on Stadium Boulevard, as stated in the 2007 draft Transit Master Plan. This will reduce the number of fixed transit routes from seven to six.

Within two to six years, the master plan phase two proposes to add commuter routes in high-growth areas – northeast, southeast, and southwest Columbia – and add an approximately 300-space park and ride facility. In phase three, to be implemented over five to ten years, Columbia Transit proposes to implement fully integrated city-university transit service with 28 fixed routes. The plan also contemplates the need for a new vehicle maintenance and storage facility during phase three.

6.8 Environmental Impact Statements

Any major transportation improvements for which usage of federal funding is being considered are subject to a environmental impact statement (EIS). The purpose of the EIS is to examine the impacts and consequences of proposed transportation investment strategies. The EIS process involves the evaluation of alternative investment strategies, a draft environmental analysis, and the involvement and input of local governments, citizen organizations, and interested members of the public.

Projects that require a EIS would include highway or transit improvements receiving federal funding that have a substantial cost and are expected to have a significant effect on facility capacity, traffic flow, level of service or the mode share. The EIS must include a purpose and need section, quantitative and qualitative information on costs, benefits, and environmental impacts to evaluate alternatives, and a baseline "no build" alternative.

The CATSO Major Roadway Plan includes two projects that have met the test for a EIS: The MoDOT I-70 Improvement Study and the eastward extension of State Route 740/Stadium Boulevard to I-70. These studies include planned construction and improvements along both corridors that will result in effects on traffic flow.

Improvements to I-70 will also enhance levels of service. If built as planned, both projects will have substantial costs.

A. Interstate 70 - Additional Travel Lanes

Interstate 70 is a four lane freeway which serves as the major east/west thoroughfare through the Urbanized Area, the region, and the State of Missouri. The CATSO Roadway Plan shows I-70 as a freeway, without specifying the planned number of travel lanes.

MoDOT completed the Route I-70 Feasibility Study in December, 1999. This study identified the need for eight travel lanes through Columbia. In 2000, MoDOT began the Environmental Impact Statement (EIS) process for the I- 70 improvement. Following this and several rounds of public input, the First Tier EIS was completed in late-2001. The first tier Environment Impact Statement identified 3 options for providing the eight lanes through Columbia; 1) a northern relocation of I-70 with 4 travel lanes, 2) an inner relocation of I-70 approximately 2 miles north of the existing alignment, and 3) I-70 to be reconstructed as a eight lane freeway with frontage roads.

By 2001, it was determined that a widening of the existing I-70 would be the preferred alternative when weighed against two other options that addressed I-70 traffic around Columbia. While costly in that it would require the reconstruction of all the interchanges and bridges as well as the acquisition of significant additional right-of-way, this alternative had the benefit of being a both a "known location" for I-70 as well as potentially less of an impact on rural, semi-rural and suburban areas north of the existing City limits. This determination was made as part of the Second Tier EIS, which refined the original study with more local detail. As part of this study, the alternatives of bypass routes through the Metro Area were eliminated, and more definition provided to the eight-lane section on the existing alignment. This study was completed in 2006.

MoDOT is now working on the preparation of a supplemental EIS which examines the feasibility of separate truck lanes for the I-70 corridor. This study is scheduled for completion in spring 2009.

Design

The result of the travel demand modeling forecast for the year 2030 produced 24 hour traffic volumes in the range of 75,100 to 85,600. In 1997, 24 hour traffic volumes on I-70 ranged from 37,200 to 54,100 vehicles. This represents an increase of 8.0-9.5 percent from 1992. Truck traffic accounts for approximately 15-30 percent of the total volume.

As constructed, the present capacity for I-70 is 4,000 vph at the peak hour. The preliminary MoDOT long range plan calls for 8 lanes, although the previous Fifteen Year Design Program indicated 6 lanes. The six lane configuration would provide adequate capacity to accommodate the 2015 forecast traffic volumes.

The widening of I-70 will require the reconstruction of all the affected interchanges and bridges. Of particular concern is the design of the interchange at I-70 and Business Loop 70 and whether additional design features or improvements need to be incorporated into the I-70/U.S. 63 interchange.

Right-of-way

The existing right-of-way through the urbanized area varies from 200 feet to 300 feet. The final design for the additional lanes may require a R.O.W. greater than 400 feet to accommodate slopes, to construct sound barriers, provide frontage roads, and to provide landscaping.

Natural Environment

The EIS will include an environmental report incorporating the principles and requirements of the National Environmental Policy Act (NEPA). The report will identify the affected environment, quantify potential environment impacts and address the environmental consequences of the I-70 widening and provide mitigation options. The potential for significant environmental impacts to be examined will include, but are not limited to surface water, ground water, native habitat, rare & endangered species, critical environmental features, cultural and historic sites, air quality and noise.

Noise intrusion into existing neighborhoods is a primary concern, as well as potential surface water contamination from pavement runoff and siltation during the construction of additional travel lanes and interchanges.

Existing Development
Residential and commercial development is more or less continuous in the corridor adjacent to I-70 and in the corridors shown for the relocation alternatives. There are significant concentrations of single family residences and mobile homes in the segment of I-70 between Business Loop 70 West and MO 763. The Parkade subdivision, residences along Clark Lane, and the Rainbow Village Mobile Home Park would both be directly effected by the reconstruction project and possible noise impacts. In addition, highway-oriented businesses such as hotels, restaurants and convenience stores/gas stations have continued to spur in-fill or redevelopment on tracts which, as recently as the 2025 Transportation Plan, were vacant parcels or parcels with buildings in need of demolition or repair. As a result, right-of-way acquisition that affect these newly developed sites will potentially be more costly to acquire than previously anticipated. In October 2004 the Economic Development Research Group released a study, *Assessing the Economic Consequences of Widening I-70 for the City of Columbia.*

Subdivision Activity
With the exception of areas located along the corridor segment west of Stadium Boulevard to Perche Creek, the majority of the property adjacent to I-70 is platted and developed. Recent subdivision activity in this area has been slow and primarily for small commercial or office uses.

Cost and cost-sharing of I-70 improvements
I-70 is part of the National Highway System and designated as a freeway in the FHWA functional classification. As such it is eligible for Federal assistance. The MoDOT would be responsible for funding the remaining part of this project.

Recommendations
Since late-2001, due to lack of funding, the I-70 Improvement Project has not progressed. To move the project forward, the voters within the State of Missouri will need to decide whether to make the financial commitment through an increase in sales or gas taxes or through the implementation of another funding mechanism such as toll roads before I-70 can be substantially improved. Until that time, the Columbia Area Transportation Study Organization will continue assist and review MoDOT proposals for I-70 project. Should the state legislature approve a funding alternative, the project could begin in earnest. Therefore it is recommended that the widening of I-70 should remain in the CATSO 2030 Transportation Plan as presently adopted.

B. MO 740 (Stadium Boulevard) - Eastern Extension
The eastern extension of MO 740 from its current terminus east of US 63 to the I-70/Lake of the Woods interchange is shown in the Major Roadway Plan (MRP) as an expressway. The number of lanes and pavement width are not specified in the current CATSO Major Thoroughfare Plan. The planned MO 740 extension is approximately three miles in length. During the term of the CATSO Long-Range Plan, MoDOT will complete an Environmental Impact Study ("East Columbia Transportation Study") to determine a preferred alternative to extend and connect Stadium Boulevard (MO 740) to either Lake of the Woods interchange or the Route Z interchange.

Projected Demand
The result of the travel demand modeling completed as part of the MIS for the I-70/US 63 interchange, 24 hour traffic volumes on the MO 740 extension were in the range of 26,000 ADT (*MoDOT estimate, prepared for one of several alternative alignments*).

Design
Expressway. Four lane divided roadway with median on 200 - 300 feet of R.O.W. Signalized, at-grade intersection with Route WW (Broadway) and at Richland Road.

The planned capacity for MO 740 is 2,000 vehicles at the peak hour LOS C. A four lane arterial configuration would provide adequate capacity to accommodate the 2025 forecast traffic volumes.An expressway designation exceeds the design requirements for this roadway. Design alternatives for MO 740 should include provisions for bicycle and pedestrian access in the right-of-way.

Right-of-way
All of the right-of-way through the urbanized and metropolitan area will vary from 200 feet to 300 feet. The final design for the MO 740 extension may require a R.O.W. greater than 300 feet to accommodate slopes, to

construct sound barriers, provide for landscaping, and to accommodate bicycle and pedestrian facilities where appropriate. Access rights will need to be purchased to eliminate the potential for private driveways and non-arterial street connections.

Natural Environment
The potential for significant environmental impacts to be examined will include, but are not limited to surface water, ground water, native habitat, rare & endangered species, critical environmental features, cultural and historic sites, air quality, and noise. The proposed alignment for MO 740 will have noise impacts and may have significant impacts on surface water resources.

Existing Development
A number of residential and commercial developments are located along St. Charles Road corridor. The area at I-70 and St. Charles Road/Lake of the Woods Road interchange has a concentration of commercial uses along with the Lake of the Woods subdivision located south and east of St. Charles Road. A large commercial area is in the process of being developed at the southeast corner of Lake of the Woods/I-70 interchange. In addition, two mobile home parks are within the corridor; Renner Trailer Park and Richland Heights.

Subdivision Activity
In the past five years, subdivision activity has picked up somewhat within the vicinity of the possible corridor for State Route 740. Specifically, the area around I-70 and the St. Charles Road/Lake of the Woods Road interchange has seen both residential and commercial development. This has occurred in the subdivision known as Eastport Village, which is generally bounded by Richland Road (south), Grace Lane (west), St. Charles Road (north) and undeveloped land within Boone County to the east. Commercial subdivision activity is expected to increase in the I-70 corridor, particularly in the Eastport Centre area.

In addition, residential growth is occurring in two large subdivisions along State Route WW/East Broadway: The Vineyards and Old Hawthorne. Since necessary public utilities are now available in this area, it is likely that additional growth will be occurring in this area in the coming years.

Fiscal Impact
MoDOT estimates total engineering, right-of-way acquisition and construction costs for the extension of MO 740 as much as $59 million for the Route Z alternative (one of several reasonable and emerging alternatives considered in the Environmental Impact Study, 2008). MO 740 is designated as an expressway in the FHWA functional classification within the urbanized area and is eligible for Federal assistance. MoDOT would be responsible for funding the majority of this project.

Recommendation
The Columbia Area Transportation Study Organization and the Missouri Department of Transportation should continue to work together to complete the East Columbia Transportation Study. The Major Roadway Plan should be amended as necessary to respond to selection of a preferred alternative.

CHAPTER SEVEN: *FINANCING TRANSPORTATION IMPROVEMENTS*

7.1 Introduction

The CATSO 2030 Transportation Plan is a financially constrained plan prepared for the Columbia urbanized area. The evaluation of the area's financial capacity is based upon estimates of reasonably anticipated funding from federal, state, Boone County, and the City of Columbia, and of the system maintenance and capital improvement costs through 2030.

SAFETEA-LU requires that funding be available for all elements included in the 2030 Transportation Plan that are in the Columbia Urbanized Area. While the CATSO Transportation Plan covers the Metro Planning area, in this section, only the improvements in the Urbanized Area will be analyzed. Revenue to pay for the planned improvements and maintenance come from five sources:

1. Federal funding for roadways and transit
2. State funding for roadways
3. Boone County
4. City of Columbia
5. Special districts, for example Transportation Development Districts and Community Improvement Districts

The twenty-five year revenue projections included in the Plan were provided by the Missouri Department of Transportation, Boone County Public Works, and the City of Columbia Finance Department. This chapter summarizes the primary methods and conclusions of the financial capacity analysis for the CATSO 2030 plan.

7.2 Funding for Transportation Projects

Funding for streets and highways in the metro area comes from a combination of federal, state, and local sources. The majority of state programs are financed from federal funds with additional revenues from state motor fuel taxes and user fees. Local programs rely on state sub-allocations of motor fuel tax revenue, property and sales taxes, general fund allocations, and other local fees with some assistance from federal funds for highways and bridges. Most major capital projects would not be possible without federal participation. The use of federal funds significantly increases the ability of state and local governments to complete construction projects by providing 80% of the funding for eligible projects. The remaining 20%, also know as the "local match" is provided by the agency requesting the funds. Historically, most federal funding has been divided into specific program categories which restricted the use of the funding to a particular type of roadway or to a single mode. The earlier transportation legislation,TEA-21, broadened the program categories and placed fewer restrictions on the use of the funds, allowing for funds traditionally reserved for highways to be used for transit, bicycle and pedestrian facilities, historic preservation, and landscaping. This policy continues under SAFETEA-LU.

7.3 Boone County

In 1993, Boone County residents passed a 1/2 cent sales tax to fund roadway improvements. The 1/2 cent assessment was in force for a five year period through 1998. In 1998, the electorate voted to extend the 1/2 cent assessment for an additional ten years. The current tax is set to expire on September 30, 2008. The Boone County Commission obtained voter approval for another extension of this tax on a ballot issue in November, 2007. Boone County also receives reimbursements from the State of Missouri from revenue collected from State motor fuel tax, sales and use tax, and licenses and fees. A three percent annual growth in tax revenue is factored into the revenue estimate for the plan period.

Federal Highway Administration funds come to Boone County through the Missouri Department of Transportation. Appendix I: Boone County Revenue Projections; outlines the annual projected revenues from the sales tax and all other revenue sources to estimate the dollar amount available for transportation projects. The SAFETEA-LU regulations permit the inclusion of revenue that can be reasonably anticipated during the 25 year planning period. To provide a consistent approach to funding for the plan and only for the purposes of this plan, the assumption has been made that the 1/2 cents sales tax will be retained by the electorate through 2030.

7.4 City of Columbia

Funding for transportation improvements in the City of Columbia comes from a variety of sources such as property tax, development charges from new construction, user fees, special assessments, the sale of general obligation bonds, and the City's 1/2 cent Transportation Sales Tax. In addition, the Columbia receives revenue from Boone County as part of a County rebate ordinance and reimbursements from the State of Missouri from revenue collected from State motor fuel tax, sales and use tax, and licenses and fees.

Federal highway and transit funding comes to the City of Columbia through the Missouri Department of Transportation. From these sources the City allocates the funding for street construction, street maintenance, and the capital and operating requirements of the Columbia Regional Airport and the Columbia Transit System.

Appendix J: City of Columbia Revenue Projections; outlines the annual projected revenues from the transportation sales tax and all other sources to estimate the dollar amount available for transportation projects.

The SAFETEA-LU regulations permit the inclusion of revenue that can be reasonably anticipated during the 25 year planning period. To provide a consistent approach to funding for the plan and only for the purposes of this plan only the fixed funding sources have been included in the revenue forecast, however it is assumed that all or parts of some roadways will be financed through general obligation bonds and private development interests.

A. City of Columbia - Special Districts

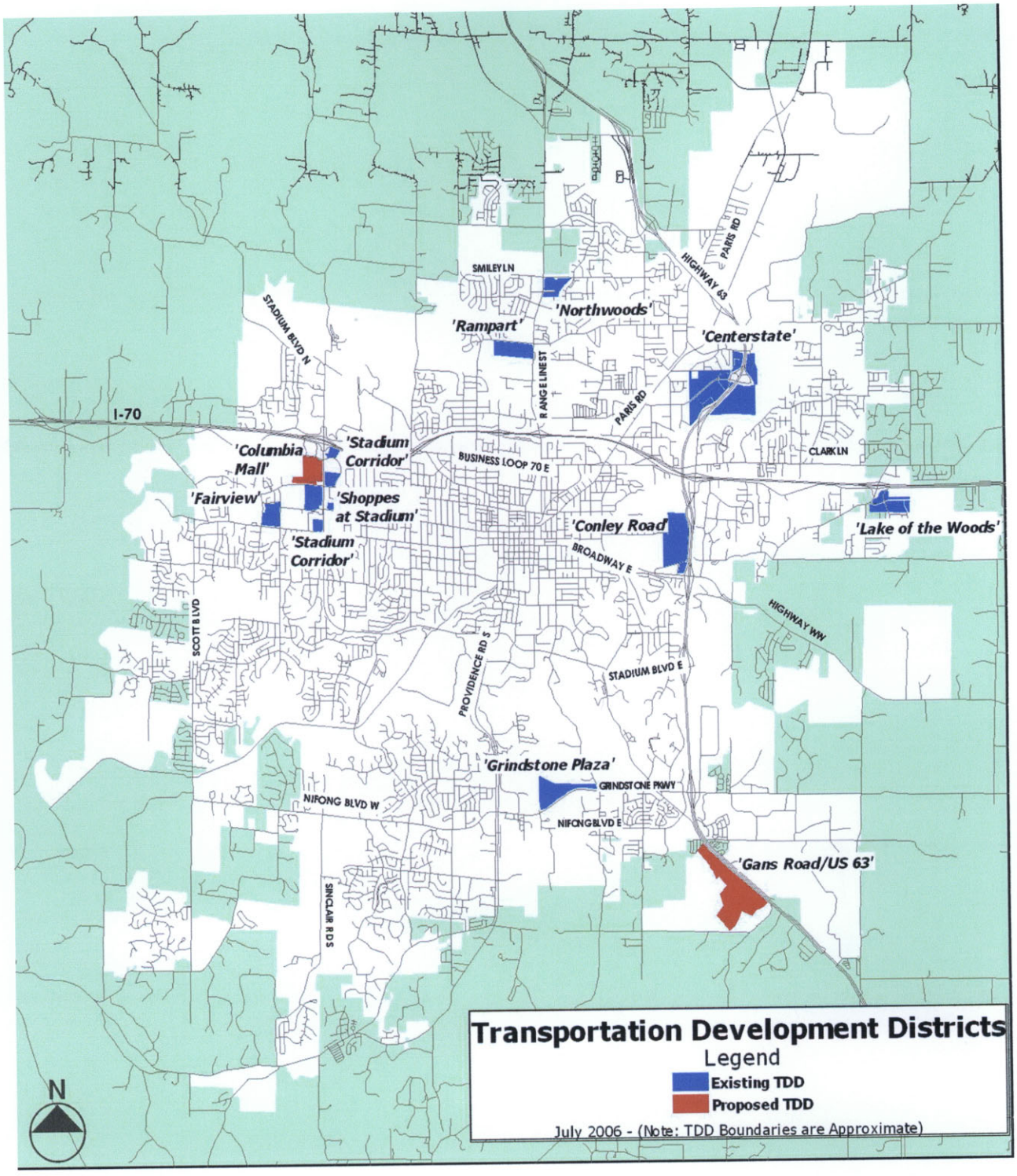
Since completion of the 2025 Transportation Plan, special district financing of transportation improvements has made its mark in the metro area. As of 2008, the City of Columbia had eleven Transportation Development Districts (TDDs) within its borders and discussions were underway for the creation of at least one community improvement district and possibly a central business district Tax Increment Finance (TIF) District or Missouri Downtown Economic Stimulus Act (MODESA) District.

Transportation Development Districts are autonomous taxing districts enabled by state law to capture up to one percent in additional retail sales tax to fund transportation improvements related to the district. The City of Columbia has enacted a TDD policy which encourages TDDs to enter agreements with the City to better coordinate their projects and to allow the City to administer the disbursement of sales tax receipts. To date, Columbia TDDs have assessed not more than one-half of one percent (0.5 %) in TDD sales tax. Several improvements on the Major Roadway Plan will be or have been constructed using TDD as a revenue source. A map of existing TDDs is attached as Map 6.

Community Improvement Districts provide for the assessment of special property taxes to fund improvements within the district including transportation infrastructure. Formation of a district requires a minimum of 51 percent of the properties by area and by number of owners to petition for its formation.

Tax Increment Financing (TIF) is a well-established creative financing technique to enable revitalization and redevelopment of areas which may include expenditures for transportation infrastructure. To qualify as a TIF District, an area must be a "blighted" or "conservation" area as those terms are defined in the state statute, and projects must pass the "but/for" test – but for the TIF funding, the project would have an unsustainable gap in its private-sector financing. Once established, a TIF district freezes property tax assessments and sales tax at a base year level. Taxing jurisdictions continue to collect taxes at the base level, but incremental increases in tax revenue due to new development and capital projects are captured by the TIF and used to pay project expenses, pay off bonds & etc. MODESA, a relatively new program, operates on similar principles but in addition to property and sales tax sharing allows for capture of a portion of withholding tax (state income tax) created by new jobs in the MODESA project area.

See Map 9 Transportation Development Districts (TDDs) in the City of Columbia (2006)



MAP 9. Transportation Development Districts (TDDs) in Columbia (2006).

7.5 State Funding for Transportation Projects

Funding for state roadway maintenance and constructions comes primarily from the $0.17 per gallon motor fuel tax levied by the State of Missouri, and secondarily from sales and use tax, and licenses and fees. Funds are annually programmed from projects in the four year State Transportation Improvement Program (STIP) for each district based upon the district's stated needs, population, mileage on the state and federal roadway system, safety, anticipated growth, vehicle miles traveled, and other criteria. Appendix K: Projected State Funding; outlines the projected revenues from all state sources.

The Missouri Department of Transportation, *Missouri's Long-Range Transportation Plan* (2007) describes "the fork in the road" in state transportation funding. Statewide, Missouri is investing approximately $1.3 billion annually in programmed, construction-related activities. MoDOT projects that the amount will fall to $800 million after 2010, however, as the Amendment 3 bonding program ends. The plan states:

> *"If nothing is done-If Missouri's transportation revenues remain the same, Missourians can expect to see a state transportation program that consists primarily of projects that...*
> - *Take care of the existing transportation system,*
> - *Provide some safety improvements,*
> - *Fix only a few of the worst traffic bottlenecks, and*
> - *Provide no additional services for other modes of transportation."*

CATSO should support in concept legislative action that provides new sources of revenue dedicated to increased state investments in transportation.

7.6 Federal Funding for Transportation Projects

Federal funding for roadway maintenance and construction comes primarily from the national $0.184 per gallon motor fuel tax on gasoline, as well as the $0.244 per gallon tax on diesel fuel, and secondarily from excise taxes on tires and batteries. The revenue collected from the fuel and excise taxes is placed in the Federal Highway Trust Fund (FHTF) and allocated to each state using a funding formula under the provisions of SAFETEA-LU.

The total dollar amount available annually from the FHTF varies due to fluctuations in revenue because of such factors as economic conditions, and Congressional limits on the percent of funds to be allocated. SAFETEA-LU provides a funding formula for each program element which may use the state population, roadway mileage, vehicle miles traveled, and other relevant factors related to the program objectives. The State of Missouri receives funding from the Federal Highway Trust Fund through the U.S. Department of Transportation (USDOT). The Missouri Department of Transportation then allocates the federal funds to the larger Metropolitan Statistical Areas and the other urbanized areas under 200,000.

The allocation of Federal funding for state and local projects within an Urbanized Area is determined, in part, by the local Metropolitan Planning Organization (MPO). Locally, the Columbia Area Transportation Study Organization has this responsibility. Appendix L: Projected Federal Funding, outlines the projected revenues from all federal sources. Appendix M: Projected Federal Funding for Transit outlines the anticipated revenues from the Federal Transit Administration for operating and capital assistance.

The City of Columbia since 1974 has been an entitlement community in the Community Development Block Grant (CDBG) program administered by the U.S. Department of Housing and Urban Development (HUD). As such, it has received annual formula funds to provide "decent housing in a suitable living environment with increased economic opportunity to low and moderate income households." The City of Columbia by policy reserves a portion of the CDBG funds for public improvements including streets and sidewalks (funds have also been used for a railroad enhancement project and transit improvements also qualify) in the "eligibility area," an approximately 18 square mile area that qualifies for CDBG investment by virtue of its percentage of low and moderate income households. The total amount of CDBG funds has declined in recent years as a result of greater austerity at the federal level. Columbia's annual grant, typically greater than $1 million in the years before 2000, has declined to $836,000 in 2008. Transportation-related CDBG expenditures have averaged between $250,000 and $300,000 annually.

CHAPTER EIGHT: *2030 TRANSPORTATION PLAN*

8.1 Introduction - Financially Constrained Improvements

The absence of financial constraints in developing a transportation plan can result in the inclusions of projects and programs that are unrealistic or unjustified. A strategic approach to addressing future transportation projects requires that priorities be established to allocate limited resources among competing needs.

For the past twenty-five years the CATSO Transportation Plan for the Columbia Area has been focused on maintaining the existing infrastructure and proceeded on the assumption that the resources to maintain and expand the transportation system would be found as needs arose.

The CATSO 2030 Transportation Plan places its priorities on investing in long term solutions to existing transportation needs and providing adequate capacity to accommodate future growth while preserving the existing investment in transportation infrastructure. This is a continuation from the policy perspective stated in the 2025 Plan. The ability to fund maintenance and provide for planned investments is a major controlling factor in the decisions made about the future of the metro area transportation system. CATSO plans prior to 1994 identified needs and proposed solutions without regard to the ability of state or local governments to fund the new projects or examine the costs. In contrast, the CATSO 2030 Transportation Plan and the TIP will be authoritative statements of the area's transportation investment strategy; a product of planning and engineering assessments of transportation projects limited by financial constraints.

8.2 Cost Estimates for Transportation Improvements

Estimates were developed for the cost of all the roadways, transit improvements, pedestrian and bicycle facilities covered in the Plan through 2030. Likewise, estimates of revenues from various sources for transportation improvements have been developed through 2030. The estimates for new construction, reconstruction and annual maintenance were provided by the Missouri Department of Transportation (MoDOT), Boone County Public Works Department, and the City of Columbia Public Works Department.

Appendix H: CATSO 2030 Roadway Plan; provides a segment by segment description of the planned improvements and an estimated cost.

The methodology used to develop the cost of the planned roadway improvements is the cost of right-of-way acquisition and construction. Specific cost estimates could not be calculated because there are no detailed construction plans for these roadways. It is the normal procedure to use a standard cost per linear foot or per mile to estimate the total construction cost. Because each roadway is unique, additional construction money is added for bridges, culverts and for any additional features needed for that particular roadway. Approximate costs for engineering (design, surveying, administration), inspection and testing are based on the estimated construction cost data for the mid-Missouri area. The total engineering and construction cost shown for each roadway reflects the estimated cost of building the entire roadway to the adopted design standard for its classification. For new roadways, all estimates are based on the most advantageous roadway alignment that could be determined at this preliminary stage of the project development. Minor adjustment to the alignments may be made during the design phase of each roadway.

The general cost factors used in preparing these estimates are shown in Table 7: Estimated 2007 Roadway Costs Per Linear Foot for New Construction.

Table 7: Estimated 2007 Roadway Costs Per Linear Foot for New Construction.

Street classification	Estimated cost per linear foot
Neighborhood Collector	$500/L.F.
Major Collector	$ 600/L.F.
Minor Arterial	$ 900/L.F.
Major Arterial	$ 1100/L.F.

The cost factor used in preparing these estimates include excavation and grading, utility contingencies, flexible base, surfacing, curb and gutter, drainage, engineering design, administration, inspection and testing, and basic site restoration. Additional costs for bridges, culverts, overpasses, and major intersections are included on individual roadways as needed. In all cases 15% was added for miscellaneous construction items and contingencies. All cost estimates were done in 2007 dollars. The cost of right-of-way acquisition was

considered for each roadway. Land costs vary widely due to a variety of factors such as existing uses, zoning, the desirability of the area, and the perceived potential for future development. When available, recent sales of property were considered when estimating ROW costs. Purchasing ROW to permit the widening of an existing roadway is almost always more expensive than constructing a new roadway through vacant tracts. For new construction, it is assumed approximately 5% of the parcels necessary will be dedicated at no cost. Approximately 80% of the parcels will be purchased for the appraised value offered. The remaining 15% of the necessary parcels will end up in condemnation proceedings, with the cost sometimes greater than their appraised value.

8.3 Maintenance and Operating Costs

Maintenance of the existing transportation infrastructure is an important aspect of SAFETEA-LU. Estimates for maintenance through 2030 were developed by MoDOT, Boone County, and the City of Columbia. Costs were developed for each functional classification on a per mile basis.

Table 8: Maintenance and Transit Operating Costs; outlines the projected costs of maintaining the roadways in the Metro Area through 2030 and operating and maintaining public transit.

Table 8: Maintenance and Transit Operating Costs

Roadway Classification	MoDOT	Boone Co	Columbia	Total	% of Total
Streets & Sidewalks	$48,250,947	$99,889,976	$172,014,638	$320,155,561	87.8%
Transit Operations	$2,415,000	NA	$42,194,168	$44,609,168	12.2%
Total	$50,665,947	$99,889,976	$214,208,806	$364,764,729	100.0%
Percent of Total	10.5%	24.5%	53.2%	100.0%	

NA = Not Applicable

8.4 Construction and Capital Costs

The CATSO Major Roadway Plan identifies the major roadways in the metro area and provides a functional designation based upon future needs and function. Within the Plan, each roadway segment is evaluated and given the designation of new construction, capacity upgrade and no change. The new construction designation identifies roadways which will be constructed on a new alignment as a relocation, extension of an existing facility, or a new roadway on a new alignment. On existing roadways, the capacity upgrade designation indicates that improvements to a roadway, such as the construction of turn lanes or additional travel lanes are planned. For existing roadways which provide adequate capacity to meet future needs, the designation of "no change" is assigned.

Table 9: CATSO Transportation Project Needs; provides a summary of the estimated costs of the projects identified by roadway classification and by agency. Included are the costs of new roadway construction on new alignments and upgrading the capacity of existing roadways, as well as the costs associated with the acquisition of transit vehicles. A listing of the construction costs by project is included in Appendix H: CATSO 2030 Major Roadway Plan.

Table 9: CATSO Transportation Project Needs – Year 2007$ (Unconstrained)

Roadway Classification	MoDOT	Boone County	Columbia	Total
Interstate	$627,997,000	$0	$0	$627,997,000
Freeway/Expressway	$41,875,000	$0	$0	$41,875,000
Major Arterials	$26,235,440	$6,336,000	$101,244,000	$133,815,440
Minor Arterials	$0	$87,680,000	$73,568,000	$161,248,000
Major Collectors	$0	$28,512,000	$78,800,000	$107,312,000
Neighborhood Collectors	$0	$35,117,280	$21,570,000	$56,687,280
Streets Sub-total*	$696,107,440	$157,645,280	$275,182,000	$1,128,934,720
Other				
Transit Vehicles	$0	$0	$33,074,635	$33,074,635
Bicycle Facilities	$0	$0	$23,282,000	$23,282,000
Pedestrian Facilities	$0	$0	$23,282,000	$23,282,000
Total in 2007 $	$696,107,440	$157,645,280	$354,820,635	$1,208,573,355
Adjusted Total through 2029 (based on 3% annual inflation)	$1,373,828,254	$302,064,658	$679,873,028	$2,355,765,940

8.5 Total Revenues

The total highway and transit revenues projected for the Columbia metro area through 2030 are displayed in Table 10: Highway and Transit Revenues by Source: 2007 - 2029. The possibility exists that the projected totals, especially gasoline tax revenues, will be reduced due to increases in the retail price of gasoline and the subsequent reduction in demand. Revenues of $35 million derived from the sale of capital improvement bonds have been included in the totals for the City of Columbia. It may be assumed that at some time during the 25 year period covered by the Plan, additional bonds will be issued for specific transportation improvements. The issuance of such bonds is subject to voter approval.

The projected revenues must provide for roadway maintenance, transit operation, capital replacement, new construction, system expansion, rehabilitation projects, and reconstruction.

Table 10: Highway and Transit Revenues by Source: 2007-2029
(Year 2007 $ are the base for revenue projections)

Mode Category	MoDOT	Boone County	Columbia	Total	% of Total
Total Roadways & other ROWs	$56,680,000	$308,615,186	$480,336,328	$845,631,514	90.9%
New Construction	$8,429,053	$183,725,210	$297,735,730	$489,889,993	
Maintenance	$48,250,947	$124,889,976	$182,600,598	$355,741,521	
Total Transit	$2,415,000	$0	$81,852,925	$84,267,925	9.1%
Capital	$0	$0	$19,895,513	$19,895,513	
Operating	$2,415,000	$0	$61,957,412	$64,372,412	
Total Revenues	$59,095,000	$308,615,186	$562,189,253	$929,899,439	100.0%
Percent of Total	6.35%	33.19%	60.46%	100.0%	

Note: $29,557,412 of projected Columbia Transit operating revenue,
and $19,895,513 of capital revenue is presumed to be federal funding

Source - Columbia Department of Planning & Development

8.6 The Twenty-Five Year Transportation Plan

The focus of the CATSO 2030 Transportation Plan is the continued movement toward a more diverse transportation system that supports the use of walking, bicycling, and buses as an alternative to the automobile. This multimodal strategy relies on the construction of bike and pedestrian facilities and monitoring their usage. Financial support for transportation facilities can then be based upon the demonstrated demand. Over the next five years, CATSO is committed to facilitating the development of engineered alignments for all new roadway construction to be cooperatively implemented by Boone County and the City of Columbia and to improving access for bicycles and pedestrians in the metro area.

The CATSO 2030 Transportation Plan retains most of the roadways in the current CATSO Roadway Plan as adopted. Several new planned roadways have been considered or have been included in the Plan. Implementation of the recommendations from the MoDOT Major Investment Study for I-70/US 63 interchange and the result of the Environmental Impact Study on the Route 740 extension could have substantial impacts on the Transportation Plan.

Map 5: CATSO 2030 Major Roadway Plan; show the adopted roadway system for 2030. (p.43) Appendix H: CATSO 2030 Roadway Plan; provides a segment by segment description for each roadway in the plan. Costs for the construction/reconstruction of the roadway are included.

Map 6: CATSO 2030 Bicycle/Pedestrian Network Plan; shows an integrated system of trails and pedways. (See p.44) Appendix N: CATSO 2030 Bicycle/Pedestrian Network Plan; provides a segment by segment description for each type of facility in the plan.

All of the long range projects for MoDOT, Boone County, and the City of Columbia have been identified and cost estimates have been prepared. All the dollar figures are in year 2007 dollars. The highest priority is placed on maintenance of the existing system. New construction and system expansion are funded only if revenue is available.

A. Missouri Department of Transportation (MoDOT) Long Range Projects

Project Description - Constrained	**Estimated Cost in Year 2007 $**
1. New Construction	
Freeways/Expressways:	
MO 740: U.S. Highway 63 to I-70. (Illustrative - $40,000,000)	
Major Arterials - 4 lanes	
Route TT (West Broadway extension) : Route UU to Scott Boulevard. (Illustrative - $5,111,040)	
Ballenger Lane: I-70 Drive SE to Route PP	$4,000,000
2. Capacity Upgrade	
Interstate Interstate 70: West urban limit to East urban limit (Illustrative - $627,997,000)	
Freeways/Expressways MO 163: Southampton Drive to State Route K (Illustrative - $1,875,000)	
Major Arterials Route PP: Robert Ray Drive to East urban limit. (Illustrative - $5,050,000)	
Route WW: U.S. Highway 63 to East urban limit.	$1,151,400
Route TT: Smith Drive to end of State maintenance.	$2,262,000
Total Estimated Project Costs	$7,413,400

Note: Cost estimates for all projects for all future years included in plan period are available in Appendix L – Long-range street project estimated costs based on inflation factor.

3. MoDOT Plan Status

The majority of MoDOT project dollars shown are "illustrative". Of the $696,107,440 in projects identified as needed through 2030, the estimated revenue available for new construction is $8,429,053. Funding is in year 2007 dollars. Without the illustrative projects, total construction project costs are $7,413,400.

B. City of Columbia Long-Range Projects

	Estimated Cost in Year 2007 $
1. New Construction	
Major Arterials	
Ballenger Lane: St.Charles Road to Clark Lane.	$6,410,000
Northwest Loop: Creasy Springs Road to Brown School Rd.	$22,109,000
Scott Boulevard: West Broadway to Sorrel's Overpass.	$8,000,000
Vandiver Drive: US 63 to Mexico Gravel Road.	$3,600,000
Brown School Road: Creasy Springs Road to City limit *	$2,500,000
Sub-Total	$42,619,000
Minor Arterials	
Providence Road: Vandiver Drive to Blue Ridge Rd.	$4,100,000
Waco Road: Brown Station Rd to Oakland Gravel Rd *	$4,200,000
Waco Road: Route B to Rogers Road.	$9,500,000
Providence Road: Smiley Lane to Brown School Road.	$5,900,000
Prathersville Road: Tower Drive to US 63 *	$3,168,000
Sub-Total	$26,868,000
Major Collectors	
Bernadette Drive: I-70 Drive SW to Fairview Road.	$3,400,000
Creekwood Parkway: Golden Bear Dr. to Vandiver Dr.	$6,300,000
East Boulevard: East Business Loop 70 to Conley Rd.	$5,800,000
Lake Ridgeway Drive: Clark Lane to terminus.	$2,100,000
Lemone Industrial Blvd: Grindstone Creek to MO 740.	$9,300,000
Sorrel's Overpass: I-70 Drive NW to State Highway E.	$16,500,000
Van Horn Tavern Road/I-70 Drive SW *	$5,000,000
Sub-Total	$48,400,000
Neighborhood Collectors	
Cunningham Road: Bray Avenue to Rollins Road.	$1,100,000
Dublin Avenue: Scott Boulevard to terminus.	$2,500,000
Rice Road: Lake of the Woods Road to terminus.	$1,500,000
Southampton Drive: Sinclair Street to terminus.	$870,000
Woodhaven Drive: Gans Road to Nifong Boulevard.	$3,800,000
Woodridge Drive: St. Charles Road to terminus.	$5,000,000
Sub-Total	$14,770,000
2. Capacity Upgrades	
Major Arterials	
Blackfoot Road: State Highway E to O'Neal Road. Project cost:	$9,400,000
Brown School Rd: Providence Road to State Hwy 763.	$5,200,000
Scott Boulevard: Rollins Road to Brookview Terrace.	$11,025,000
Vandiver Drive: Sylvan Lane to US 63.	$2,300,000
Scott Boulevard: Vawter School Road to MKT Trail.	$5,000,000
Route 763/Rangeline: Big Bear to US 63. (City share only)	$11,000,000
Mexico Gravel Road: Vandiver Drive to Route PP.	$2,700,000
Richland Road: St. Charles Road to Olivet Road *	$12,000,000
Sub-Total	$58,625,000

Minor Arterials	
Clark Lane: Ballenger Lane/Route PP to St. Charles Road.	$3,900,000
Scott Boulevard: Vawter School Road to Route KK.	$9,500,000
Grace Lane: Richland Road southward 2,700 feet.	$2,400,000
Route K: Old Plank Road to Scott Boulevard *	$4,900,000
Creasy Springs Road: Bear Creek to Obermiller Road *	$9,300,000
New Haven Road: Rolling Hills Road to Big Timber *	$9,500,000
Lake of the Woods Road: St. Charles Road to Route PP *	$7,200,000
Sub-Total	$46,700,000
Major Collectors	
Bearfield Road: Gans Road to Nifong Boulevard.	$7,200,000
Heriford Drive: Burlington to Route B.	$700,000
St. Charles Road: Keene Street to Grace Lane. *	$11,300,000
Sinclair Road: Nifong southward 9,000 feet. *	$6,700,000
Wyatt Lane: Thompson Road to Palmer Road *	$4,500,000
Sub-Total	$30,400,000
Neighborhood Collectors	
Thompson Road: Wyatt Lane to Route PP *	$2,000,000
Silvey Street: West Worley Street to I-70 Drive SW.	$1,500,000
Old Mill Creek: Old Field Road to Crabapple Lane *	$3,300,000
Sub-Total	$6,800,000
Totals	$275,182,000
Transit Vehicles	$33,074,635
Bicycle Facilities	$23,282,000
Pedestrian Facilities	$23,282,000

* - anticipated to be funded with Boone County sales tax revenue

Note 1: Cost estimates for all projects for all future years included in plan period are available in Appendix L – Long-range street project estimated costs based on inflation factor.

Note 2: It is presumed that all new neighborhood collector streets will be constructed at developer expense as part of subdivision development.

3. City of Columbia Plan Status

All of the projects shown in the CATSO 2030 Plan have estimated revenue to provide for the construction of the improvement over the twenty-five year planning period. Direct developer contributions to the construction of roadways will provide additional revenue beyond what is depicted. There are no illustrative projects shown for the City of Columbia.

C. Boone County Long-Range Projects

	Estimated Cost Year 2007 $
1. New Construction	
Minor Arterials	
St. Charles Road: Clark Lane to Route Z	$19,800,000
Waco Road: Highway 63 to City limits	$6,336,000
Northwest Loop Project: Creasy Springs Road to Providence Road	$23,000,000
Providence Road: terminus to Hackberry Boulevard	$1,056,000
Gans Road: US Highway 63 to Bearfield Road	$7,128,000
Sub-Total	$57,320,000
Major Collectors	
None	
Neighborhood Collectors	
Ponderosa Connector Project: near Boone County Public Works	$5,892,480
Gans Creek Road: South extension	$633,600
Sub-Total	$6,526,080
2. Capacity Upgrades	
Major Arterials	
Rangeline Road: Route WW to New Haven Road	$6,336,000
Sub-Total	$6,336,000
Minor Arterials	
Gans Road: Bearfield Road to Providence Road	$7,128,000
Kircher Road: Mt.Hope Road to Route HH	$7,920,000
Scott Boulevard: Brookview Terrace to Route KK	$15,312,000
Sub-Total	$30,360,000
Major Collectors	
Akeman Bridge Road/Wilhite Road: Route J to Route VV	$28,512,000
Neighborhood Collectors	
Westlake Road: Boothe Lane to Locust Grove Road	$4,752,000
Clearview Road: Brown School Road to dead end	$2,534,400
Hackberry Boulevard: Clearview Road to Providence Road	$5,702,400
Hatten Chapel Road: Route E to Locust Grove Road	$8,870,400
Bonne Femme Church Road: Old Highway 63 to Gans Creek Road	$6,732,000
Sub-Total	$28,591,200
Totals	$157,645,280

Note: Cost estimates for all projects for all future years included in plan period are available in Appendix L – Long-range street project estimated costs based on inflation factor.

3. Boone County Plan Status
All of the projects shown in the CATSO 2030 Plan have estimated revenue to provide for the construction of the improvement over the twenty-five planning period. Developer contributions to the construction of roadways, especially the Neighborhood Collectors, will provide additional revenue. There are no illustrative projects shown for Boone County.

8.7 Conclusions

A review of the projected revenue, estimated maintenance costs, and cost for construction and capital indicate that all the member agencies have sufficient revenue to implement the CATSO 2030 Transportation Plan.

Table 11: CATSO 2030 Transportation Plan Projects and Revenue; provides a summary of the cost of new construction, transit costs, maintenance costs and the revenue available through 2030.

Table 11: CATSO 2030 Transportation Plan Projects & Revenues Summary Table

Costs 2007 - 2029	MoDOT	Boone County	Columbia	Total
Construction Total				
Roadways*	$7,413,400	$157,645,280	$275,182,000	$440,240,680
Bicycle/Pedestrian Facilities**	$0	$0	$46,564,000	$46,564,000
Transit Total	$0	$0	$67,063,559	$67,063,559
Capital	$0	$0	$24,869,391	$24,869,391
Operating	$2,415,000	$0	$42,194,168	$44,609,168
Total Maintenance (Streets)***	$48,250,947	$99,889,976	$172,014,638	$320,155,561
Grand Total	$58,079,347	$257,535,256	$560,824,197	$876,438,800
Revenue	$59,095,000	$308,615,186	$562,189,253	$929,899,439
Surplus/Deficit	$1,015,653	$51,079,930	$1,365,056	$53,460,639

Note: City of Columbia revenue includes estimated $14,770,000 for neighborhood collectors to be constructed by private interests as part of subdivision development
*Roadway projects include pedestrian and bicycle accommodations as part of construction
**Stand-alone pedestrian and bicycle projects
*** Maintenance figures presume Annual Inflation Rate of 3% - Year 2007 $ as Base Figure

Source - City of Columbia Department of Planning & Development

A. Missouri Department of Transportation

Table 9: CATSO Transportation Project Needs; identifies a total of $696,107,440 in new MoDOT projects, plus $48,250,947 needed for maintenance, a total of $744,358,387. The available funding over the 25 year period of the Plan is $59,095,000, leaving an unfunded amount of $687,678,387. The majority of the deficit is attributable to the $ 627,997,000 estimated cost of construction of the Interstate 70 improvements in year 2007 dollars. The decision has been made to widen I-70 along the existing right-of-way through the Columbia metro area, should any major I-70 project improvement be implemented.

For the purposes of this plan, all I-70 improvements must be considered "illustrative", which means no funding source has been identified, but if funds become available, the project would proceed. Total revenue (for roadway projects) identified is $56,680,000. Transit revenues are estimated at $2,415,000.

Due to the imprecision of 25 year forecasts and the conservative revenue forecast provided by MoDOT, the two largest projects, in terms of cost, in the MoDOT portion of the plan are "illustrative". These two are the I-70 Improvement project and the Route 740 extension project. Maintaining the illustrative roadway and system expansion projects in the Major Roadway Plan is necessary to identify the functional classifications and to provide system continuity for local transportation planning. The projects included in the Plan, along with the illustrative projects, meet the test for financial constraint.

B. City of Columbia

The City of Columbia shows transportation project costs of $560,824,197 through 2029 with revenues of $562,189,253. This leaves a surplus of $1,365,056 through the 2030 planning period. For purposes of the Plan, a project costs that falls within a 10% + or - range with the revenues, is considered to be financially constrained.

The City of Columbia has a history of successful elections to authorize general obligation bonds. The revenue from anticipated general obligation bonds and construction completed by development interests can reasonably fund any deficit for the City construction and transit projects contained in the CATSO 2030 Transportation Plan, should an election occur. The City of Columbia portion of the Transportation Plan reasonably meets the test for financial constraint.

C. Boone County

Revenue projections indicate that Boone County could experience a revenue surplus of $51,079,930 through 2030. This projected surplus is the product of the revenue forecast assuming continued voter reauthorization of the County 1/2 cent sales tax, such as the extension authorization that occurred In November, 2007. The majority of the projected revenue surplus will likely be needed for maintenance and reconstruction projects throughout Boone County over the next twenty-two years.

CHAPTER NINE: PLAN RECOMMENDATIONS AND IMPLEMENTATION STRATEGIES

9.1 Introduction

This chapter contains a review of the local tools required or recommended to implement the provisions outlined in Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). It includes a section related to the security of the transportation facilities, a new planning factor introduced by SAFETEA-LU, within the CATSO planning area.

Providing for future roadways, the preservation of scenic corridors, the reduction of auto trips, and the management of roadway access to preserve capacity and reduce congestion are all elements that contribute balance between the land use system and the transportation system. Boone County and the City of Columbia are responsible for the construction and maintenance of their respective roadways and for the regulation of development in their jurisdictions. The range of permissible land uses are regulated by the zoning ordinances and the development of land is regulated by the subdivision regulations. It is through these ordinances that the balance between land use and the transportation may be achieved.

The policies and recommendations outlined in this section are intended to serve as a resource for future action.

9.2 Effects and Impacts of the Plan

A. Social Impacts

The 2030 Transportation Plan recommends some incremental changes to personal transportation habits and public policy in the Columbia metro area. Despite rising gas prices, the probability remains that the single occupancy vehicle will remain the overwhelming mode of choice for residents. While the plan continues to maintain the current focus of providing facilities for motor vehicles, it also seeks to give attention to other modes such as transit, bicycling, and walking.

The social impacts of a land use pattern designed around a transportation network for private vehicles have been the subject of much discussion and research. The street system is generally designed for traffic flow and vehicle mobility, not to promote social interaction among members of the community. Occupants of individual vehicles have no direct interaction with other persons outside their own particular vehicle. The fact that the majority of the auto trips are by single-occupancy vehicles makes for even greater isolation for individuals using the transportation system. Those individuals seeking privacy benefit from this system, but residents who want a more social experience are precluded from it by the emphasis on the private vehicle.
The focus on the automobile also puts those citizens using non-motorized modes at a disadvantage, in that the street system gives priority to vehicles and frequently does not provide adequate accommodations for pedestrians and bicyclists. Neighborhoods are not oriented towards pedestrian access and interaction, but have their design focused on auto access and traffic flow. This has negative effects on socialization among neighborhood residents.

More positive social impacts will be found through the implementation of land use designs that allow for transportation options that foster more social interaction and interpersonal contact. The establishment of a more compact development pattern and thus the opportunity for more persons to be mobile without using a vehicle gives individuals greater choices in transportation. A more compact structure of land use also is more conducive to operation of the city bus system, providing the greater population density which transit needs to function efficiently. The continued operation of the bus system has major social benefits. It allows the transit dependent population, including physically handicapped persons and those unable to afford an automobile, the mobility necessary to get to their jobs and to take care of other personal needs. The presence of a transit mode also gives those persons who merely prefer this mode the opportunity to choose it.

At a larger geographic scale, roadways do connect places and can foster increased social interaction between neighborhoods and activity centers such as employment and shopping districts, schools and parks.

B. Economic Impacts

1. Major Roadway Plan

> ***"A network of safe roadways in and around the city will provide sustainable, efficient mobility to vehicular travel and other modes in a complementary manner."***
>
> ***--- Goal, Transportation Citizen Topic Group, Imagine Columbia's Future (2007)***

A major economic impact of the roadway plan will be in the construction involved in its implementation. Numerous jobs will be provided by the various street construction projects required to complete the network of streets shown in the roadway plan. Most new street construction and reconstruction projects are contracted out by the city and state, and so give work to private construction companies. This will have a positive effect on the local economy, particularly on contractors and their related suppliers. The employment provided as a result of these projects will have the usual multiplier effect on the local economy, in that the money spent at local establishments by project employees will provide or sustain additional jobs. A well-maintained road system should save individual motorists the expenses for maintenance and repair that might otherwise be incurred driving on a system in bad condition.

One of the strategies developed by the Transportation citizen topic group during *Imagine Columbia's Future* was "*Develop and adopt a clear area-wide major roadway plan that carries the commitment of the City and County.*" One of the ways the plan can be made clear is by mapping. Traditionally CATSO has relied on Major Roadway Plans (earlier editions refer to it as the "Major Thoroughfare Plan") that map the ultimate build-out of the road system. Existing roads to remain the same, existing roads to be improved, and new roads in new alignments are all represented with the same symbolism. The new plan will differentiate roads that exist from those that do not. The commitment of city and county may be promoted by more timely integration of the Major Roadway Plan into City and County comprehensive plans.

2. Bicycle and Pedestrian Elements

> ***"Columbia will enjoy a safe, interconnected, non-motorized transportation network. It will be culturally supported by the citizens as it will encourage social interaction and healthy lifestyles. The roadway, sidewalk, public transit, and trail systems will all tie together into an effective integrated transportation network"***
>
> ***--- Goal, Transportation Citizen Topic Group, Imagine Columbia's Future (2007)***

Similar impacts will be felt from construction projects to implement the bicycle and pedestrian elements of the plan. Additional contracting jobs will no doubt result from the building of new sidewalks and bicycle routes. Some of these will be constructed as part of new street projects, but their inclusion will add to the economic impact, due to the additional expense and time involved in constructing these facilities. Presumably, if bicycling were to become more popular, local bicycle retailers would enjoy increased sales and realize more revenue from providing additional repair and maintenance services to more customers.

The presence of more and better facilities for bicyclists and pedestrians will in theory provide financial benefits for individual households. Making it more convenient, safe, and attractive to use means of travel besides the automobile has the potential to provide residents cost savings. If household members were to walk and bicycle for a greater number of their daily trips, then they would reduce expenses due to less frequent gasoline purchases and lower auto maintenance bills.

On a more long-term level, lowering the annual mileage put on household vehicles could allow residents to keep vehicles for longer periods, saving the expense of a new vehicle and providing revenue for other means. A possible incidental economic benefit might occur for those individuals who begin a more regular routine of walking and/or bicycling. This additional exercise could realize individual health benefits and save on medical expenses. Planning and design for "active living" has become a major theme in architecture and city planning in the new century.

It might be noted that, in a very significant way, bicycling and pedestrian elements of the Transportation Plan are already having economic impacts on Columbia. In 2006, Columbia was named one of four cities to be included in the Non-Motorized Transportation Pilot Program. The purpose of the program is to demonstrate the extent to which bicycling and walking can carry a significant part of the transportation load, and represent a

major portion of the transportation solution. Over the course of the program years (2006 to 2009), approximately $6 million per fiscal year is made available for the City of Columbia to create and expand its network of non-motorized transportation infrastructure facilities, including sidewalks, bicycle lanes, and pedestrian and bicycle trails, that connect directly with transit stations, schools, residences, businesses, recreation areas, and other community activity centers. Dollars from this program can also be used to educate the community on the benefits of using alternate forms of travel, including but not limited to the bicycle. Upon completion, the City is to report how changes in motor vehicle, non-motorized transportation, and public transportation usage took place and assess how such changes decreased congestion and energy usage, increased the frequency of bicycling and walking, and promoted better health and a cleaner environment.

Among the strategies recommended by the Transportation Citizen Topic Group, *Imagine Columbia's Future* (2007) is the following:

- *"Give proper funding, priority, and support to repairing, connecting, and expanding the city sidewalk system. Increase the pace of sidewalk improvements."*

- *"Encourage the long-term growth of non-motorized transportation habits and skills by ensuring that all local residential streets receive either sidewalks or traffic calming elements. This will allow both children and adults to safely walk or wheel around their neighborhoods and develop healthy transportation habits."*

3. Transit Element

> ***"An efficient, innovative, accessible public and human services transportation system will be fully integrated with all other forms of transportation in Columbia and surrounding communities. It will be possible for all residents to live easily in Columbia without a vehicle."***
>
> ***--- Goal, Transportation Citizen Topic Group, Imagine Columbia's Future (2007)***

The transit element of the plan has positive economic benefits in that it allows those persons without any private means of transportation the mobility necessary to attain and hold employment, as well as to make shopping trips and fulfill other needs. This in particular affects those lower-income persons who, without bus access, would have no way to reach their jobs. The community realizes an economic gain by having these persons filling a job, being self-sufficient, and having an income to spend locally.

A strongly-supported strategy recommended by the Transportation Citizen Topic Group, *Imagine Columbia's Future* (2007) is:

> *"Expand the public transit system, and identify and fill in existing gaps in that system to include longer hours of service, more frequent service, and greater coverage of the city."*

The City of Columbia Transit Master Plan (draft 2007), described in section 6.7 responds to recent public demands.

C. Energy

The 2025 Transportation Plan noted that, in the Columbia metro area, the majority of trips of all types are made by private motor vehicle, including 88.6% of all work trips. Of these motor vehicle trips, approximately 76% are single occupancy trips. While several years have passed since these percentages were determined (based on 2000 Census data), it is more than likely that this mode preference has continued through the present day. The tendency for users to rely on the single occupancy vehicle as the primary means of getting around requires comparatively greater energy expenditure than other modes of travel. It also requires more energy and materials to be used to provide the additional street mileage, pavement width, parking facilities, and the like to accommodate vehicles carrying only one person.

The 2030 Plan inventories the existing street facilities and presents the Roadway Plan for the Columbia metro area. This plan assumes the construction of new collector and arterial streets which are anticipated to be needed as new development proceeds and more outlying areas of the metro area are annexed into the City of Columbia. As the population grows, the trend towards single family homes on large lots will further the physical spread of the community over a wider geographic area and produce additional VMT, the need for more street mileage, and additional gasoline consumption. The roadway plan anticipates this and attempts to provide

major street facilities to handle the additional traffic. One beneficial impact is that the plan attempts to provide additional street connections that potentially will allow for shorter trips through more direct routes.

The 2030 Plan also makes recommendations to provide better facilities for the non-motorized travel modes of walking and bicycling, which potentially could provide energy savings should persons find this an attractive travel alternative to vehicle use. The Plan seeks to increase the bicycle's share of the Columbia travel mode by providing a more extensive and convenient system of bicycle routes across the city. These new recommended routes will provide additional access to areas previously inconvenient for bicycle travel. The implementation of the planned bicycle route improvements will hopefully encourage more residents to use a bicycle for both work and non-work trips. According the 2000 U.S. Census data, only 1.5% of total work trips are made by bicycle. An increase in the percentage of all trips made by bicycling could lead to a decrease in local gasoline consumption, or at least to a reduction in the rate of increase of fuel use in the Columbia area.

The Plan also seeks to improve pedestrian facilities in the Columbia metro area, through the Bicycle and Pedestrian Network Plan. This plan seeks to encourage and allow pedestrians access to all sections of the city, by providing sidewalks and eliminating major barriers. One policy to be recommended is to provide sidewalks along both sides of arterial streets, to facilitate pedestrian use of these corridors. Walking is the second most common travel mode among Columbia residents, with 4.70% of work trips made that way according to 2000 U.S. Census data. Given these statistics and the energy savings realized by pedestrian travel, a greater emphasis on pedestrian safety and access is warranted.

The Plan also makes provisions for the continuation of the Columbia Transit System, which provides bus service in Columbia. The availability of bus service provides a means of transportation to those residents unable to afford a private vehicle, disabled persons who cannot drive or otherwise get around on their own, and those who choose transit purely on preference. It also provides the potential for additional energy savings should economic or other circumstances dictate that more residents switch from the automobile to transit use. Less than 1% of work trips are now made by public transportation facilities such as the bus, and the possibility exists for a much greater percentage of all trips to be made by transit.

It is likely that worldwide trends and events will lead to major gas price increases and periodic shortages during the plan period. Increased world demand, instability in the Middle East, and the inability to increase oil production will combine to make for an unstable energy situation. In consideration of this, the Plan gives increased emphasis to non-motorized modes of transportation.

D. Environmental

The current Columbia metro area transportation system is designed for individual vehicles, 77% of which contain only a single occupant according to 2000 U.S. Census data. In general, this system promotes many potentially harmful environmental consequences. Air pollution from vehicle exhaust is probably the most frequently cited problem, but there are others as well. Traffic noise impacts may diminish the quality of life, and the runoff of water from the pavement of streets, parking lots, and driveways degrades the quality of streams and groundwater. Additional ecological impacts result from the production cycle of the automobile industry, and from the disposal of junked vehicles. The 2030 Plan assumes that the current transportation network and mode preferences will continue over the next twenty years, although potentially at a reduced rate depending on gasoline prices and availability. While this necessarily means that negative environmental impacts from the current system will remain, both beneficial and harmful environmental impacts may arise from the implementation of the 2030 Plan. Each of numerous elements of the plan may have positive and negative effects.

Transportation enhancements, which are transportation-related improvements that enhance the essential transportation system, can improve the aesthetic environment. The *Imagine Columbia's Future* (2007) vision planning Community Appearance Citizen Topic Group included a recommended strategy *to "Develop a streetscape plan through the use of landscape, site amenities, art, and thematic elements to create memorable and attractive boulevards and streetscapes (e.g., place utilities underground, clean up Business Loop and Providence, regulate billboards, and develop gateway/entryway plan)."*

1. Major Roadway Plan

Construction of the street projects contained in the Major Roadway Plan will have some negative impacts on the specific neighborhood/area in which they are constructed, through the loss of green space and the addition

of more impervious surface. The latter will increase stormwater runoff, as well as introducing runoff of pollutants such as oil and antifreeze from vehicle traffic.
There will also be air pollution and noise impacts on the immediate area around the road corridor. Construction impacts include soil compaction and disturbance, soil erosion from wind and water, noise impacts, and impacts to stream beds and floodplains at the major creek crossings. After completion of the projects, traffic noise impacts may be severe, particularly in the case of the widening of Interstate 70. Noise abatement to protect adjacent residential developments is needed along the existing sections of I-70, and will be even more critical on a widened facility.

Potential positive impacts from new street construction may include congestion reduction through the dispersal of existing traffic over a larger physical area, due to the provision of new alternative routes. Such new routes may provide shorter and more direct access for motorists, thus decreasing driving times and trip distances, as well as reducing traffic congestion. If this were the result, air and noise pollution across the area could be reduced, since idling vehicles produce a greater amount of exhaust. New street projects may allow for greater consideration of non-polluting traffic modes, through the inclusion of bicycle lanes and improved sidewalk facilities as part of new roadway construction.

2. Bicycle and Pedestrian Network plan

The 2030 CATSO Bicycle/Pedestrian Network Plan builds upon the Bicycle Plan adopted in the 2025 CATSO Transportation Plan. The PedNet Coalition, a private organization, was instrumental in providing much of the field work necessary to develop the original 2025 bicycle/pedestrian network. CATSO staff worked with the City of Columbia Bicycle and Pedestrian Commission and PedNet representatives to create the pedway concept, which offers greater mobility, safety, and comfort for all non-motorized traffic. The 2030 network enhances the previous network through the addition of more links, including trails and trail connectors (links between trails and public streets) that are included in the new 2007 GetAbout Project Plan. This is the implementation plan for the Non-Motorized Transportation Pilot Program noted earlier in this chapter, through which a total of over $22 million in federal funding is available for project construction.

The Bicycle/Pedestrian Plan adds to the traditional on-street bike lane by implementing a combined bicycle/pedestrian facility, or pedway. This is basically a wider version of a sidewalk, with a minimum width of 8', intended to serve both pedestrians and bicyclists with limited on-street abilities, such as children and the elderly.

The plan identifies two phases for implementation. The initial phase is referred to as the "Backbone" which is comprised of key sections of the system which facilitate bicycle and pedestrian movement throughout the Metro area. The "Backbone" is formed by a loop trail system around Columbia along with a pedway system along Providence Road and Broadway, the two centrally located arterials through the City. The majority of the plan would be implemented as funding and opportunities to make connections become available. The GetAbout Project will not only focus on implementing the existing Pednet network, particularly the backbone sections, but expand other bicycling facilities, including on-street bicycle lanes.

Revisions were made to improve connectivity and establish a more complete network. The implementation of this element would largely have positive effects for the local environment. The accommodation of bicyclists in a comprehensive transportation system is a step towards reducing vehicle traffic volumes or at least lowering the rate of increase of traffic. Since bicycling is a non-polluting and quiet travel mode, the environmental benefits are numerous.

One impact that could be viewed as an environmental negative is if providing bicycle lanes requires the widening of existing streets, as well as building new streets to greater pavement widths than would otherwise be constructed. This could require the removal of trees and other vegetation that otherwise would be preserved, and the creation of more impermeable surface. These impacts would probably be offset by the beneficial effects of greater bicycle ridership.

The pedestrian element of the 2030 Plan includes the 2007 Columbia Master Sidewalk Plan and gives attention to major pedestrian barriers across Columbia. As with the bicycling element, the provision of better facilities for pedestrians is one method of attempting to reduce motor vehicle traffic and its resulting noise and air pollution. The impacts of walking on the natural environment are minimal.

Creating an atmosphere more conducive to pedestrian travel can have beneficial effects for the community. As with bicycling, constructing more pedestrian facilities likely will involve the paving of a greater amount of street

right-of-way, with the resultant loss of additional green space. The net environmental impact of more sidewalks and other pedestrian facilities would likely be positive assuming that any pedestrian trip replaces a trip that would have been made by automobile.

3. Land use

Positive ecological impacts could be realized through implementation of changes to local land use regulations. Land use is the most critical factor in structuring a transportation network. In order to achieve a more environmentally benign system for moving people and goods, land use controls must allow for a development pattern that allows methods of transport other than private vehicles to be convenient and efficient. The use of mixed-use developments, cluster and small lot residential housing, and in general allowing for more compact development within a geographical area is conducive towards providing residents viable alternatives to vehicle use. A mixture of different types and economic levels of housing, within walking or biking distance of each other and to employment and shopping opportunities, is a major step in fostering non-motorized transportation and a cleaner environment.

Again, *Imagine Columbia's Future (*2007*)* produced recommended strategies for improvement of transportation efficiency through mixed-use land use concepts. As the Development Citizen Topic Group put it in a recommended strategy:

> *"Use the City's development planning process to promote socio-economically diverse, mixed-use neighborhoods that are supported by citywide bicycle, pedestrian, and transit systems to reduce the need for automobile commuting."*

The Community Character Citizen Topic Group contributed this strategy:

> *"Be pro-active, creative, and flexible about mixed-use zoning to encourage workable walking communities, and expand opportunities for farmers, gardeners, restauranteurs, service providers, and craft workers to sell and deliver produce and service."*

The environmental opportunities and constraints to transportation planning, design and construction are described in a number of standard and recently-developed sources:

- Flood plains: Flood Insurance Rate Maps (FIRM). A complete set is available for the Columbia Metro area, however it is in need of updating. The maps have an effective date of 1983, therefore they do not take into account 25 years of urbanization and other land use change. The Federal Emergency Management Agency (FEMA) has taken the first steps toward an update but funding is still lacking for completion of the necessary studies. The FIRM maps indicate a number of perennial streams coursing across the metro area, many flowing in a northeast to southwest direction.

- Streams and other surface water: Regulations and inventory information is available at the federal, state, and local levels. The City of Columbia has mapped the 27 watersheds and sub-watersheds within the metro area. Individual assessments have been completed on several of the streams. The City-County Health Department monitors water quality in surface water. Boone County has completed the *Bonne Femme Watershed Plan* (2007), a 93-square mile watershed which includes several square miles of the southeast Metro area. Boone County, the City of Columbia, and the City of Ashland have recognized the plan, which adopts a number of strategies to achieve natural resource management goals. Stream water quality is monitored and enforced by the U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers has jurisdiction over modifications to streams deemed to be "waters of the United States."

- Wetlands: The U.S. Department of the Interior, Fish & Wildlife Service, National Wetlands Inventory (1993) maps indicate probable wetlands by type on an overlay of the U.S. Geological Survey topographic maps. Because the wetlands are mapped remotely, delineation studies and consultation of the latest regulatory literature is recommended before wetland determinations are made. But the National Wetlands Inventory provides a good basis for estimating the impacts of future transportation facilities on ground water recharge, wildlife, storm water filtering, storage, and treatment, and the other environmental functions for which wetlands are recognized.

- Forest: The City of Columbia, University of Missouri, and CATSO are producing a Natural Resources Inventory which will use high resolution, "leaf-on" aerial photography to produce a database of forest cover

as well as a means to assess the health and quality of vegetation. The NRI will also be relevant to identification and interpretation of steep slopes, surface water and other sensitive environmental features.

- Soils: The U.S. Department of Agriculture, Soil Conservation Service/Missouri Agricultural Experiment Station, *Soil Survey of Boone County* (1998) is an atlas of soil associations with soil capability ratings that indicate relative strength, drainage, relief, and other properties of soil associations.

- Historic resources. The City of Columbia has several individual properties and two districts that are on the National Register of Historic Places. Use of federal funds for facilities near such places requires a Section 106 (of the National Historic Preservation Act) review to determine a "finding of no significant impact" (FONSI) on historic resources. The City has named four properties as local historic districts, subject to special zoning rules for any proposed alterations.

9.3 Environmental Justice

Identifying the effects of all transportation programs, policies, and activities on "minority populations and low-income populations" is the essence of environmental justice as outlined in the 1994 Presidential Executive Order. The three fundamental environmental justice principles are:

1. To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations;

2. To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process; and

3. To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

As the MPO for the Columbia area, CATSO should serve as the primary forum where MoDOT, Boone County, the City of Columbia, other agencies, and the public may develop transportation plans to meet local needs. To address the environmental justice concerns related to CATSO plans, programs, and other activities, CATSO will need to:

1. Provide enhanced demographic analysis to ensure that the Transportation Plan and the annual Transportation Improvement Program (TIP) comply with the provisions of Title VI;

2. Identify residential, employment, and transportation patterns of low-income and minority populations so that their needs can be identified and addressed, and the benefits and burdens of transportation investments can be fairly distributed; and

3. Evaluate and improve the CATSO public involvement process to reduce participation barriers and engage minority and low-income populations in transportation decisions.

A. Demographic Profile

The 2000 Census and the 2000 Census Transportation Planning Package were the sources for the demographic profile for the Columbia metro area shown in Table Ten: Target Populations and Thresholds. The threshold values for the various populations represent the average percentage for the metro area. The purpose of the threshold is to provide a standard to identify concentrations of the target populations.

Table 12: Target Populations and Thresholds Data Set 2000 Total for Metro Area Threshold

Category	Number
Total Population	101,748
Total Households	42,310 (2.40 persons/household)
Minority Population	19,833 (18.0 percent of total)
Low-Income Population	17,332 (17.0 percent of total)
Workers with Disabilities	6,429 (11.3 percent of total workers)
ADA Paratransit Eligible*	427 clients/1,741 average total trips/month
Zero Car Households	3,056 7.2 percent of total households

*as of June 2007

Note: ("Low income" - Those between 100 and 200% of "poverty level" as defined by the U.S. Census Bureau. The 2000 Poverty Threshold was $17,463 according to the U.S. Bureau of the Census).

The geographic distribution of the 2000 data identifies the west and north central areas of Columbia as the areas with the highest concentrations of the target populations.

B. Identifying Transportation Needs

Identifying the transportation needs of the target populations is an ongoing process, much of which derives from agencies delivering social services. Many social service agencies report their clients need for transportation, although to date, no comprehensive accounting has been attempted. In general, the comments offered by agency personnel fall into the following categories:

1. The need for public transportation system that is reliable, accessible, affordable, convenient, and timely that can respond to an individual's full range of daily activities;

2. The lack of commitment to transportation services and public transit by employers and the general public; and

3. A lack of support for alternative modes of transportation.

The transportation needs of the disabled and low-income have been traditionally addressed by fixed route public transit and the ADA paratransit services. The transportation needs of the minority populations are not easily quantified. This emphasizes the need to involve members of the minority community early in the planning process to ensure they are not disproportionately adversely impacted as a result of any CATSO policies or plans.

C. Public Involvement

Recognizing the importance of involving the public in planning for the future of the Columbia metro area, CATSO will review the adopted *Public Participation Plan*, to identify changes that would facilitate a more proactive planning process and provide for a greater role for community interaction.

The CATSO Transportation Plan and the Annual Transportation Improvement Program are made available to the public by the City of Columbia Department of Planning and Development, at the Regional Library, on the CATSO webpage, and upon request.

9.4 Specialized Transportation

Travel is essential for independence. In evaluating the transportation systems planned for the Metro area, the proposed improvements do serve the majority of the travel needs through 2030. However, there are segments of the population that are under served or lack service. There are individuals who because of physical or mental disability, income status, or age are unable to transport themselves or to purchase available transportation and are therefore dependent upon others to obtain access to health care, employment, education, shopping, social activities, or other life-sustaining activities. This also includes children who are handicapped or high-risk or at-risk. These individuals represent the transportation disadvantaged. The Americans with Disabilities Act (ADA) and the provisions of Environmental Justice have addressed some of the transportation barriers experienced by the transportation disadvantaged, however, not all the transportation needs are being meet. Access to public transportation is the key issue.

Strategies for expanding the public transportation to address the gaps in services should be developed and evaluated. Public transportation resources are often not coordinated and frequently duplicate expenditures and service efforts. They lack cooperation and communication, provide inadequate levels of service, vary in service quality, provide inadequate and unreliable information about service and costs, and have no comprehensive plan for meeting service needs. The fragmented system confuses consumers and fails to address the needs of many individuals who do not meet specific agency or program eligibility requirements.

The *Boone County Coordinated Transportation Study* (2006) found a need for greater coordination of service providers in the area of human services transportation.

Coordination is one strategy for improving performance and increasing mobility. This involves the pooling of transportation resources and activities of several human service agencies with one another or with existing transit operations.

Coordination may be an effective strategy if one or more of the following conditions exist:

1. Substantial unused vehicle time;
2. Substantial unused vehicle capacity;
3. Opportunities for economies of scale in planning, administration, operations, purchasing, or maintenance.

Even where coordinated service results in better use of resources, having enough resources is crucial.

Locally, the fixed route transit provider is the Columbia Transit System (CTS), which is operated by the City of Columbia. Paratransit service is also provided within the corporate limits of Columbia for individuals qualifying for service under the definitions contained in the Americans with Disabilities Act.

Some pooling of transportation resources occurred in 1993, when the CTS initiated the paratransit service as required by the ADA. Several local agencies eliminated the van service they directly provided to their clients, in favor of utilizing the CTS service. In Boone County, the Organized Alternative Transportation System (OATS) provides curb-to-curb public transportation service to County residents. OATS resources are limited and trip scheduling is prioritized by individual need. Expanding the resources for public transportation is an obvious solution to meeting the needs of the public transportation dependent. Although the nature of the problem is clear, the magnitude is difficult to estimate. A review of the available transportation services was completed in December 2006 by the Boone County Community Partnership, a local advocacy groups, in cooperation with a group of agency stakeholders. The *Boone County Coordinated Transportation Study* was prepared by a consultant and assessed the problems, defined the obstacles, and outlined potential solutions. The project was the initial step in creating a more coordinated transportation system. The study inventoried existing services, analyzed needs through extensive surveying, identified possible funding sources, and discussed coordination strategies and implementation steps. On the system side, the questions are how to provide service and what organization would deliver the service. On the resources side, the questions are whether the existing rolling stock can be more efficiently utilized and what sources of funding are available to provide expanded service.

The preparation of this plan fulfills the assessment and inventory portion of the SAFETEA-LU requirement for the development of a Coordinated Public Transit-Human Services Transportation Plan. This plan was approved by CATSO in August, 2007, and identifies strategies to address gaps in service and realize efficiencies, as well as develop priorities for implementation of those strategies.

At present, the City of Columbia dedicates 8% of the half-cent City sales tax for transportation to transit uses. In 2005 this tax generated $8,809,510 in revenue. If Boone County was willing to participate in the shared cost of operating such a system, the creation of a county-wide transit authority to provide for public transportation needs in the unincorporated portions within the Metro area, and throughout Boone County, would benefit all citizens within the CATSO area. An authority such as this one would also have the added benefit of serving residents within the CATSO area but outside the City of Columbia city limits in areas where there is sufficient residential density to support transit.

9.5 Regulatory Changes and Recommendations

A. Scenic Roadways

Beginning with the Intermodal Surface Transportation Efficiency Act (ISTEA) passed by Congress in 1991, and continuing in TEA-21 and SAFETEA-LU, the National Scenic Byways Program permits states to designate and conserve scenic roadways. Within the program, designations both for National Scenic Byways and for All-American Roads are included. In Missouri, the National Scenic Byways program is to be administered by the Missouri Department of Transportation.

The All-American Roads is a special category of scenic byways that meet higher standards for the quality and level of protection of their scenic resources. Scenic byways are typically defined as roads with significant

cultural, historic, natural, or scenic features. Such roads are based on the presence of six types of intrinsic resources: scenic, historic, recreational, cultural, natural, and archaeological. Protecting these resources allows communities to also protect the potential for economic development and tourism. The designation of scenic roadways at the state level is limited to roadways under state or federal jurisdiction.

B. Local Scenic Roadways

Although the scenic roadways provisions of SAFETEA-LU apply to roadways on the state and federal system, local governments may designate scenic roadways within their respective jurisdictions. A local scenic roadway designation can range from a scenic roadway declaration to guidelines and standards to protect the roadway's scenic qualities. The scope of the regulatory measures depends upon the degree of preservation the local government chooses to pursue. A local scenic roadway designation could be used by the CATSO Coordinating Committee as an additional factor should the Committee begin ranking projects for STP enhancement funding.

In order to implement a scenic roadway, a local process for administration of the scenic roads must be developed and the mechanisms for implementing the program, whether voluntary or regulatory, need to be in place. There are several regulatory options available to local governments to protect scenic roadways. Most rely on the use of zoning ordinances, building codes, and sign ordinances. Scenic America suggests focusing protection for scenic roads through the use of a corridor management plan.

Within the City of Columbia, several miles of Rock Quarry Road in the southeast quarter of the city are subject to the Scenic Roadway Area Overlay District. While the City of Columbia does not have a long-range plan to implement additional miles of "scenic roadway," it does have a zoning overlay district (Scenic Roadway Area Overlay District) which, at the discretion of the City Council, can be put into place.

In order to implement a corridor management plan to increase scenic roadways within the metro area, local jurisdictions are required to adopt a plan to protect and improve the corridor appearance. The National Trust for Historic Preservation lists three steps:

1. *Determining what is valuable and worthy of protection about a particular scenic road,*
2. *Deciding what methods of protection are necessary or appropriate for the corridor, and*
3. *Making a committed effort to apply those methods. A corridor management plan would typically include:*
    a. *Roads should have significant features of scenic, natural, cultural, historic, and/or archaeological importance.*
    b. *Such roads should have local support and citizen participation which is coordinated with relevant agencies and organizations in the locality.*
    c. *Roads should provide a relaxing travel experience, and scenic designation should not compromise the road's safety.*

Standards that require protection of the land generally adjacent to the road right-of-way can be enacted by 1) regulation of land use and development density, 2) detailed land use and site planning, 3) control of outdoor advertising, 4) control of land disturbance and landscaping, and 5) design and appearance of buildings and equipment.

Another manner of distributing development to protect a scenic road corridor is the transfer of development rights (TDR). Such a program entails the acquisition of the right to develop to a certain density in one area (the road corridor area to be protected) and transferring that right to another area away from the corridor, where increased density will be allowed. Usually TDR programs are applied over a broad area and not just the road corridor.

Tree protection policies must be developed as trees can be a significant contributor to scenic beauty along roadways. Tree and vegetation removal should be allowed only in special cases. One such tree protection provision limits tree branch and shrub trimming to circumstances when it is necessary for the safety of travelers. Selective trimming may also be given consideration for the preservation of historic views.

Controlling billboards and other outdoor advertising is critical to preserving the character and vistas of scenic roads. The banning of off-premise signs in rural areas, or the prohibition of all billboards along roads, is one method of control. A process may be established to buy and accept donations of land and easements along scenic roads. Acquiring easements protects the scenic quality of the road while maintaining the private ownership of the land.

Strong local participation/coordination should be developed with local agencies. Public participation needs to be part of the process. A public comment period for proposed changes to scenic roads allows time for analysis of the changes. Such public notification may encourage agencies to be more responsive in formulating policy. Regulations for general highway operations and maintenance work on scenic roads are helpful in guarding against activities that might alter the scenic nature of the road. Rules for such work as road widening, changes of grade, repaving, roadbed construction, and winter maintenance can protect the scenic qualities of the route.

A corridor management plan should be adopted for each roadway designated. Upon the recommendation of the review board, the City Council or Boone County Commission would formally designate scenic roadways and adopt corridor management plans. The use of overlay zoning could be appropriate for some road corridors. Coordination of scenic road legislation and zoning controls between Columbia and Boone County would be preferable. The MPO could serve to coordinate scenic roadway issues between Columbia and Boone County.

C. Access Management

The proliferation of driveways along arterial streets will seriously reduce the capacity of the roadway to carry the traffic. The delay caused by traffic turning into and pulling out of driveways impedes the flow of traffic on the arterial. As a result, the ability of the arterial to move through traffic declines and the accident rate increases.

Research on this has been completed by the National Cooperative Highway Research Program (NCHRP) in their publication "Report 420: Impacts of Access Management Techniques" (1999). This report summarizes research and studies conducted to measure the effects of various access management techniques. In it, more than 100 access management techniques were identified and grouped according to policy and roadway design features. The results were summarized in a Federal Highway Administration's brochure titled Benefits of Access Management (http://ops.fhwa.dot.gov/access_mgmt/docs/benefits_am_trifold.htm):

- Data show that each traffic signal installed above a frequency of two per mile (i.e., each signal placed closer than every half mile) increases travel time by more than 6 percent. A related point: increasing the distance between signals also can reduce the frequency of crashes; a review of crash data in seven states shows that the crash rate increased with additional signals per mile.

- For every 10 access points per mile, roadway speeds decrease by an average of 2.5 miles per hour, up to a maximum of a 10-mile-per-hour reduction.

- Research indicates that exclusive left-turn lanes at intersections reduce crashes by 50 percent on average and reduce rear-end collisions by between 60 and 88 percent.

- The use of indirect turns has been shown to reduce crashes by 20 percent, on average (35 percent if the indirect turn intersection is signalized). Examples of indirect turns include jug-handle left turns used in New Jersey and indirect U-turns (requiring a U-turn past an intersection followed by a right turn in lieu of a regular left turn) used in Detroit, Michigan.

- According to an analysis of crash data in seven states, raised medians reduce crashes by more than 40 percent in urban areas and by more than 60 percent in rural areas.

- Based on data gathered from research and studies, NCHRP Report 420 presents several specific recommendations to states and localities when considering implementing access management techniques:

- Comprehensive access management codes should indicate where access is allowed or denied for various classes of roads, specify allowable spacing for signalized and unsignalized connections, and set forth permit procedures and requirements.

- There should be a sufficient network of supporting local and collector streets that provide direct access to adjacent developments. These secondary streets should connect to arterials at appropriate and well-spaced locations. They make it possible to minimize direct property access on major arterials.

- ❖ Access should be provided from strategic and primary arterials only when reasonable access cannot be provided from other roadways. In such cases, access should be limited to right turns whenever possible.

- ❖ Left-turn and cross egress should be separated and placed at locations that fit into overall signal coordination patterns with high efficiency.

- ❖ Sound land use and development planning is essential to permit effective arterial traffic flow while allowing attractive property access. Access spacing standards (including corner clearance requirements) should be established in advance of actual development. Zoning, subdivision, and access spacing requirements should be consistent.

Finally, and perhaps most importantly, Report 420 recommends approaching access management in a systematic rather than a piecemeal or case-by-case fashion: Any access control or management plan must be done system-wide to avoid shifting problems. Many access management techniques deal with a single location (e.g., closing a median at a driveway). Some techniques (e.g., a continuous median) may transfer problems to other locations upstream or downstream from the location under consideration. In such cases, broader analysis of benefits and effects are essential.

Access management is not just an issue that relates to roadway functionality and safety; It can also have a profound impact on businesses that are located along arterial and collector streets. In 2000, the Center for Urban Transportation Research at the University of South Florida published a report, titled Economic Impacts of Access Management. This report synthesized several recent studies of the effects of access management efforts on nearby businesses. Most of the studies addressed the effects of restricting left turns through the installation of raised medians, while some looked at the effects of changes to driveway access.

According to the report, the construction of raised medians have little negative effect on businesses. While some businesses reported increased sales and others reported decreases in sales, most businesses reported that they saw no change in business activity as a result of the installation of a median restricting left turn lanes in the vicinity of their place of business. The studies showed that businesses perceived as ultimate destinations, such as restaurants and specialty stores, appeared to be less vulnerable to changes in access. By contrast, businesses that depend mostly on impulse stopping from traffic passing through the area, such as gas stations or convenience stores, appear to be more likely to suffer a business downturn.

While most access management projects may not have significant impacts on business activity in general, such projects can lead to increased anxiety on the part of area business owners and residents. To address this, the report pointed out the importance of involving the public in projects aimed at restricting access. The report discussed a study of public involvement in median projects in Florida. This study found that those Florida DOT district offices that followed an established public involvement process for median projects had to deal with fewer administrative hearings and also reported that they were more successful in achieving access management goals than districts without such programs in place. The reason for this greater success was perceived to be the use of a fair and open process for dealing with public concerns, including early public involvement in the design process and the use of informal open house type forums.

SAFETEA-LU regulations mandate better management of the existing investment in roadways by local and state agencies. Access management provides an inexpensive strategy to preserve the function and capacity of the metro area arterials. The current driveway standards, subdivisions regulations, and zoning ordinances for Boone County and the City of Columbia do not attempt to manage access on arterial streets. The existing driveway standards make little distinction between local, collector, and arterial streets. Planning for and managing access on arterials requires a comprehensive regulatory approach. Revision to the zoning ordinance is a key element.

Some possible strategies to achieve more consistent access management include:

- Adoption of an access management policy
- Use Planned District zoning or Subdivision Regulations to negotiate access points
- Require minimum lot frontage requirements for all zoning districts, site plan requirement for all properties with arterial access.
- Require minimum site frontage of 700 feet along arterials for unsubdivided tracts. Prohibit individual driveway access for residential lots.
- Design Standards - Revise driveway spacing standards for arterial roadways.

1. Driveway Design Standards
Driveways accessing arterial streets should provide for safe ingress and egress and turn speeds of 5 - 10 mph, to minimize the speed differential between turning vehicles and through traffic. Recommended driveway standards for access on to arterial streets would be a minimum width 30 feet, maximum 38 feet.

Minimum curb return radii 15 feet - maximum 25 feet.

The Missouri Department of Transportation (MoDOT) controls access by the purchase or condemnation of rights of access to the highway from abutting property, has the authority to approve grants of access where MoDOT has acquired the right of access to a highway, and issues driveway or road approach permits where the adjacent property owner has a right of access.

Boone County regulates driveways through the use of design standards adopted by the County Road and Bridge Commission. The City of Columbia regulates driveways through the use of driveway design standards. The design standards are not adopted by ordinance but are set forth in the Public Works Department's *Street and Storm Sewer Specifications and Standards Manual* as provided for in Section 24-31 of the Code City for Columbia, Missouri.

On state routes in the City of Columbia, MoDOT issues driveway and street connection permits.
The City of Columbia does not issue a driveway permit on a state maintained roadway, although on local streets connecting with a state roadway, the City does an inspection of the connection.
The City of Columbia should issue a driveway permit on State roadways prior to MoDOT issuing a permit. If local driveway spacing and design standards are to be successful, MoDOT must require that the local regulations be met, even if the regulations are more restrictive than current
MoDOT standards prior to issuing a driveway permit.

Compatible driveway design standards for MoDOT, Boone County and the City of Columbia should be cooperatively developed to support an access management program.

2. Driveway Spacing
The proper spacing for driveways along an arterial is a function of the design speed for the roadway. Vehicles turning into driveways must reduce speed in advance of the turn. The number of opportunities to turn at driveways should be limited with adequate distances between driveways to maintain higher average speeds on the arterial. For a typical arterial with an operating speed of 35 - 40 mph a minimum spacing between driveways of 200 - 300 feet should be adequate. At intersections, driveways should be located as great a distance as is practical from the operational area of the intersection based upon the turn lane configuration. As a minimum, driveways should be no closer than 350 feet from the points of intersecting right-of way on arterial streets.

3. Driveway Permits
The MoDOT District 5 Office should not issue any driveway permit in Boone County or the City of Columbia until a local driveway permit has been issued. This policy agreement should be signed with the District 5 Office.

4. Street Standards
Local street standards should be amended to provide for an arterial street designed with raised median and medians breaks for access. Driveways can align with median breaks. Minimum distance between median breaks is set by the design speed of the arterial, generally a minimum distance of 800 feet. The location and number of median breaks are fixed during the design phase for the arterial. Public streets are given priority for median breaks.

5. Recommendation
Boone County and the City of Columbia could consider adoption of a Primary Arterials ordinance which requires a site plan for all property accessing arterial roadways. The site plan would be a requirement at the time of rezoning or when applying for a building permit. The primary arterial ordinance should specify minimum driveway spacing requirements, require right-of-way dedication, and include standards for driveway widths. Subdivision regulations should be amended to prohibit the platting of residential lots with arterial access, require a minimum site frontage of at least 700 feet for new commercial lots with access to an arterial roadway. For lots within a commercial subdivision, joint use access rights should be granted to promote shared driveways and travel between parking lots for contiguous uses.

D. Right-of-Way Preservation
The ability to require the dedication of right-of-way is critical to provide for future transportation needs. The roadway alignments and right-of-way shown in the Major Roadway Plan depend upon the local government for implementation. In Boone County and the City of Columbia, subdivision ordinances are the primary tool for preserving and acquiring the right-of-way needed for new roadways. The planned office and planned commercial zoning districts offer the opportunity for right-of-way dedication as part of the approval process of the site plan required within the planned zoning districts.

1. Right-of-way Standards
Additional functional classifications and street standards for divided arterials should be examined and included as part of local subdivision regulations. Provisions should be made for a primary and secondary arterial classification. A standard width for the ROW for each street classification should be established to eliminate the range of width currently in use. The difficulty of acquiring ROW when a width range is used, is that the minimum ROW often becomes the maximum ROW when requiring ROW dedication through the subdivision process. A variance from the standard ROW width could be requested if the full ROW width is not required to accommodate fill slopes, utilities, pedways, etc.

All ROW should be dedicated through the subdivision process or a site plan. Metes and bounds descriptions of ROW should not be accepted for public streets unless specifically requested by Boone County or the City of Columbia.

For Boone County, ROW acquisition occurs through the subdivision process at the time a preliminary plat is approved. Typically, Boone County can require a 1/2 width ROW along existing streets. On new alignments or planned extensions, ROW can be requested, but not required. The ability of Boone County to require ROW dedication for new roadways is limited by State statute. Set-backs from the future ROW can be enforced and construction within the future ROW can be prevented. The ROW must be donated or Boone County must purchase a ROW easement.

The implementation of the Major Roadway Plan in the County depends upon the Boone County Planning and Zoning Commission, which has the final approval for subdivision plats in the county. Although the Boone County Commissioners may adopt the Major Roadway Plan, plan implementation is subject to approval by appointed officials which may not support implementation of the Plan. Failure to implement the adopted Plan would place Boone County in a position which would require purchase of the necessary ROW or could preclude the construction of the roadway. This has the effect of having the appointed officials of the Planning and Zoning Commission control the County's transportation policy and creating a situation which would require the commitment of County funds.

It is recommended that administrative procedures for Boone County subdivisions be modified to forward any recommended deviations from the Major Roadway Plan by the County Planning and Zoning Commission for review and approval by the Boone County Commissioners prior to subdivision plat approval by the Boone County Planning and Zoning Commission.

2. Roadway Alignments
At present, there are no engineering alignments for the extensions of new roadways which fall jointly within the jurisdictions of Boone County and the City of Columbia. In years past, "plan lines" of roadway alignments were shown on plats and plans to indicate the path of the future roadway. However, legal challenges to the "plan line" approach have removed this technique from local practice. To address the need to maintain future alignments, preliminary engineering studies should be completed to select appropriate and cost effective alignments. The preliminary engineering alignments could be cooperatively developed by CATSO for use by all agencies.

3. Recommendations
Boone County and the City of Columbia need to support changes in state enabling legislation that would strengthen the ability of county governments to require ROW dedication along new alignments or planned extensions as part of the preliminary platting process.

Changes in the Boone County and City of Columbia zoning regulations should be evaluated as an approach to acquiring needed ROW. The requirement for a site plan, such as in the planned commercial districts in the current County and City zoning regulations could be expanded or amended to cover all properties accessing arterial streets.

E. Alternative Land Use - Mixed Use Zoning District

The structure of the overall transportation system, which is primarily the network of streets, is closely related to land use regulations. In the Columbia metro area, as well as numerous other communities, land use regulations tend to encourage development to spread out over a large geographical area. Boone County and City of Columbia zoning regulations mandate the separation of land uses, and allow for substantial large lot residential developments. These policies generally establish a land use pattern that requires residents to drive to make their daily trips to work, due to the distances between various uses. Other types of trips are similarly affected, as the distances between residential neighborhoods and shopping areas, medical facilities, and other types of services tend to be too large for most persons to consider alternative ways to travel.

In order to provide an alternative to the motor vehicle as the dominant mode of travel, it is necessary to have a land use pattern that allows trips of all types to be made on foot or by bicycle. This is particularly important in older central city areas where residents are increasingly being isolated from employment and services as these facilities are relocated to fringe areas. Alternatives to the current land use plans and policies might allow commercial, office and other types of facilities that are neighborhood-oriented in scale to be intermixed with residential areas. Other revisions might be made to allow small lot developments. These would achieve greater population density, provide for more compact development, and reduce the mileage of street construction required to serve the area.

Another land use tool for reducing auto trips is mixed-use developments. Such projects put a variety of land uses on one site, ideally siting residential, service, commercial, and other uses within walking distance of one another. These types of developments are beneficial in that they allow residents to reduce their vehicle miles traveled as well as trip length and frequency. National studies have shown that the average length for renters' work trips is approximately 27% shorter than those for home owners. As employment location choices are generally more limited than choices for place of residence, a greater mix of housing options, including rental opportunities, would help to reduce work trip lengths. Revisions to land use regulations would afford developers the opportunity to construct projects of the type mentioned. A land use pattern that incorporates mixed uses on a greater scale would not only allow residents more choices in choosing modes of travel, but would be more efficient as well, through cost savings on street construction and maintenance, utility extensions, and other services.

Studies show that land use planning is one of the most effective methods for reducing both total vehicle miles traveled (VMT) and the number of trips, both work and non-work. Table 13:
Trip Reduction Strategies and Impacts; outlines the trip and VMT reduction potential of various alternate modes, and other strategies. Research indicates that revisions to current patterns of land use development offer the best potential to reduce both total VMT and trips by up to 5.2 percent.

Table 13 Trip Reduction Strategies and Impacts

Trip Reduction Strategy	% VMT	% Trips
Employer trip reduction	0.2 - 3.3	0.1 - 4.1
Area-wide ridesharing	0.1 - 2.0	0.5 - 1.1
Transit improvements	0.0 - 2.6	0.6 - 2.5
HOV lanes	0.2 - 1.4	0.5 - 0.6
Park-and-ride lots	0.1 - 0.5	0.0
Bicycle/pedestrian facilities	(a)	(a)
Parking pricing		
work	0.5 - 4.0	0.4 - 4.0
non-work	3.1 - 4.2	3.9 - 5.4
Congestion pricing	0.2 - 5.7	0.4 - 4.2
Compressed work week (b)	0.0 - 0.6	0.0 - 0.5
Telecommuting (b)	0.0 - 3.4	0.0 - 2.8
Land use planning (b)	0.0 - 5.2	0.0 - 5.2
Signal timing	(a)	(a)
Incident management	0.1 - 0.0	0.1 - 0.0
Emissions/VMT tax	0.2 - 0.6	0.1 - 0.9
Buy-backs of older cars	N/A	N/A

Table 13 Notes:
1. Numbers in parentheses represent increases in VMT (vehicle miles traveled) or trips.
2. Numerical estimates have been converted from the literature into common units and rounded to the nearest tenth of a percent. The estimates reflect the specific parameters for the case studied or the assumptions in any predictive model-all from existing literature. Actual impacts in specific regions will depend on the level of implementation and local circumstances.

(a) Impact is less than 0.1 percent.

(b) No literature reported impact as low as 0; literature indicated that the potential impact of this measure is highly speculative, and we have therefore reported a range starting at 0. Conversely, the upper end of the range may exceed that reported here.

In the discussion of development issues, a major topic recently has been the so-called neo-traditional form of development. This format emphasizes a mixture of land uses to make communities more accessible to pedestrians and bicyclists, and to reduce trip lengths both for commuting and for other types of trips. A typical neo-traditional neighborhood ordinance might include the following elements:

1. Residential, employment, civic, and commercial land uses are all located in close proximity within the same neighborhood, within walking or biking distance.

2. The street system is designed to serve the needs of pedestrians, bicyclists, and motorists equally.

3. Green spaces, plazas, and parks are interspersed throughout the neighborhood, providing for social activities and recreation.

4. The neighborhood is spatially limited in size to the degree necessary to permit convenient non-motorized travel. A suggested range for the physical size of the neighborhood is from 40 to 200 acres.

Most cities in Missouri were originally laid out with a grid system of streets to create tracts of land for development. This grid street system provided access to property and operated effectively with horse-drawn vehicles and the early automobile. As auto ownership and economic activity surged after World War II, the need to move large numbers of automobiles to and from the new employment centers and new subdivisions presented demands on the grid street system that it was not designed to serve. Established residential areas were not protected from adverse effects produced by the increasing volumes of through traffic.

The hierarchical arrangement of functionally classified streets grew from the concerns and shortcomings of the grid system. The advantage of the grid system is the dispersal of traffic in a number of directions. However, the grid system uses up to 40% of land area for streets. This adds to the cost of an individual lot, increases stormwater runoff due to the high percentage of impervious cover, and extends vehicle travel times.

In 1968, the Neighborhood Concept was adopted as a guide to transportation planning. It depicts the hierarchical arrangement by laying out major roadways on the edge of large neighborhoods, thereby keeping unrelated traffic away. Collector streets feed traffic to the arterials. One development trend in Columbia/Boone County has been the evolution of the neighborhood concept toward neighborhoods with cul-de-sacs and long loop streets, to permit even less through traffic within a neighborhood. The use of cul-de-sacs of is an appropriate design response to natural conditions, slopes and streams, although designing for privacy by excluding street connections is a response to the real estate market demands. Common practice in the metro area is to require developers to build the local streets in new developments. Other things being equal, developers have an incentive to recoup a premium on lots by designing the streets they adjoin as cul-de-sacs and loop streets. Public policy must solve the problem.

The lack of internal streets in a neighborhood erodes overall traffic circulation in an area and makes it difficult for residents to walk, jog, or bike within their own neighborhood. In addition, this lack of connectivity complicates providing bus service, trash pick-up, and emergency services.

The Neo-Traditional Approach to city and transportation planning is currently receiving attention by the planning community. This approach essentially calls for a return to a modified grid system, with streets designed not completely with the car in mind, but with non-auto circulation and neighborhood integrity needs in

mind. It suggests more pedestrian and bicycle orientation and closer proximity of employment and service/retail centers to residences. The CATSO Transportation Plan offers this type of development scenario, and others, as alternatives to be examined for impact on the transportation system, the Columbia and Boone County Land Use Plans, development regulations, and community acceptance. Not only does this physical arrangement permit most residents pedestrian access to the town square mixed use area at the center of the neighborhood, it also facilitates the use of carpooling to employment locations outside the neighborhood.

9.6 Local Monitoring and Coordinated Planning

Traffic conditions and development change on a continuing basis. It is important that these changes are the subject of on-going study. Monitoring traffic volumes and travel patterns is one element of a local program. In 1997, traffic count information was jointly collected for Metro area roadways by the Missouri Department of Transportation, Boone County and the City of Columbia. The most recent metro area count was completed in April 2006. The next study is scheduled for 2009.

A local traffic count program should be developed and implemented for provide annual and seasonal counts in Columbia and Boone County. Development and subdivision activity are currently monitored by the City of Columbia Department of Planning and Development and the Boone County Planning and Zoning Department. The information collected should be integrated to provide a complete database for growth in the metropolitan planning area.

9.7 Safety

Several planning resources are available to promote increased safety in the transportation system. The state strategic highway safety plan is entitled *Missouri's Blueprint for Safer Roadways* (2007). This plan outlines an "essential eight" strategies to improve safety on Missouri roadways:

1. Pass a primary safety belt law, and maintain and enhance existing traffic safety laws;
2. Increase enforcement on targeted crash corridors;
3. Increase public education and information traffic safety issues;
4. Expand the installation of shoulder, edgeline and centerline rumble strips/rumble stripes;
5. Expand, improve and maintain roadways visibility features (markings, signs, lighting);
6. Expand installation of median 3-strand guard cable or equivalent barrier;
7. Deter, identify, arrest & adjudicate alcohol/other drug-impaired drivers & pedestrians;
8. Expand installation and maintenance of roadways shoulder and clear zones.

MoDOT has published the *2008 Highway Safety Plan and Performance Plan*, a statewide safety plan that follows up and implements parts of the *Blueprint* . The plan documents crash data at the county level and sets benchmarks, performance standards, and strategies in several categories ranging from specific types of incidents (alcohol and drug-related, motorcycle, vulnerable motorist, etc.) to education, to engineering and data collection. The overall goal of the plan is to reduce the number and severity of traffic crashes in Missouri.

Local officials should endorse the practices in *Missouri's Blueprint for Safer Roadways* and implementing plans such as the *2008 Highway Safety Plan and Performance Plan* for their multi-pronged, inclusive approaches to roadway safety.

MoDOT budgets for safety-related improvements and programs safety projects in the State Transportation Improvement Program (STIP). A notable safety initiative is the 800 bridges project, which aims statewide to bring 85 percent of state-maintained bridges up to acceptable standards. The metro area has several bridges that are rated as Class 3 (a Class 2 rating requires closure; Class 9 is a new bridge) and should be reconstructed to an appropriate standard. CATSO should monitor the program and work with MoDOT to ensure that the deficient bridges are reconstructed.

At the local and regional level, Boone County and the City of Columbia have begun a notable safety initiative to standardize address identification. Way-finding in the Columbia Metro area is difficult because of the an offset address grid between the city and the county, the proliferation of short streets, major roadways that change names, duplicate street names, and a lack of system in the assignment of street numbers, names and types. The *Addressing Procedure Guidebook – Addressing Within a Regional Context* (draft, 2007) recommends best practices to improve the ability of citizens and service providers to find their way and especially improve the ability of emergency first responders to locate problems.

City and County decision-makers should adopt the *Addressing Procedure Guidebook* to improve the efficiency of services in general and the provision of emergency response services in particular.

The City of Columbia has recently committed to the installation of several automated cameras at selected problem intersections to deter moving violations. Known as the "red-light cameras," the equipment will allow the City to issue citations more aggressively to motorists that violate red lights at traffic signals. CATSO should encourage the use of available technology to promote safety improvements at intersections.

The aforementioned *Safe Routes to School* program, authorized by Section 1400 of SAFETEA-LU and administered by MoDOT, is a grant program to facilitate safe walking, bicycling, and disabled access to schools in the grade ranges K through 8. Eligible projects awarded grants may be reimbursed for 100 percent of project costs. The City, County, school districts, and eligible non-for-profits should give strong consideration to Safe Routes to School applications to support needed capital improvements and planning, design, education and promotional programs.

9.8 Security

Since the last Transportation Plan update, the issue of "security" has been designated as a new, stand-alone planning factor by the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), the current federal transportation legislation that guides the long-range planning process at the federal, state and local level. Security is an important component of the metropolitan transportation planning process and, as a result, metropolitan planning organizations have been charged with considering ways to increase the security of the transportation system for motorized and non-motorized users.

In this instance, "security" is defined as finding methods to prevent, manage, or respond to threats to the region and its transportation system. Some of the threats to the CATSO area's transportation system may include potentially violent incidents on highways, bridges, and transit facilities or attacks on vehicle inventory such as buses. Providing for security also includes emergency management planning for natural disasters which may occur within or near the CATSO metropolitan planning area.

There are essentially four phases of emergency management – mitigation, preparedness, response, and recovery. These phases are usually ongoing, interdependent, and to some degree, overlapping. To ignore the actions required by any one of the four phases jeopardizes the jurisdiction's overall ability to "manage" disasters and emergencies. The purpose of this portion of the Plan is to consider a variety of tools to help CATSO be better prepared to mitigate hazards, prepare for emergencies, and enhance the response and recovery phases of any emergency situation.

In accordance with SAFETEA-LU, it is recommended that the following take place in order to implement a more complete security plan for the CATSO area:

- Review the current metropolitan transportation plan for emergency planning and security elements.
- Continue to implement and improve the transit system security program for Columbia Transit.
- Define the role of Columbia's public transportation system (Columbia Transit) and MoDot in promoting security within CATSO-defined metropolitan area.
- Identify critical facilities and transportation system elements such as the Columbia Transit system, COLT railroad facilities, interstate systems (I-70) and national highway system routes (U.S. Highway 63)
- Develop security goals and strategies that apply to CATSO area.

In addition, based upon SAFETEA-LU security plan provisions, the following three goals and strategies relating to transportation system security should be implemented:

Goal #1: Establish partnerships with other federal, state, and local governmental agencies to promote continued interagency cooperation.

Strategies:

- Provide timely and early opportunities for comprehensive public input into the development of plans and programs.
- Establish regular collaborative decision making opportunities with emergency response stakeholders within the CATSO planning area to develop security plans and programs.
- Identify and collaborate with other state and local agency efforts and/or private sector efforts to enhance security planning for the transportation system.

Goal #2: Provide safe and secure facilities and transportation infrastructure for residents, visitors and commerce in the CATSO planning area.

Strategies:

- Reduce injuries, fatalities and property damage for all modes of transportation.
- Minimize security risks on roadways and bikeways, at Columbia Regional Airport, and on public transportation facilities throughout the CATSO planning area.
- Improve disaster, emergency and incident response preparedness and recovery.
- Assess security vulnerabilities, while minimizing redundancies through agency coordination.

Goal #3: Provide resources for emergency situations and major disasters while improving security and safety-related incident(s) response.

Strategies:

- Participate in regional planning for safety and security initiatives, such as evacuation measures and homeland security.
- Assess existing resources, while periodically re-evaluating emergency preparedness procedures.
- Improve protection of critical, security-related infrastructure key facilities (as noted in the next section).

A. System Security & Identified Critical Elements

1. Airport
The City of Columbia owns and operates the Columbia Regional Airport. The airport is located 13 miles south of Columbia off U.S. Highway 63, on Route H. Conveniently located between Columbia and Jefferson City, it serves as the primary gateway to central Missouri for air travel. The airport provides a direct link to Kansas City International Airport-providing a vital connection to the nation's air transportation system. Many area businesses, aviation enthusiasts, and students have benefited from the airport and the economic development the facility has and will continue to foster.

2. Highway
There are several agencies responsible for highway security in the Columbia metropolitan area. Agencies include the Missouri Department of Transportation (MoDot), the Missouri State Highway Patrol, and local law enforcement within Boone County and the City of Columbia. Effective coordination and communication of these agencies is crucial during emergency situations. Security is provided through routine road patrols and crash and criminal investigations.

Critical Highway Facilities & Transportation System Elements within the CATSO area include:

• Columbia Terminal Railroad (COLT) from Columbia to Centralia. (In Columbia, the rail line is located just west of the Highway B industrial area, crosses Highway 63 approximately 2.5 miles north of Interstate 70 and ends south of Rogers Street near the center of town).

• Interstate 70 & Interchanges with State Route Z, St. Charles Road, U.S. Highway 63, Business Loop 70 East, State Route 763/Rangeline Road, State Route 163/N. Providence Road, Business Loop 70 West, State Route 740/N. Stadium Boulevard, and State Highway 40.

• U.S. Highway 63 & Interchanges with State Highway 163, Rolling Hills Road, Old Millers Road, Ponderosa Street/Huggard Lane, State Route AC/Grindstone Parkway/New Haven Road, State Route 740/E. Stadium Boulevard, State Highway WW/E. Broadway, Interstate 70, Clark Lane, Vandiver Drive, State Route B/Paris Road, Brown Station Road (overpass bridge only), Brown School Road, Prathersville Road, State Route 763/N. Rangeline Road, and Calvert Hill Road.

3. Transit Security

Local law enforcement and the Columbia Transit (CT) are responsible for providing security on the Columbia transit network. Transit security involves addressing issues such as the security infrastructure, gaps in transit security, and where security could be increased.

CT uses several methods to address transit security. Transit security initiatives include:

- Safety Manual, Safety Training, Safe Bus - Transit Watch Program
- Wabash Evacuation Plan (in case of emergency)
- Bomb Threat Procedures
- Vehicle Inspection Program
- Random Security Tape Review (to ensure drivers are following established policies and procedures in relation to bus operation)
- Transit continuity of service and moving operations from Wabash station in cases of emergency
- Homeland Security Transit Protocol

Since the specifics on each of these policies are too lengthy to be described here, citizens are welcome to obtain additional details one each of them from Columbia Transit personnel. In addition to the above mentioned security initiatives provided in the Transit System Security Program, Columbia Transit also administers specific safety and security requirements for all employees. CT also maintains a close working relationship with the Columbia Police and Fire Departments.

9.9 Recommendations

For the five year period (2007-2012) the CATSO should focus on the following plan implementation strategies:

1. Develop preferred engineered alignments for new roadways in the CATSO 2030 Roadway Plan.

2. Continue to develop preferred alignments and identify bridge locations, underpasses and trailheads for the backbone portion of the CATSO 2030 Bicycle/Pedestrian Network Plan.

3. Continue to review the existing study areas for potential CATSO Major Roadway Plan amendments identified in 2005 and 2006, and proceed with amendments by individual study area as directed.

4. Update the CATSO Transportation Plan in 2010 for the year 2035.

5. Provide technical support to local government to assist with regulatory reform.

6. Examine the options for expanding public transportation services in the incorporated and unincorporated portions of the Metro Area.

7. Based on the outcome of the MO 740 (Stadium Boulevard) extension project Environmental Impact Study (EIS), determine the appropriate functional classification and alignment.

8. Evaluate and develop roadway access management guidelines which will help to ensure roadway functionality and contribute to motorist safety.

9. Assist in implementation of all elements of the CATSO 2030 Bicycle/Pedestrian Network Plan network, in particular those projects to be done as part of the Get About Columbia Project.

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CATSO 2030 Transportation Plan

Appendices

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APPENDICES

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APPENDIX A:
FUNCTIONAL CLASSIFICATION OF ROADWAYS FOR COLUMBIA URBANIZED AREA

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Appendix A: Functional Classification of Roadways for Columbia Urbanized Area

Roadway Class	Mileage	Mileage %	FHWA * % Range
Local	500.73	74.776%	65-80
Collector	65.51	9.783%	5-10
Minor Arterial	58.09	8.675%	10-15
Principal Arterial (1)	45.31	6.766%	5-10
Total Urban Miles	669.64	100.0%	

Principal Arterial Subcategories (1)	
Interstate	9.6
Other Freeway/Expressway	15.3
Other Principal Arterial	20.4

*Federal Highway Administration

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APPENDIX A-1

MAP OF COLUMBIA URBANIZED AREA WITH FUNCTIONAL CLASSIFICATION OF ROADWAYS

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Functional Classification System

COLUMBIA

Boone County

Missouri

FUNCTIONAL CLASS		Approx. Mileage*	% of Total	% Guidelines
Principal Arterial				
Interstate		9.633		
Other Freeway and Expressway		15.296		
Other Principal Arterial		20.379		
Principal Arterial Sub-Total		*45.308*	*6.77*	*5-10*
Minor Arterial		58.094		
All Arterial Sub-Total		*103.402*	*15.44*	*15-25*
Collector		65.508	9.78	5-10
Local		500.732	74.78	65-80
Total Urban		***669.642***		

*Only East and South directions used in mileage estimates. Estimates include proposed mileage.

CITY

URBAN AREA

MoDOT

Transportation Planning

2217 St. Mary's Blvd.
Jefferson City, MO 65109
Phone (573) 526-8058
Fax (573) 526-8052

Approved May 15, 2008

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APPENDIX B
FUNCTIONAL CLASSIFICATION OF ROADWAYS IN COLUMBIA METRO AREA

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Appendix B: Functional Classification of Roadways in Columbia Metro Area By Roadway Jurisdiction

MoDOT

Classification	Miles
freeway	80.94
expressway	9.82
major arterial	25.69
minor arterial	38.8
major collector	29.91
neighborhood collector	2.85
other	16.21
	204.23

City of Columbia

Classification	Miles
major arterial	14.78
minor arterial	26.64
major collector	45.62
neighborhood collector	40.33
other	363.73
	491.1

Boone County

Classification	Miles
major arterial	9.89
minor arterial	16.41
major collector	14.73
neighborhood collector	62.1
other	182.32
	285.45

Totals for All Jurisdictions

	Mileage	Mileage %
Freeway	80.94	8.25%
Expressway	9.82	1.00%
Major Arterial	50.36	5.13%
Minor Arterial	81.85	8.35%
Major Collector	90.26	9.20%
Neighborhood Collector	105.28	10.73%
Other (Local)	562.26	57.34%
Total	980.77	100.00%

Note: All categories are centerline miles, with exception of freeway, which is lane miles, including ramps.

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APPENDIX B-1:
MAP OF COLUMBIA METRO PLANNING AREA

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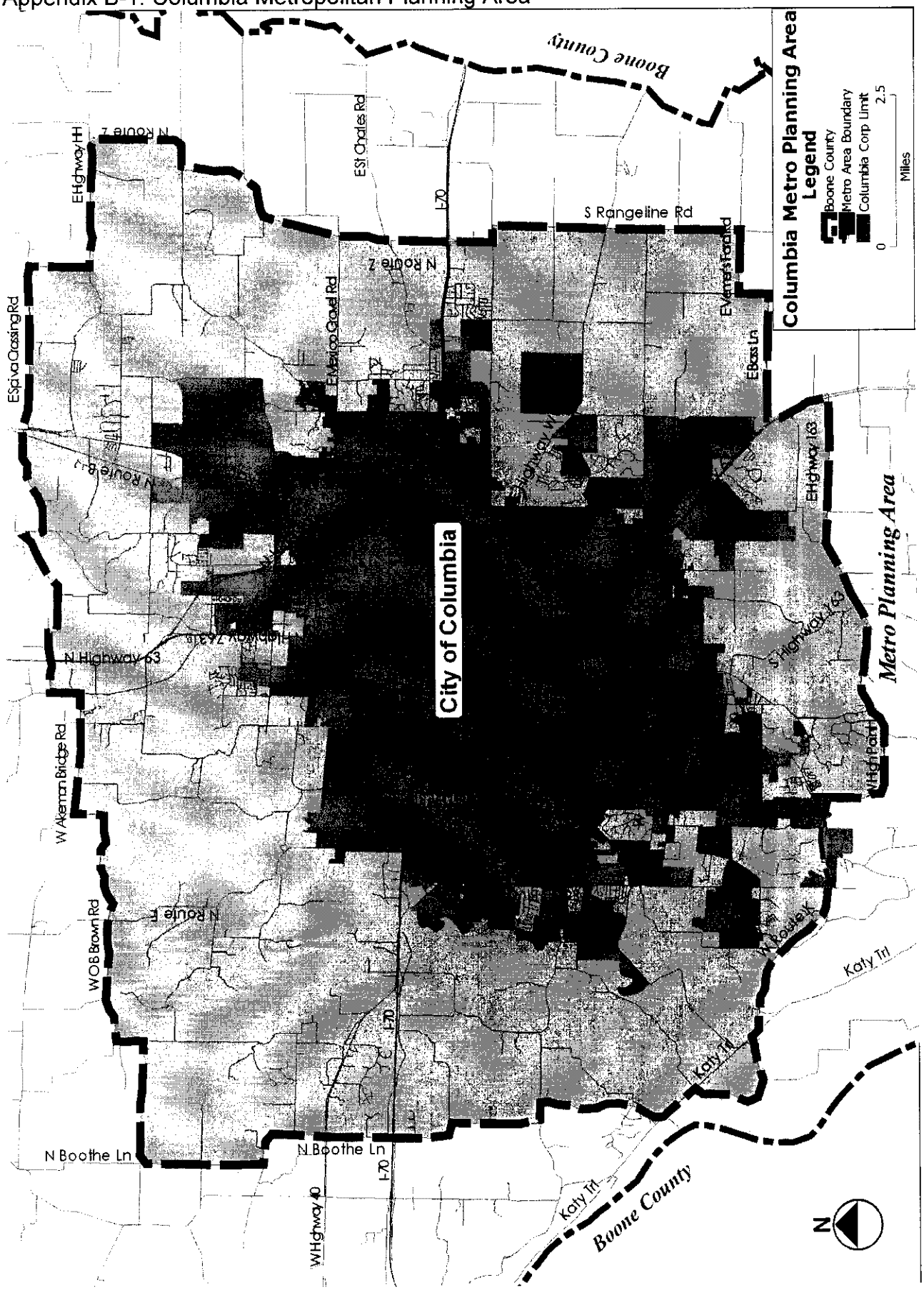
Appendix B-1. Columbia Metropolitan Planning Area



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APPENDIX C:
COLUMBIA TRANSIT SYSTEM INVENTORY

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Appendix C: Columbia Transit System Inventory

Fleet Inventory Report
(as of September 2007)

Vehicle Type	Bus Number	Year	In Service date
Chevrolet Pick-Up	1607	2005	1/10/2005
Chevy Van	1967	2006	4/18/2006
Diamond Cutaway	1867	1999	10/20/1999
Diamond Cutaway	1868	2006	5/6/07
Diamond Cutaway	1869 Campus Route	1999	11/16/1999
Diamond Cutaway	1870	2006	5/6/07
Diamond Cutaway	1437	2001	2/4/2002
Diamond Cutaway	1438	2001	2/4/2002
Diamond Cutaway	1936	1999	11/4/1999
Diamond Cutaway	1937	2004	11/29/2004
Diamond Cutaway	1938	2004	11/29/2004
Toyota Prius	1939	2005	5/17/2005
NewFlyer 40 foot	374 Campus Route	1995	9/1/95
NewFlyer 40 foot	375 Campus Route	1995	9/1/95
NewFlyer 40 foot	1851 Campus Route	2000	10/4/2000
NewFlyer 40 foot	1852 Campus Route	2000	10/3/2000
NewFlyer 40 foot	1885 Campus Route	2001	4/6/2001
NewFlyer 40 foot	1886	2001	4/5/2001
NewFlyer 40 foot	1887	2001	4/4/2001
NewFlyer 40 foot	1888	2001	4/3/2001
NewFlyer 40 foot	1889	2001	4/9/2001

NewFlyer 40 foot	**1890**	*2001*	*4/9/2001*
NewFlyer 40 foot	**1891**	*2001*	*4/9/2001*
NewFlyer 30 foot	**1892**	*2001*	*4/11/2001*
NewFlyer 30 foot	**1893**	*2001*	*4/11/2001*
NewFlyer 30 foot	**1894**	*2001*	*4/11/2001*
NewFlyer 30 foot	**1895**	*2001*	*4/12/2001*
NewFlyer 30 foot	**1896**	*2001*	*4/12/2001*
NewFlyer 30 foot	**1897**	*2001*	*4/12/2001*
El Dorado National 30 foot	**1923** Campus Route	*1997*	*4/26/2003*
El Dorado National 30 foot	**1924** Campus Route	*1997*	*4/26/2003*
El Dorado National 30 foot	**1925** Campus Route	*1997*	*4/26/2003*
El Dorado National 30 foot	**1926** Campus Route	*1997*	*4/26/2003*
El Dorado National 30 foot	**1927** Campus Route	*1997*	*4/26/2003*
Gillig 40 foot	**1965** Campus Route	*1989*	*8/22/2005*
Gillig 40 foot	**1966** Campus Route	*1989*	*8/24/2005*
BlueBird 30 foot	**1968** Campus Route	*1983*	*10/25/2006*
Gillig 40 foot	**1969**	*2007*	*8/7/2007*
Gillig 40 foot	**1970**	*2007*	*8/7/2007*

APPENDIX D:
ROADWAY PRIORITIZATION LISTING

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Appendix D: Street Project Priority Listing

Street Project Priority Listing	Estimated Cost	Classification	Type of Project
City of Columbia Projects			
First Priority			
Lemone Industrial Blvd: Grindstone Creek to MO 740.	$9,300,000	Major Collector	New
Ballenger Lane: St.Charles Road to Clark Lane.	$6,410,000	Major Arterial	New
Scott Boulevard: Rollins Road to Brookview Terrace.	$11,025,000	Major Arterial	Capacity upgrade
Scott Boulevard: Vawter School Road to MKT Trail.	$5,000,000	Major Arterial	Capacity upgrade
Route 763/Rangeline: Big Bear to US 63. (City share only)	$11,000,000	Major Arterial	Capacity upgrade
Mexico Gravel Road: Vandiver Drive to Route PP.	$2,700,000	Major Arterial	Capacity upgrade
Providence Road: Vandiver Drive to Blue Ridge Rd.	$4,100,000	Major Arterial	New
Scott Boulevard: Vawter School Road to Route KK.	$9,500,000	Major Arterial	Capacity upgrade
Second Priority			
Bearfield Road: Gans Road to Nifong Boulevard.	$7,200,000	Major Collector	Capacity Upgrade
St. Charles Road: Keene Street to Grace Lane. *	$11,300,000	Major Collector	Capacity Upgrade
Sinclair Road: Nifong southward 9,000 feet. *	$6,700,000	Major Collector	Capacity Upgrade
Blackfoot Road: State Highway E to O'Neal Road. Project cost:	$9,400,000	Major Arterial	Capacity Upgrade
Richland Road: St. Charles Road to Olivet Road *	$12,000,000	Major Arterial	Capacity Upgrade
Waco Road: Brown Station Rd to Oakland Gravel Rd *	$4,200,000	Minor Arterial	New
Waco Road: Route B to Rogers Road.	$9,500,000	Minor Arterial	New
Clark Lane: Ballenger Lane/Route PP to St. Charles Road.	$3,900,000	Minor Arterial	Capacity Upgrade
Third Priority			
Bernadette Drive: I-70 Drive SW to Fairview Road.	$3,400,000	Major Collector	New
Creekwood Parkway: Golden Bear Dr. to Vandiver Dr.	$6,300,000	Major Collector	New
East Boulevard: East Business Loop 70 to Conley Rd.	$5,800,000	Major Collector	New
Lake Ridgeway Drive: Clark Lane to terminus.	$2,100,000	Major Collector	New
Sorrel's Overpass: I-70 Drive NW to State Highway E.	$16,500,000	Major Collector	New
Van Horn Tavern Road/I-70 Drive SW *	$5,000,000	Major Collector	New
Heriford Drive: Burlington to Route B.	$700,000	Major Collector	Capacity Upgrade
Wyatt Lane: Thompson Road to Palmer Road *	$4,500,000	Major Collector	Capacity Upgrade
Northwest Loop: Creasy Springs Rd to Brown School Rd.	$22,109,000	Major Arterial	New
Scott Boulevard: West Broadway to Sorrel's Overpass.	$8,000,000	Major Arterial	New

Vandiver Drive: US 63 to Mexico Gravel Road.	$3,600,000	Major Arterial	New
Brown School Road: Creasy Springs Road to City limit *	$2,500,000	Major Arterial	New
Brown School Rd: Providence Road to State Hwy 763.	$5,200,000	Major Arterial	Capacity Upgrade
Vandiver Drive: Sylvan Lane to US 63.	$2,300,000	Major Arterial	Capacity Upgrade
Providence Road: Smiley Lane to Brown School Road.	$5,900,000	Minor Arterial	New
Prathersville Road: Tower Drive to US 63 *	$3,168,000	Minor Arterial	New
Grace Lane: Richland Road southward 2,700 feet.	$2,400,000	Minor Arterial	Capacity Upgrade
Route K: Old Plank Road to Scott Boulevard *	$4,900,000	Minor Arterial	Capacity Upgrade
Creasy Springs Road: Bear Creek to Obermiller Road *	$9,300,000	Minor Arterial	Capacity Upgrade
New Haven Road: Rolling Hills Road to Big Timber *	$9,500,000	Minor Arterial	Capacity Upgrade
Lake of the Woods Road: St. Charles Road to Route PP *	$7,200,000	Minor Arterial	Capacity Upgrade
Cunningham Road: Bray Avenue to Rollins Road.	$1,100,000	N'hood Collector	New
Dublin Avenue: Scott Boulevard to terminus.	$2,500,000	N'hood Collector	New
Rice Road: Lake of the Woods Road to terminus.	$1,500,000	N'hood Collector	New
Southampton Drive: Sinclair Street to terminus.	$870,000	N'hood Collector	New
Woodhaven Drive: Gans Road to Nifong Boulevard.	$3,800,000	N'hood Collector	New
Woodridge Drive: St. Charles Road to terminus.	$5,000,000	N'hood Collector	New
Thompson Road: Wyatt Lane to Route PP *	$2,000,000	N'hood Collector	Capacity Upgrade
Silvey Street: West Worley Street to I-70 Drive SW.	$1,500,000	N'hood Collector	Capacity Upgrade
Old Mill Creek: Old Field Road to Crabapple Lane *	$3,300,000	N'hood Collector	Capacity Upgrade

* - anticipated to be funded with Boone County sales tax revenue.

MoDOT Project Listings

First Priority

Ballenger Lane: I-70 Drive SE to Route PP	$4,000,000	Major Arterial	New Construction
Route WW: U.S. Highway 63 to East urban limit.	$1,151,400	Major Arterial	Capacity Upgrade
Route TT: Smith Drive to end of State maintenance.	$2,262,000	Major Arterial	Capacity Upgrade

Second Priority

(All Illustrative Projects)

Interstate 70: West urban limit to East urban limit	$627,997,000	Interstate	Capacity Upgrade
MO 740: U.S. Highway 63 to I-70.	$40,000,000	Freeway/Expressway	New Construction
MO 163: Southampton Drive to State Route K	$1,875,000	Freeway/Expressway	Capacity Upgrade
Route TT: Route UU to Scott Boulevard.	$5,111,040	Major Arterial	New Construction

Route PP: Robert Ray Drive to East urban limit.	$5,050,000	Major Arterial	Capacity Upgrade

Boone County Project Listings

First Priority

Gans Road: US Highway 63 to Bearfield Road	$7,128,000	Minor Arterial	New Construction
Waco Road: Highway 63 to City limits	$6,336,000	Minor Arterial	New Construction
Gans Road: Bearfield Road to Providence Road	$7,128,000	Minor Arterial	Capacity Upgrade

Second Priority

St. Charles Road: Clark Lane to Route Z	$19,800,000	Minor Arterial	New Construction
Northwest Loop Project: Creasy Springs Road to Providence Road	$23,000,000	Minor Arterial	New Construction
Providence Road: terminus to Hackberry Boulevard	$1,056,000	Minor Arterial	New Construction
Ponderosa Connector Project: near Boone County Public Works	$5,892,480	Neighborhood Collector	New Construction
Gans Creek Road: South extension	$633,600	Neighborhood Collector	New Construction
Rangeline Road: Route WW to New Haven Road	$6,336,000	Major Arterial	Capacity Upgrade
Kircher Road: Mt.Hope Road to Route HH	$7,920,000	Minor Arterial	Capacity Upgrade
Scott Boulevard: Brookview Terrace to Route KK	$15,312,000	Minor Arterial	Capacity Upgrade
Akeman Bridge Road/Wilhite Road: Route J to Route VV	$28,512,000	Major Collector	Capacity Upgrade
Westlake Road: Boothe Lane to Locust Grove Road	$4,752,000	Neighborhood Collector	Capacity Upgrade
Clearview Road: Brown School Road to dead end	$2,534,400	Neighborhood Collector	Capacity Upgrade
Hackberry Boulevard: Clearview Road to Providence Road	$5,702,400	Neighborhood Collector	Capacity Upgrade
Hatten Chapel Road: Route E to Locust Grove Road	$8,870,400	Neighborhood Collector	Capacity Upgrade
Bonne Femme Church Road: Old Highway 63 to Gans Creek Road	$6,732,000	Neighborhood Collector	Capacity Upgrade

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APPENDIX E:
AGENCY DESIGN STANDARDS

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Appendix E: Agency Design Standards

MoDOT - DESIGN STANDARDS

May be found on-line at the following link:

MoDOT – Agency Design standards may be found on-line at the following link:

http://www.modot.org/business/documents/PracticalDesignImplementation.pdf

ROAD CONSTRUCTION MINIMUM STANDARDS				
	Arterial	**Collector**	**Local**	**Commercial / Industrial**
ADT	>2500	750-2500	<750	By Land Use
Right of Way Width	100 ft.	66 ft.	50 ft.	66 ft.
Cul-de-sac R.O.W. Radius	N/A		47 ft.	66 ft.
Paving	Yes			
Curb and Gutter	See note #1			Yes
Design Speed	40 mph	30 mph	30 mph	30 mph
Minimum Pavement Radius at Intersecting Streets	30'			
Minimum Curve Radius	730 ft.	575 ft.	100 ft.	250 ft.
Maximum Grade	7%	8%	10%	7%
Minimum Grade	1 %			
Stopping Sight Distance	275-325 ft.	200 ft.		
K Value - Sag Curves	60-70	40		
Clear Zone	10 ft.			
Driveway Locations	See Appendix B-1, Drawings 410.01A & 410.01B			
Bridge Design Loading	HS20-44/3S2			
Roadway Cross-Sections	See Appendix B-1, Drawings 110.01-110.11			

NOTES:

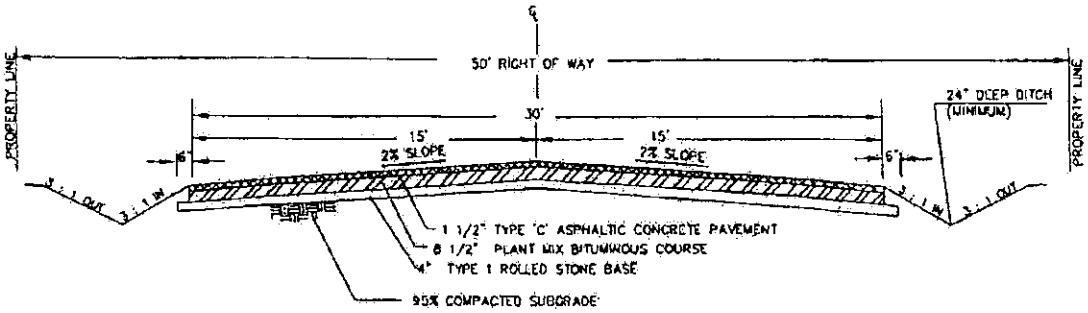
1. **Curb and gutter** requirements for new subdivisions will be stated in the Boone County Land Use Regulations, Chapter I, Subdivision Regulations dated June 17, 1995 as amended.

2. **All Corner Lots** – Driveway approaches and sidewalks shall be placed according to these regulations before roadways will be accepted for maintenance.

3. **All utilities** to be located within Right of Way must be installed before roadways will be accepted for maintenance.

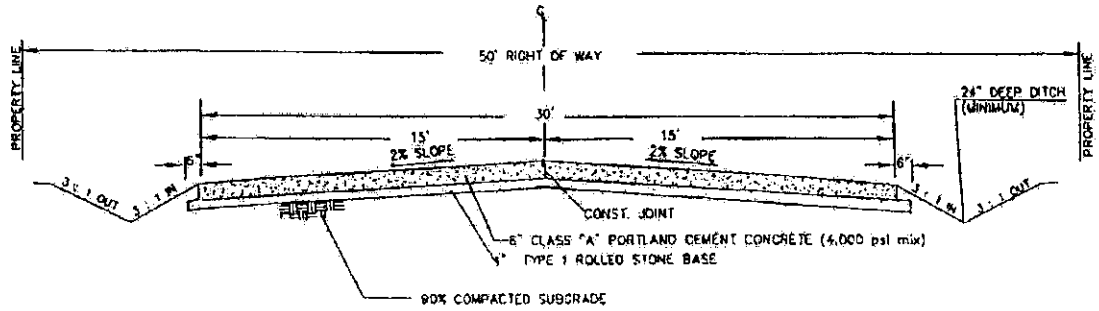
4. **All cul-de-sacs** shall be less than 1000 feet from the nearest street that has 2 outlets within the roadway system. Distance is measured from the centerline of the adjacent street to the center of the cul-de-sac.

5. **In cases** where the Subdivision Regulations and the Roadway Regulations conflict, the most stringent Standard shall apply



ASPHALT PAVEMENT WITH SHOULDERS

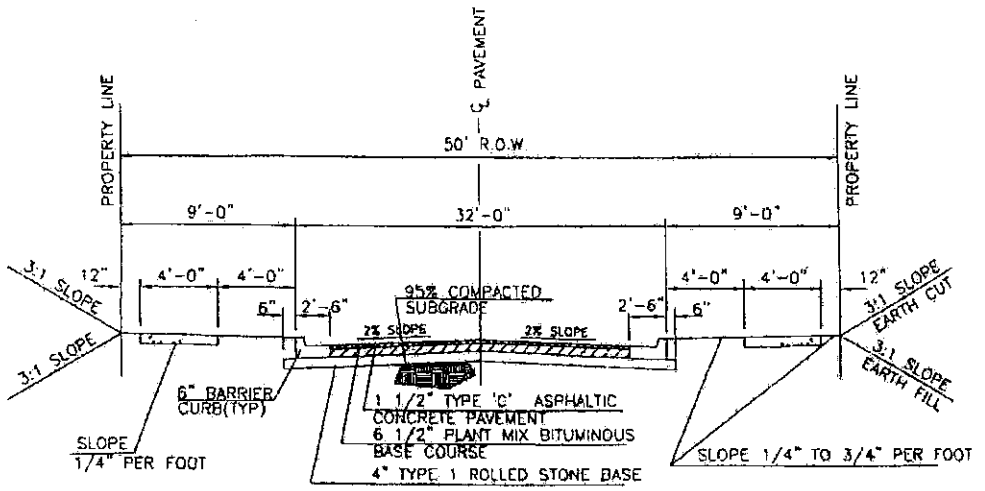
NTS



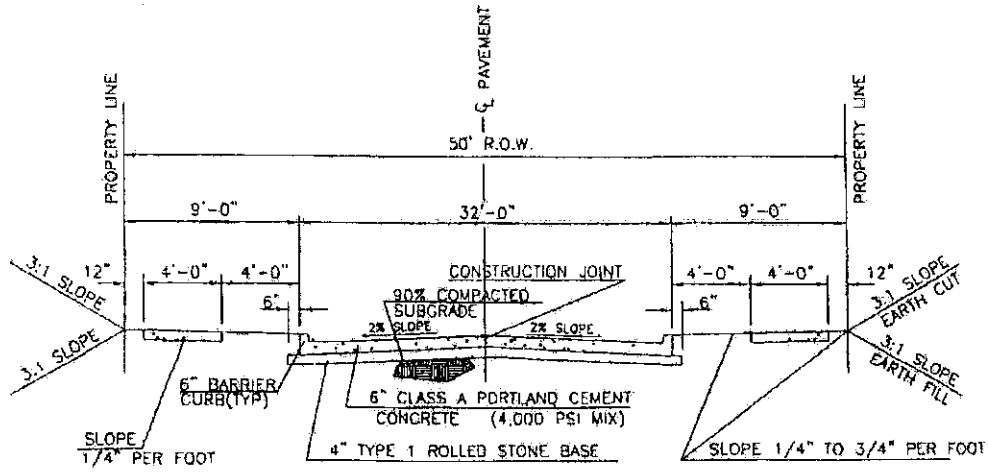
CONCRETE PAVEMENT WITH SHOULDERS

NTS

Approved 02/19/02 Date Revisions	COUNTY OF BOONE MISSOURI PUBLIC WORKS	LOCAL ROAD WITH SHOULDERS TYPICAL CROSS SECTIONS	110.01

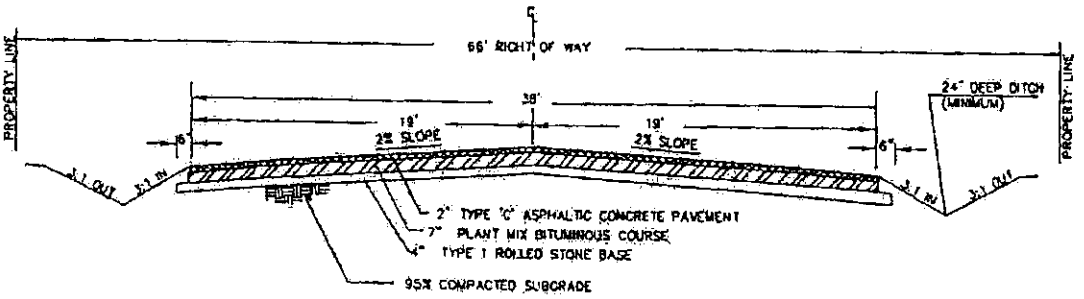


32 FT. ASPHALT PAVEMENT
(Standard)



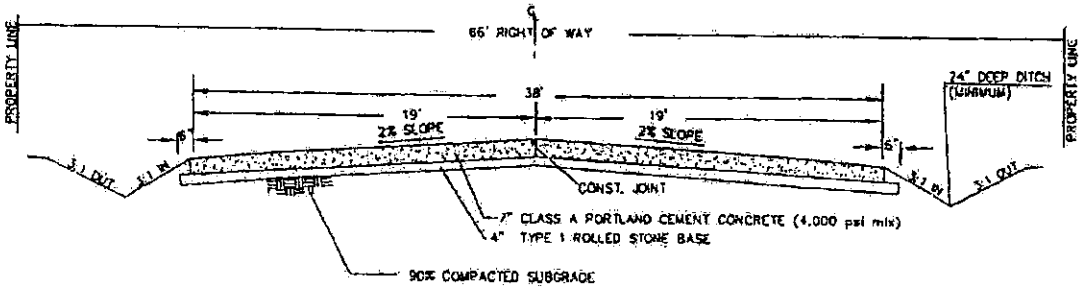
32 FT. P.C.C. PAVEMENT
(Standard)

Approved 02/19/02 Date Revisions	COUNTY OF BOONE MISSOURI PUBLIC WORKS	LOCAL ROAD WITH CURB AND GUTTER TYPICAL CROSS SECTIONS	110.02



ASPHALT PAVEMENT WITH SHOULDERS

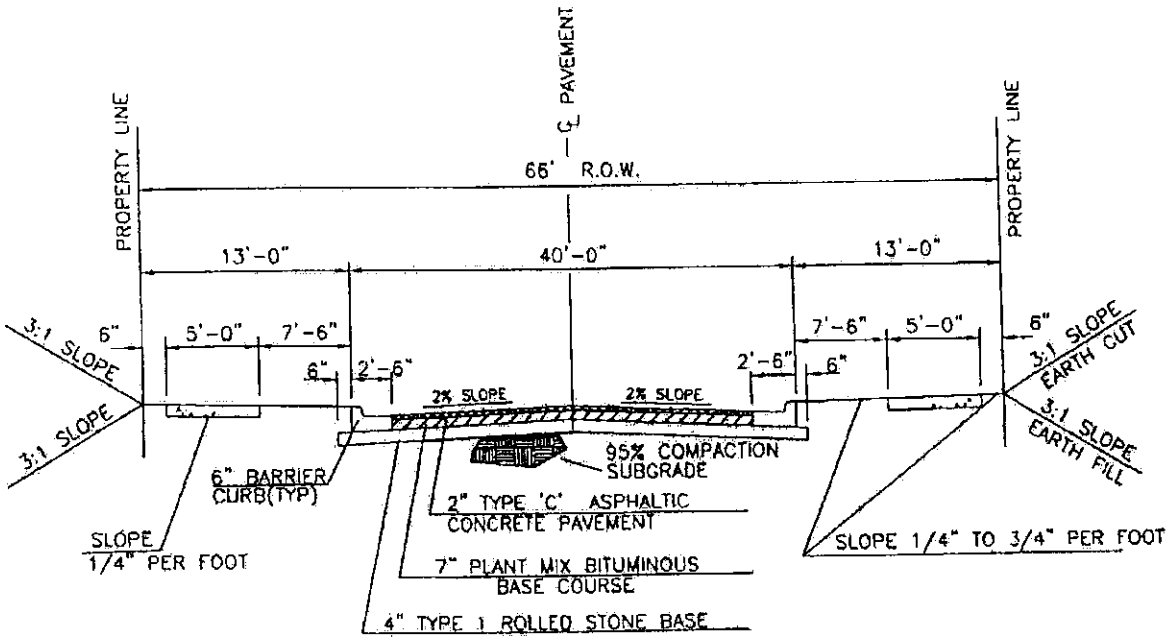
NTS



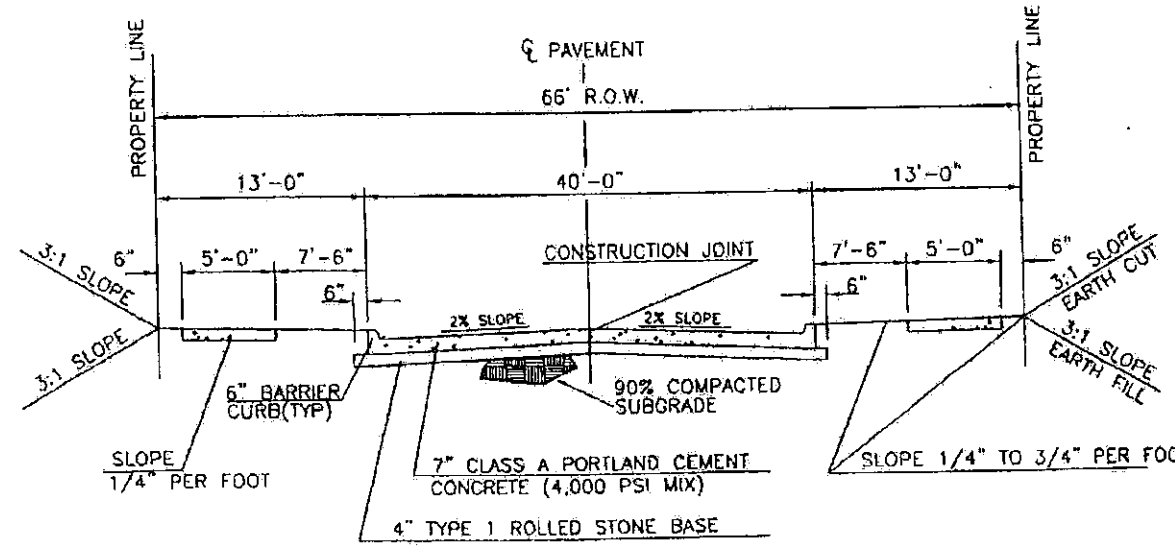
CONCRETE PAVEMENT WITH SHOULDERS

NTS

Approved 02/19/02 Date Revisions	COUNTY OF BOONE MISSOURI PUBLIC WORKS	COLLECTOR ROAD WITH SHOULDERS TYPICAL CROSS SECTIONS	110.03

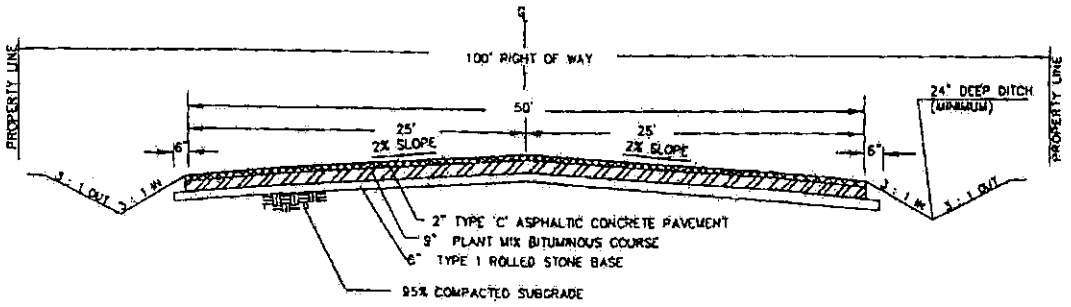


40 FT. ASPHALT PAVEMENT
(Standard)



40 FT. P.C.C. PAVEMENT
(Standard)

Approved 02/19/02 Date Revisions	PUBLIC WORKS	COLLECTOR ROAD WITH CURB AND GUTTER TYPICAL CROSS SECTIONS	110.04



ASPHALT PAVEMENT WITH SHOULDERS

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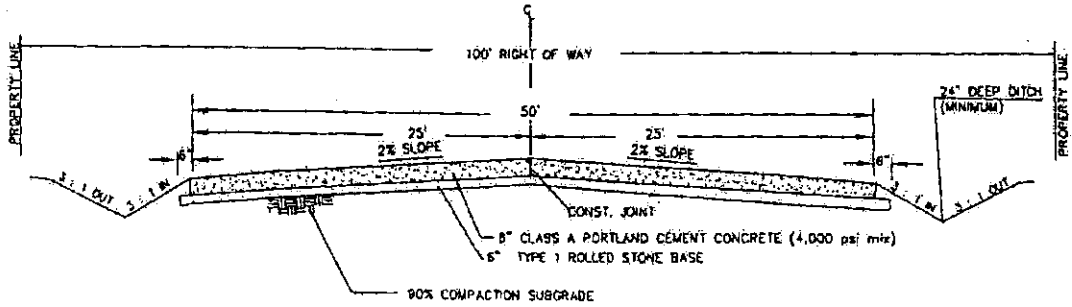
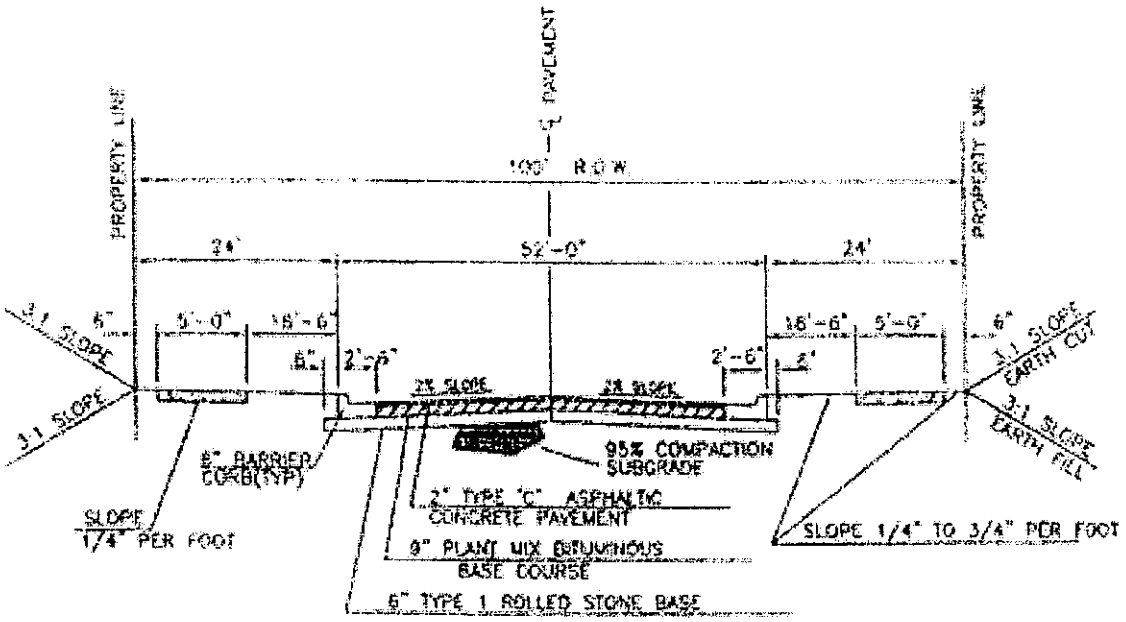


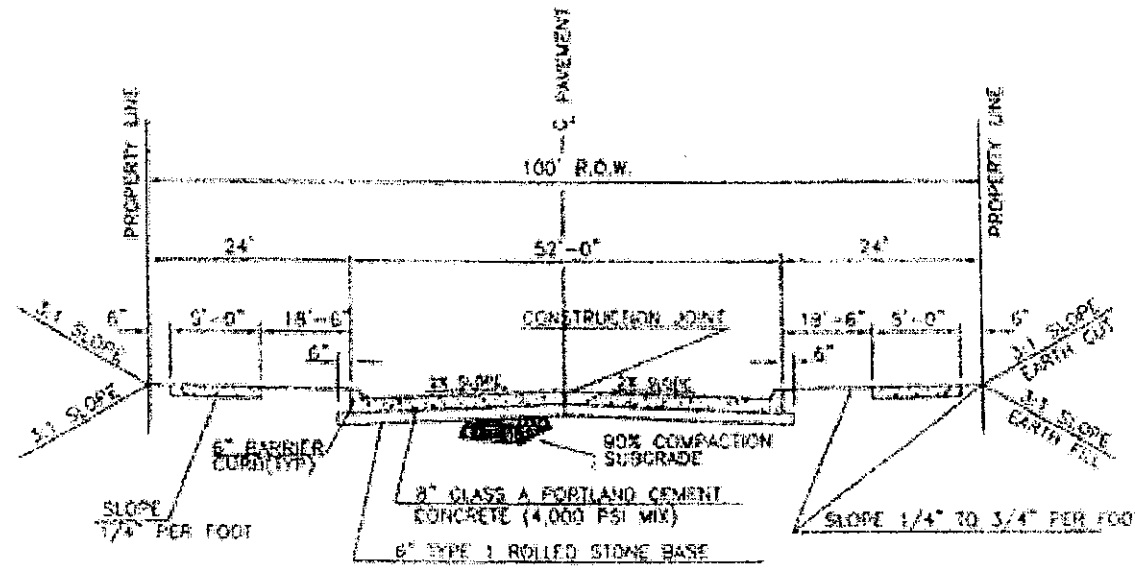
CONCRETE PAVEMENT WITH SHOULDERS

NTS

Approved 02/19/02 Date Revisions	COUNTY OF STONE MISSOURI PUBLIC WORKS	ARTERIAL ROAD WITH SHOULDERS TYPICAL CROSS SECTIONS	110.05

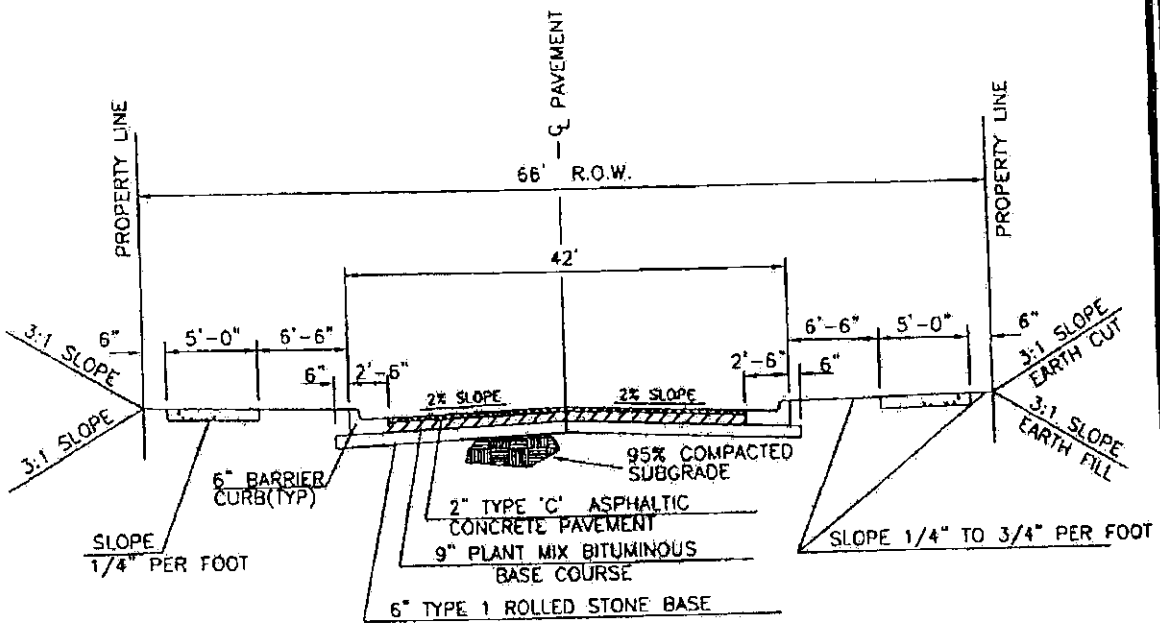


52 FT. ASPHALT PAVEMENT
(Standard)

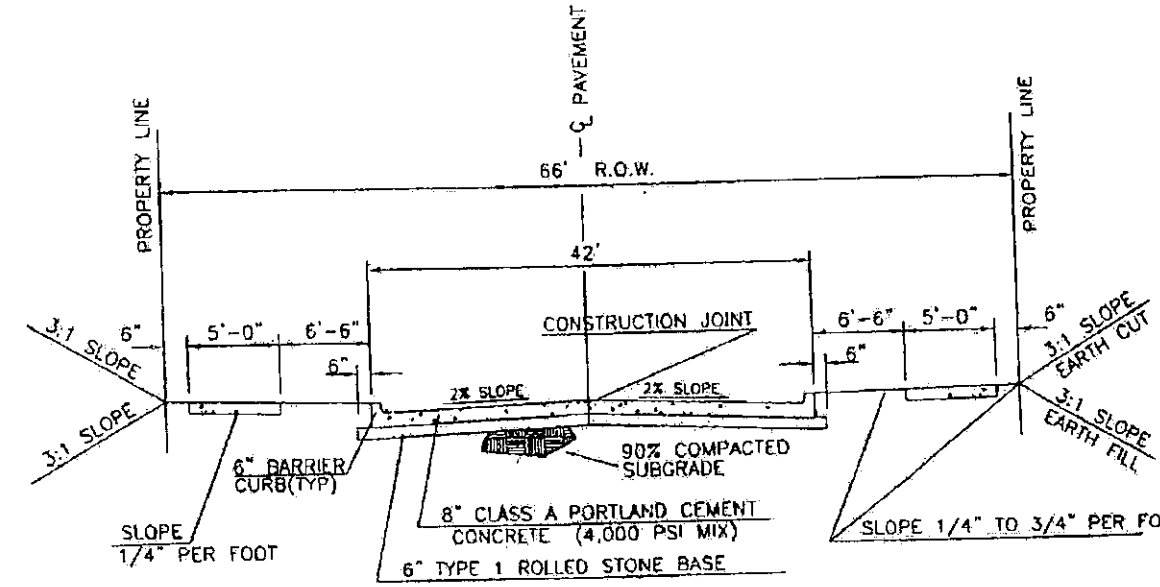


52 FT. P.C.C. PAVEMENT
(Standard)

Approved 5/11/04 Date Revisions	PUBLIC WORKS	ARTERIAL ROAD WITH CURB AND GUTTER TYPICAL CROSS SECTIONS	110.06

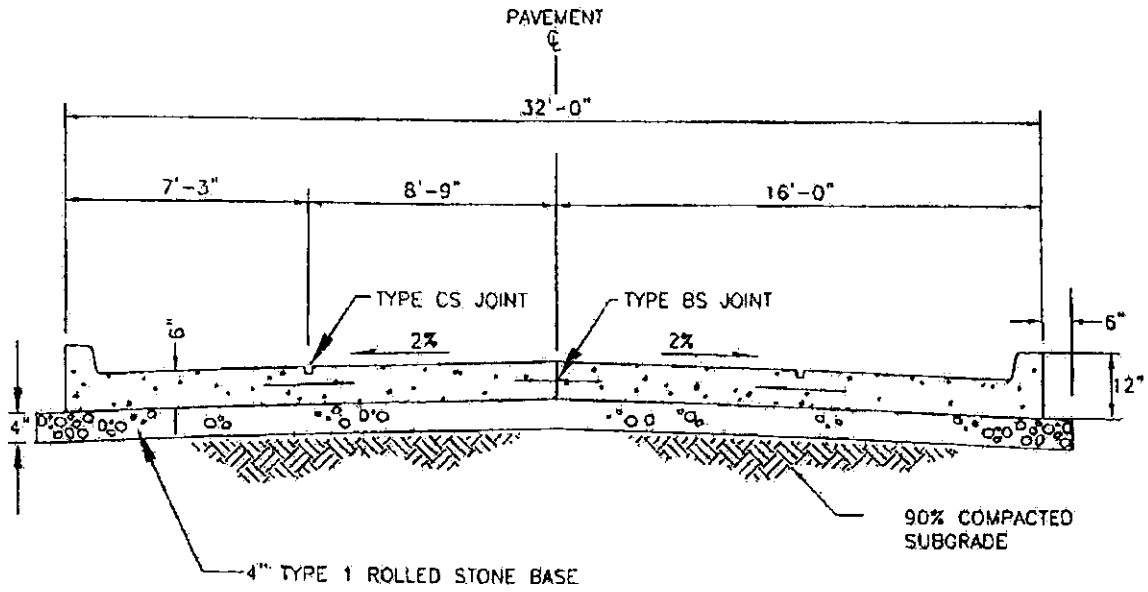


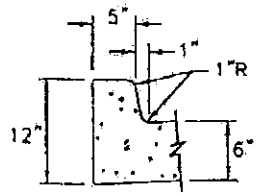
42 FT. ASPHALT PAVEMENT
(Standard)



42 FT. P.C.C. PAVEMENT
(Standard)

Approved 02/19/02 Date Revisions	PUBLIC WORKS	COMMERCIAL / INDUSTRIAL CURB AND GUTTER TYPICAL CROSS SECTIONS	110.07





INTEGRAL CURB SECTION

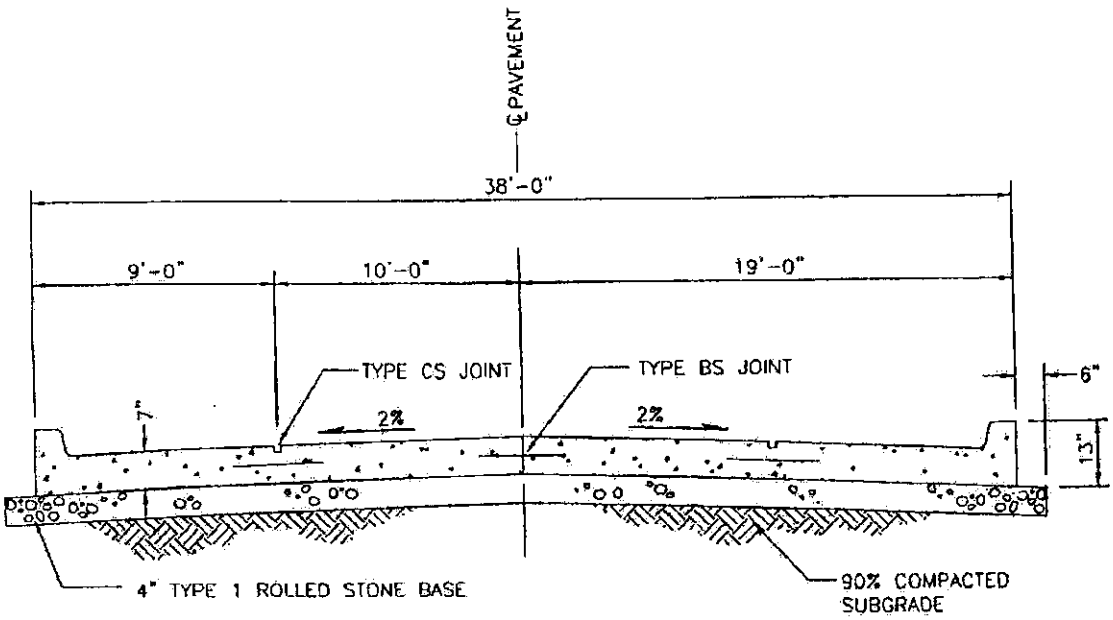
ALTERNATE: SEE DRAWING 400.02

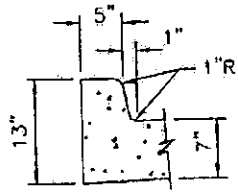
ROLLBACK CURB MAY BE USED. DESIGN ENGINEER SHALL PROVIDE CURB SECTION AND DESIGN STORMWATER IMPROVEMENTS TO MEET B.C.P.W. APPENDIX A. DESIGN ENGINEER MUST ALSO PROVIDE DESIGN FOR SIDEWALK RAMP CONNECTIONS WITH DETAILS.

NOTES:

1. ALL P.C. CONCRETE SHALL BE CLASS A.
2. SEE DETAIL 200.01A AND 200.01B FOR JOINT DETAILS.

Approved 02/19/02 Date Revisions	PUBLIC WORKS	LOCAL STREET (Concrete Pavement)	210.01





INTEGRAL CURB SECTION

NOTES:

1. ALL P.C. CONCRETE SHALL BE CLASS A.
2. SEE DETAIL 200.01A AND 200.01B FOR JOINT DETAILS.

Approved 02/19/02 Date Revisions	COUNTY OF BOONE MISSOURI PUBLIC WORKS	COLLECTOR STREET (Concrete Pavement)	220.01

The City of Columbia, street design standards are available on-line at the links below:

http://www.gocolumbiamo.com/Council/Code_of_Ordinances_PDF/Street_Standards/Appendix_A.pdf

http://www.gocolumbiamo.com/Council/Code_of_Ordinances_PDF/Street_Standards/local_non_res_6_7_04.pdf

http://www.gocolumbiamo.com/Council/Code_of_Ordinances_PDF/Street_Standards/local_res_6_7_04.pdf

http://www.gocolumbiamo.com/Council/Code_of_Ordinances_PDF/Street_Standards/major_art_6_7_04.pdf

http://www.gocolumbiamo.com/Council/Code_of_Ordinances_PDF/Street_Standards/major_coll_6_7_04.pdf

http://www.gocolumbiamo.com/Council/Code_of_Ordinances_PDF/Street_Standards/minor_art_6_7_04.pdf

http://www.gocolumbiamo.com/Council/Code_of_Ordinances_PDF/Street_Standards/neigh_coll_6_7_04jpg.pdf

City of Columbia

Design Standards for Streets, Sidewalks and Bikeways – 6/07/04

Purpose and Intent

The 2025 Transportation Plan established a functional classification system consisting of Major Arterials, Minor Arterials, Major Collectors and Neighborhood Collectors. In developing new design standards, it was determined that local residential and local non-residential streets should also be included. This provides for an integrated street system.

A roadway system must balance the conflicting goals of traffic movement and access to land. Arterials are primarily for the movement of through traffic; collectors provide equal attention to land access and through traffic; and local streets provide access to individual parcels of land at the expense of through traffic. Selecting the proper roadway design for each functional classification is vital to development of a system of roadways which provides the needed connectivity between all areas of the city as well as the capacity to handle future traffic volume.

Design elements encompassing right of way width, pavement width, number of travel lanes, bike lane width, use of curb and gutter, sidewalk and pedway width, parking, driveways, buffer strip width, and utility easements must be appropriately selected to provide the function, character, traffic volume and speed desired.

Major streets serve a development pattern that ranges from low density residential to intensely developed commercial centers and corridors. To meet such varied conditions and address neighborhood livability factors requires an array of design approaches. A "one standard fits all" is not consistent with traffic needs or the wide variety of situations encountered.

In several of the street types, an alternative design will be considered or may be required when conditions specified in the standards are found to exist. This language was drafted specifically to allow a design appropriate for the land use and traffic conditions being created by a proposed development. The alternative design may be requested by the developer or recommended by city staff or the Planning and Zoning Commission. Criteria are included to provide guidance in selecting the proper street design to match the expected conditions. If the alternative design exceeds the standard design for a particular street type, it shall be presumed to satisfy these requirements. In all other cases, the final decision shall rest with the City Council.

Application of Design Standards

The design standards are intended to result in a more predictable and acceptable outcome for street improvements. Due to the wide range of circumstances, however, the standards need to be applied with a certain amount of flexibility. Street construction activity consists of building completely new streets as well as making minor improvements to existing streets. Many existing streets will not be changed at all in the next several years while others will be candidates for additional lanes, intersection reconfiguration, or major reconstruction. Unlike new streets, existing streets have physical constraints to being retrofitted to meet new

standards due to a narrow right of way or the proximity of buildings, utilities or mature trees. Additionally, adjacent property owners often voice concern about more traffic, speeding, noise, storm water runoff, and other issues.

To deal with the application issue, two categories of improvements have been developed. Major projects consist of significant improvements to the street system and the design standards are to be interpreted as requirements. In situations where it is not feasible, practical or desirable for a proposed street improvement to meet the required standards, a design exception may be considered and approved by the City Council as part of the public hearing process. Major projects include:

- Construction of a new street
- Major reconstruction of an existing street (e.g. upgrade to city standards)
- Major widening of an existing street (e.g. addition of one or more lanes)

For minor improvements the design standards are regarded as a guideline rather than an absolute requirement. In such cases, if the standards are not attainable a design exception will not be required. Minor projects include:

- Resurfacing or partial reconstruction of the pavement
- Installation of traffic calming devices
- Intersection improvements (e.g. traffic signals, turn lanes, etc.)
- Reconstruction resulting in incidental widening
- Installing bike lanes or sidewalks on existing streets

Major projects typically entail significant citizen input in evaluating location and design alternatives. Meetings are held with interested parties such as property owners and residents followed by public hearings by the City Council. Citizen input on Minor projects varies. Resurfacing usually involves public notice but little citizen involvement whereas traffic calming measures can entail extensive citizen participation in the location and design process.

In regards to private development, the proposed standards would normally only apply to undeveloped land that is being platted for the first time. The standards could, however, apply to a previously developed area under two circumstances:1) the area is being replatted to create a different street and lot layout for redevelopment and the construction of new buildings; and 2) the area is being rezoned to allow more intensive development (e.g. changing from residential to commercial and thus from residential to non-residential streets).

Local Residential Street Design Standards

Residential Streets provide direct access to residential dwellings and other allowed uses. They should be designed for this intended function and exhibit characteristics which contribute to a safe and attractive living environment. This can be achieved by providing a diversity of street types, each serving a specific role. Right of way and pavement widths less than the general standard should provide acceptable levels of access, safety and convenience for all users, including emergency service providers, while enabling enhanced site design and creation of attractive streetscapes. Subdivision layouts should avoid the

creation of pass through routes for external traffic while allowing local drivers to move easily to and from higher order streets.

The design standard for a **Residential Street** shall be as follows:

1. Right-of-way: 50 feet wide
2. Pavement: 28 feet wide measured from back of curb
3. Turnarounds: Terminal streets shall have a turnaround at the closed end with an outside right-of-way diameter of 94 feet and a roadway pavement diameter of 76 feet.
4. Drainage: Curb and gutter system.
5. Sidewalks: 5 feet wide on both sides constructed 1 foot inside the right-of-way.
6. Parking: Permitted on both sides of the street.
7. Buffer Strip: 5 feet wide with trees permitted in the right-of-way subject to compliance with city policies and regulations.
8. Utility Easements: 10 feet on both sides adjacent to the right-of-way. The city and public utility providers will not be responsible for the restoration of any landscaping placed within utility easements that is removed or damaged as a result of constructing, repairing or maintaining public utilities.

In place of the typical Residential Street, a request may be submitted at the time of preliminary plat review for approval of one or more of the following alternative streets:

A **Residential Feeder** will be considered or may be required when one or more of the following conditions exist: 1) the intended use and adjacent zoning allows duplex or multi-family dwellings; 2) the expected average daily traffic (ADT) exceeds 500; or 3) the street collects localized traffic within a subdivision and leads to a collector or arterial street. A Residential Feeder shall conform to the following design standards:

1. Right-of-way: 50 feet wide
2. Pavement: 32 feet wide measured from back of curb
3. Sidewalks: 5 feet wide on both sides constructed 1 foot inside the right-of-way.
4. Buffer Strip: 3 feet wide with only ornamental trees permitted.
5. Other Features: Same as a Residential Street

An **Access Street** will be considered when all of the following conditions exist: 1) the intended use and adjacent zoning is single-family detached dwellings; 2) the street is not longer than 750 feet, and 3) the expected average daily traffic (ADT) is less than 250. An Access Street shall conform to the following design standards:

1. Right-of-way: 44 feet wide

2. Pavement: 24 feet wide measured from back of curb

3. Turnarounds: Terminal streets shall have a turnaround at the closed end with an outside right-of-way diameter of 94 feet and a roadway diameter of 76 feet.

4. Sidewalks: Same as a Residential Street, except sidewalks shall not be required on cul-de-sacs less than 250 feet in length.

5. Parking: Permitted on one side only

6. Other Features: Same as a Residential Street

The design standard for **Residential Alleys** shall be as follows:

1. Right of Way: 18 feet wide

2. Pavement: 16 feet wide measured from edge of pavement (no curb and gutter)

3. Travel Lanes: Two-way traffic allowed

4. Maximum Length: 500 feet between connecting streets

5. Parking: Parking in alley prohibited

6. Setbacks: Garages, carports and open parking spaces shall be set back at least 5 feet from the right of way.

7. Utility Lines: Both overhead and underground utility lines may be installed in the right of way.

Local Non-Residential Street Design Standards

A Non-Residential Street ***is a low volume, low speed street which provides access to commercial, industrial, institutional, and other intensive land uses. Generally, only two travel lanes are needed. In some cases, these streets may carry considerable truck traffic, require wider driveways for access to loading docks, and have a need for on-street parking. Direct connections to collector and arterial streets are essential.***

The design standard for a **Non-residential Street** shall be as follows:

1. Right-of-way: 66 feet wide

2. Pavement: 36 feet wide measured from back of curb

3. Turnarounds: Terminal streets shall have a turnaround at the closed end with an outside right-of-way diameter of 94 feet and a roadway diameter of 76 feet.

4. Sidewalks: 5 feet wide on both sides constructed 1 foot inside the right-of-way.

5. Parking: Permitted on both sides of the street.

6. Buffer Strip: 9 feet wide with trees permitted in the right-of-way subject to compliance with city policies and regulations.

7. Utility Easements: Same as a standard Residential Street

In place of the typical Non-residential Street, a request may be submitted at the time of preliminary plat review for approval of one or more of the following alternatives:

An **Option A** street will be considered when two or more of the following conditions exist: 1) the intended use and adjacent zoning is commercial, light industrial, office, and/or multi-family residential; 2) the expected average daily traffic (ADT) is less than 4,000; 3) the street is primarily intended to provide access to property and secondarily to serve through traffic; and 4) there is a nearby collector or arterial street to accommodate future traffic from surrounding land.

Option A streets shall conform to the following design standards:

1. Right-of-way: 60 feet wide

2. Pavement: 30 feet wide measured from back of curb

3. Parking: Not permitted on either side.

4. Other features: Same as a typical Non-residential Street

An **Option B** street will be considered when all of the following conditions exist: 1) the intended use and adjacent zoning is office and/or multi-family residential; 2) the street is not longer than 750 feet; 3) the expected average daily traffic is less than 1,000; 4) the street is intended to provide access to property and not serve through traffic; and 5) there is a nearby collector or arterial street to accommodate future traffic from the development of surrounding land.

Option B streets shall conform to the following design standards:

1. Right-of-way: 60 feet wide

2. Pavement: 30 feet wide measured from back of curb

3. Parking: Permitted on one side only

4. Buffer Strip: 9 feet wide with trees permitted as a typical Non-residential Street

5. Other features: Same as a typical Non-residential Street

An **Option C** street will be considered or may be required when two or more of the following conditions exist: 1) the intended use and adjacent zoning is intensive commercial and/or industrial; 2) the expected average daily traffic exceeds 4,000; 3) the street will serve a significant amount of through traffic; 4) the street will connect to two collector or arterial streets; 5) there will be a significant number of left turns to and from abutting driveways; and 6) there will be a significant amount of truck traffic.

Option C streets shall conform to the following design standards:

1. Right-of-way: 66 feet wide

2. Pavement: 38 feet wide measured from back of curb to provide for two 13' travel lanes and a 12' two-way center turn lane.

1. Turnarounds: Terminal streets are not permitted

2. Parking: Not permitted on either side

3. Other Features: Same as a typical Non-residential Street

Neighborhood Collector Street Design Standards

A **Neighborhood Collector** is intended to collect traffic from surrounding residential areas and connect to major streets; serve local, non-residential land uses such as schools, churches, and parks; and promote neighborhood livability. These streets provide two traffic lanes for shared use by vehicles and bicycles at low to moderate driving speeds (30 mph), accommodate an average daily traffic volume of 1,500-3,500 vehicles, and generally, connect to only one arterial or major collector street. They may also provide direct access to property and contain on-street parking. Two types of Neighborhood Collector streets are allowed. Either type may be required or proposed provided a statement of justification is submitted for the subject location.

Option A streets are intended to provide direct access to property and provide some periodic on-street parking for abutting uses. The design standard shall be as follows:

1. Right-of-way: 60 feet wide

2. Pavement: 34 feet wide measured from back of curb

3. Travel Lanes: Two travel lanes each 13.5 feet wide

4. Sidewalks: 5 feet wide on both sides constructed 1 foot inside the right-of-way.

5. Parking: Permitted on one side of the street only. A bulb-out may be built near intersections to create recessed parking, calm traffic and assist pedestrians.

6. Driveways: Permitted on both sides of the street.

7. Buffer Strip: 7 feet wide with trees permitted in the right-of-way subject to compliance with city policies and regulations.

8. Utility Easements: Same as a standard Residential Street

Option B streets are intended to primarily collect neighborhood traffic and not provide direct access to property. The design standard shall be as follows:

1. Right-of-way: 60 feet wide
2. Pavement: 30 feet wide measured from back of curb
3. Travel Lanes: Two shared travel lanes each 15 feet wide
4. Sidewalks: 5 feet wide on both sides constructed 1 foot inside the right-of-way.
5. Parking/Driveways: Not permitted on either side
6. Buffer Strip: 9 feet wide with trees allowed as for Option A streets
7. Other features: Same as Option A streets

Major Collector Street Design Standards

A **Major Collector** is a mid-volume, multi- modal street (average daily traffic of 3,500-8,500 vehicles) which collects traffic from several neighborhoods and moves the traffic to the arterial network. These streets provide access to retail centers, office complexes, institutional uses such as colleges and hospitals, and multi-family residential areas. Major collectors typically have two, undivided travel lanes with a left turn lane at key intersections. A two-way center turn lane or intermittent raised median may be provided to manage access at high traffic locations. Typically, direct access to one and two-family residences is prohibited with consolidated driveways allowed for other uses when controlled as to location. No on-street parking is permitted.

The design standard for a **Major Collector** street shall be as follows:

1. Right-of-way: 66 feet wide
2. Pavement: 36 feet wide measured from back of curb
3. Travel Lanes: Two lanes each 12 feet wide
4. Bike Lanes: Striped bike lane on both sides 6 feet from back of curb
5. Sidewalks: 5 feet wide on both sides constructed 1 foot inside the right-of-way.
6. Parking: Not permitted on either side
7. Driveways: Controlled as to location and width for access management purposes.
8. Buffer Strip: 9 feet wide with trees permitted in the right-of-way located 4 feet from edge of street and sidewalk subject to compliance with city policies and regulations.

9. Utility Easements: Same as a standard Residential Street

In place of the typical Major Collector, a request may be submitted at the time of preliminary plat review for approval of one or more of the following alternative streets:

An **Option A** street will be considered or may be required when the following conditions exist: 1) the intended use and zoning of nearby land is one or two-family residential and/or large open land areas such as parks, churches, and schools; and 2) the street is intended to serve through traffic and not provide direct access to property.

Option A streets shall conform to the following design standards:

1. Right-of-way: 66 feet wide
2. Pavement: 32 feet wide measured from back of curb
3. Travel Lanes: Two shared use travel lanes each 16 feet wide
4. Bike Lanes: No striped bike lanes
5. Sidewalk/Pedway: A 5 foot wide sidewalk on one side and an 8 foot wide pedway on the other side constructed 1 foot inside the right of way.
6. Parking: Not permitted on either side
7. Driveways: Not permitted on either side
8. Buffer Strip: 9-10 feet wide with trees permitted as for a typical Major Collector
9. Other features: Same as a typical Major Collector

An **Option B** street will be considered or may be required when one or more of the following conditions exist: 1) the intended use and/or zoning of adjacent land is retail commercial, office, institutional or multi-family residential; 2) the expected average daily traffic exceeds 6,000; and 3) the street will or is likely to connect to two arterial streets.

Option B streets shall conform to the following design standards:

1. Right-of-way: 76 feet wide
2. Pavement: 44 feet wide measured from back of curb
3. Travel Lanes: Two shared use travel lanes each 16 feet wide plus a center two-way left-turn lane 12 feet wide.
4. Bike Lanes: No striped bike lanes
5. Pedway/Sidewalk: An 8 foot wide Pedway on one side and a 5 foot wide sidewalk on the other side constructed 1 foot inside the right of way.

6. Parking: Not permitted on either side
7. Driveways: Controlled as to location and width for access management purposes.
8. Buffer Strip: 8-9 feet wide with trees permitted as for a typical Major Collector
9. Other features: Same as a typical Major Collector

Minor Arterial Street Design Standards

A **Minor Arterial** is a mid-to-high volume multi-modal street (average daily traffic of 7,500-20,000 vehicles) which moves a large portion of internal city traffic. Minor Arterials usually connect to Major Arterials or Expressways and provide access to such traffic destinations as retail shopping areas, employment centers, and many residential neighborhoods. These streets have a minimum of two, undivided travel lanes but may have up to four travel lanes with a raised median and left turn lane at intersections to manage traffic access. Typically, direct access to property is restricted and no on-street parking is permitted.

Three types of Minor Arterial streets are permitted. Each type may be allowed or required depending upon the surrounding land use pattern, traffic conditions or other circumstances.

An **Option A** street will be considered or may be required when the intended use or zoning of nearby land is predominantly residential or large open land areas such as parks, churches, and schools. Option A streets shall conform to the following design standards:

1. Right of way: 84 feet wide
2. Pavement: Total width is 40 feet measured from edge of shoulder.
3. Travel Lanes: Two lanes, each 12 feet wide.
4. Paved Shoulder: 8 feet on each side for bikes and emergency parking.
5. Drainage: Open channel or swale system without curb and gutter.
6. Sidewalk: 5 feet wide on one side constructed 1 foot inside the right-of-way.
7. Pedway: 8 feet wide on one side constructed 1 foot inside the right of way.
8. Parking: Not permitted on either side.
9. Driveways: Controlled as to location and width for access management purposes.
10. Buffer Strip: 14-15 feet wide on each side. Trees permitted in the right of way when located outside of the drainage channel and 4 feet from edge of sidewalk or Pedway subject to compliance with city policies and regulations.
11. Utility Easements: Same as a standard Residential Street.

An **Option B** street will be considered or may be required when the following conditions exist: 1) the intended use or zoning of nearby land is residential or large open land areas such as parks, churches, and schools; and 2) the average daily traffic volume of the street is projected to exceed 15,000 vehicles in 20 years. Option B streets shall conform to the following design standards:

1. Right of way: 100 feet wide

2. Pavement: Total width is 40 feet measured from edge of shoulder.

3. Travel Lanes: One 12 feet wide lane on each side of a 12 feet center median.

4. Other Features: Same as Option A

An **Option C** street will be considered or may be required when the intended use or zoning of adjacent land is predominantly commercial, industrial, office, or institutional. Option C streets shall conform to the following design standards:

1. Right-of-way: 84 feet wide

2. Pavement: 48 feet wide measured from back of curb

3. Travel Lanes: Two 12 feet wide travel lanes plus a 12 feet wide center, two-way left turn lane.

4. Bike Lanes: Striped 6 feet wide bike lane on each side measured from back of curb

5. Drainage: A curb and gutter system is most common

6. Buffer Strip: 10 feet wide on each side. Trees permitted in the right of way when located 6 feet from edge of street and 4 feet from edge of sidewalk or Pedway subject to compliance with city policies and regulations.

7. Other Features: Same as Option A

Major Arterial Street Design Standards

A **Major Arterial** is a high volume multi-modal street (average daily traffic of 15,000 or more vehicles) which handles the bulk of through traffic within the city. Major Arterials connect to expressways and freeways as well as provide access to major traffic destinations such as regional shopping centers and major universities. These streets usually have at grade intersections which are spaced well apart. It is very common for Major Arterials to have four lanes with a continuous raised median except for a left turn lane at major intersections. Direct access to property is usually prohibited or limited to right-in, right-out and no on-street parking is permitted.

Two types of Major Arterial streets are permitted. Each type may be allowed or required depending upon the surrounding land use, traffic conditions or other circumstances.

An **Option A** will be considered or may be required when vehicle speeds are moderate, right of way is limited, and access is restricted thereby mitigating the need for a median. Option A streets shall conform to the following design standards:

1. Right of way: 106 feet wide

2. Pavement: Total width of 60 feet measured from back of curb or edge of pavement

3. Travel Lanes: Four lanes each 12 feet wide

4. Bike Lanes: Striped 6 feet wide bike lane on each side measured from back of curb

5. Drainage: May be built with curb and gutter or an open swale

6. Sidewalk: 5 feet wide on one side constructed 1 foot inside the right-of-way

7. Pedway: 8 feet wide on one side constructed 1 foot inside the right of way

8. Parking: Not permitted on either side

9. Driveways: Controlled as to location and width for access management purposes.

10. Buffer Strip: 14-17 feet wide on each side. Trees permitted in the right of way located 10 feet from edge of street and 4 feet from edge of sidewalk or Pedway subject to compliance with city policies and regulations.

11. Utility Easements: Same as a standard Residential street.

An **Option B** street will be considered or may be required when the projected average daily traffic volume of the street could reasonably exceed 20,000 vehicles in 20 years and/or the street connects to a freeway or expressway. Option B streets shall conform to the following design standards:

1. Right of way: 110 feet wide

2. Pavement: Total width of 52 feet measured from back of curb or edge of pavement

3. Travel Lanes: One 12 feet wide inner lane and one 14 feet wide outer lane on each side of a 16 feet wide center median which may include a 12' wide left-turn lane at intersections.

4. Bike Lanes: No bike lane on either side

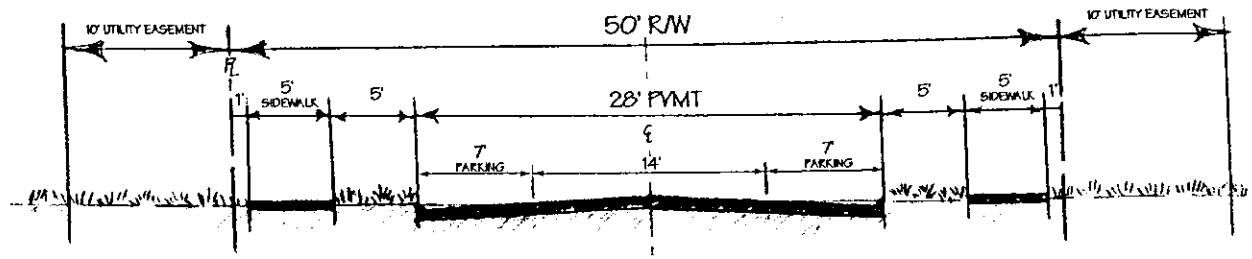
5. Sidewalk: 5 feet wide on one side constructed 1' inside right of way

6. Pedway: 10' wide on one side constructed 1' inside right of way

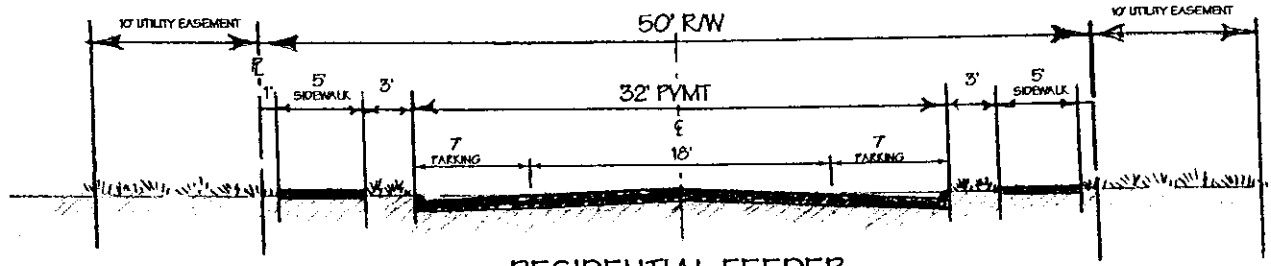
7. Buffer Strip: 12-13 feet wide on each side. Trees permitted in the right-of-way located 8 feet from edge of street and 4 feet from edge of sidewalk or Pedway subject to compliance with city policies and regulations.

8. Other Features: Same as Option A

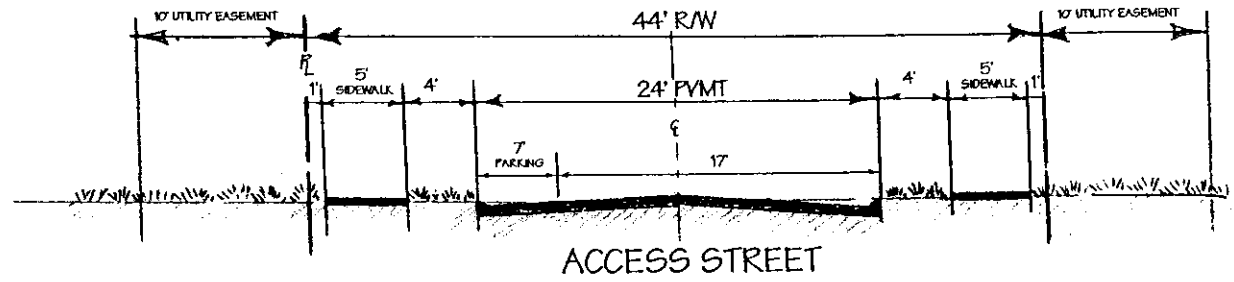
Requests for exceptions to the above design standards may be submitted at the time of preliminary plat review and shall be processed as a variance as provided by the Subdivision Regulations.



RESIDENTIAL STREET



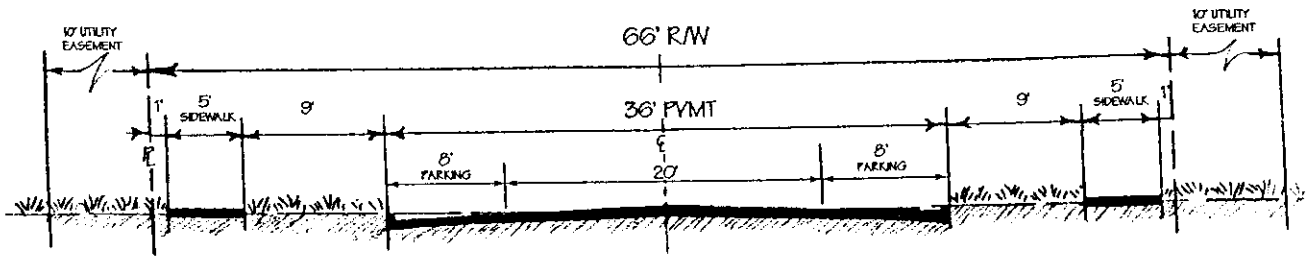
RESIDENTIAL FEEDER



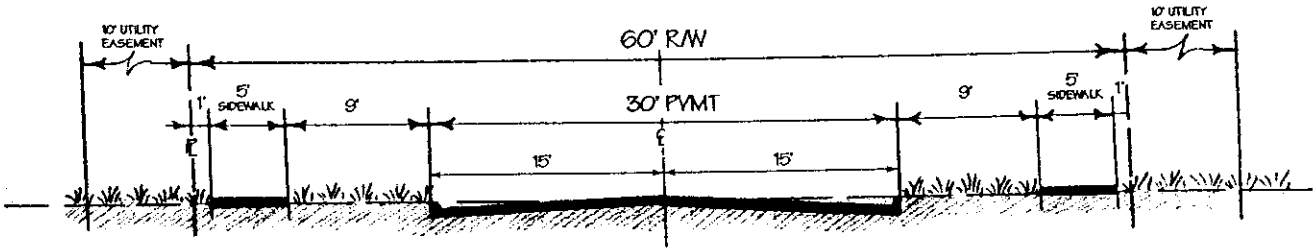
ACCESS STREET

Local Residential Street Standards

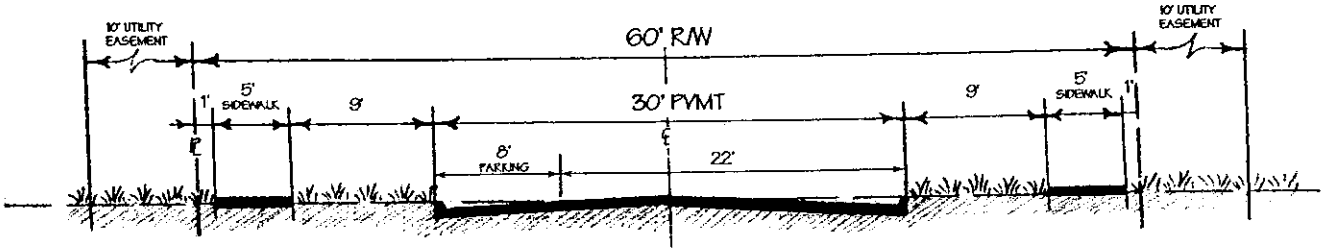
(Revised 6/7/04)



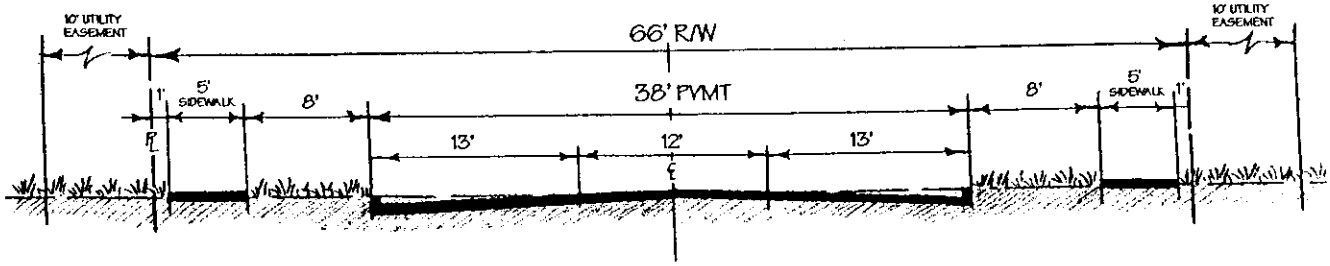
NON-RESIDENTIAL STREET



OPTION 'A'



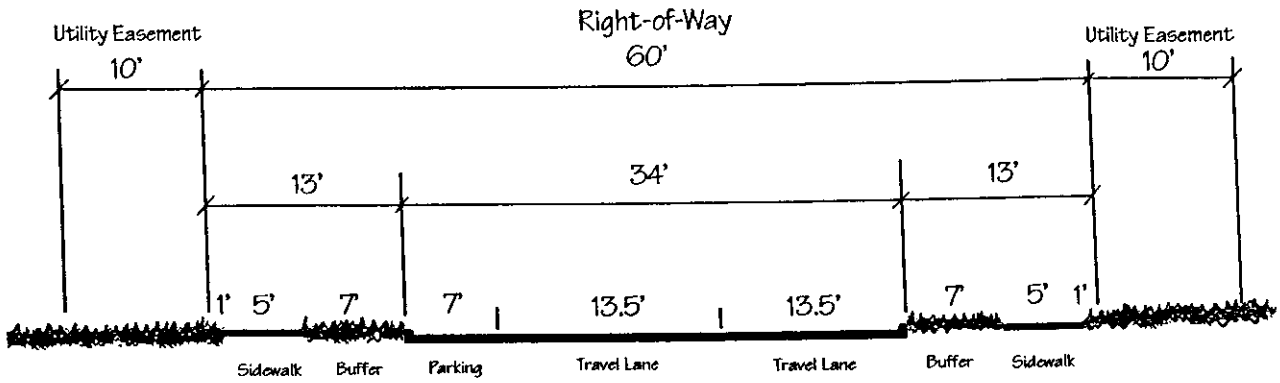
OPTION 'B'



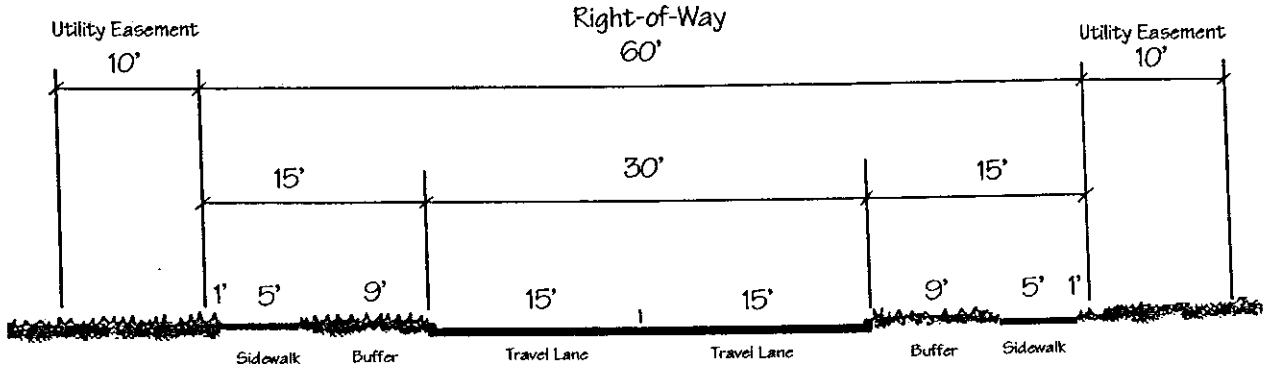
OPTION 'C'

Local Non-Residential Street Standards

(Revised 12/17/03)



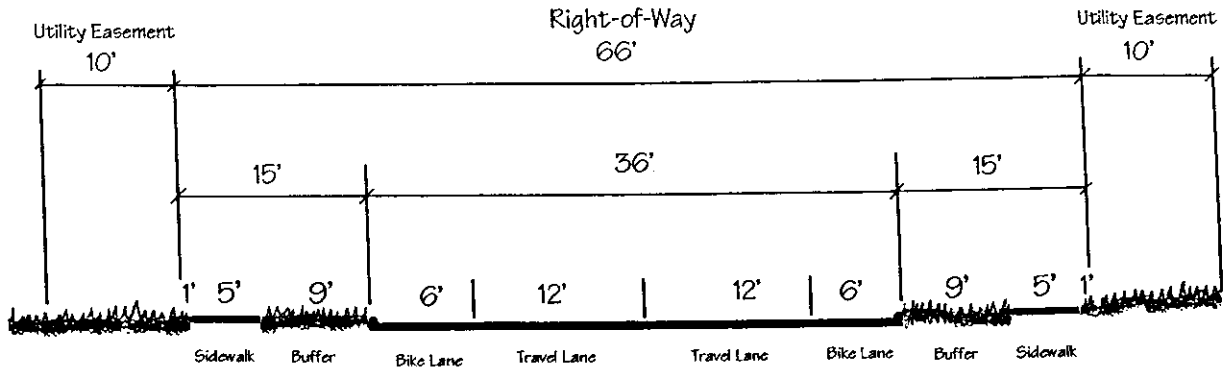
Neighborhood Collector 'Option A'



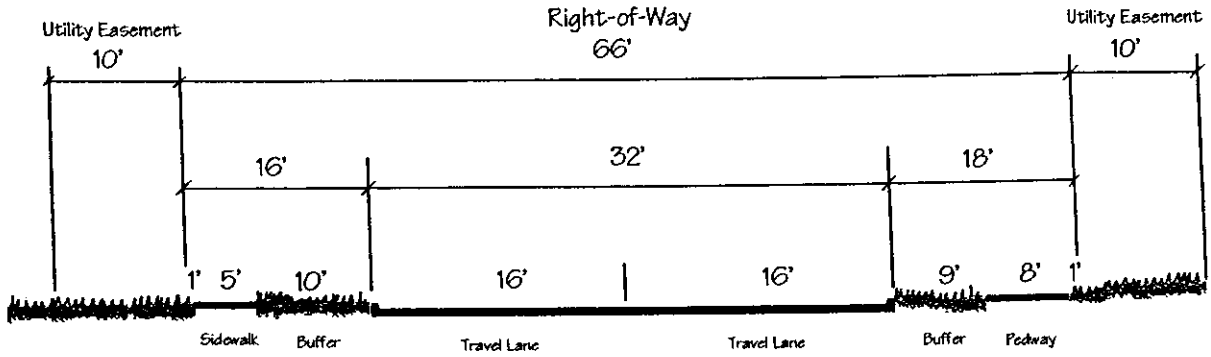
Neighborhood Collector 'Option B'

Neighborhood Collectors

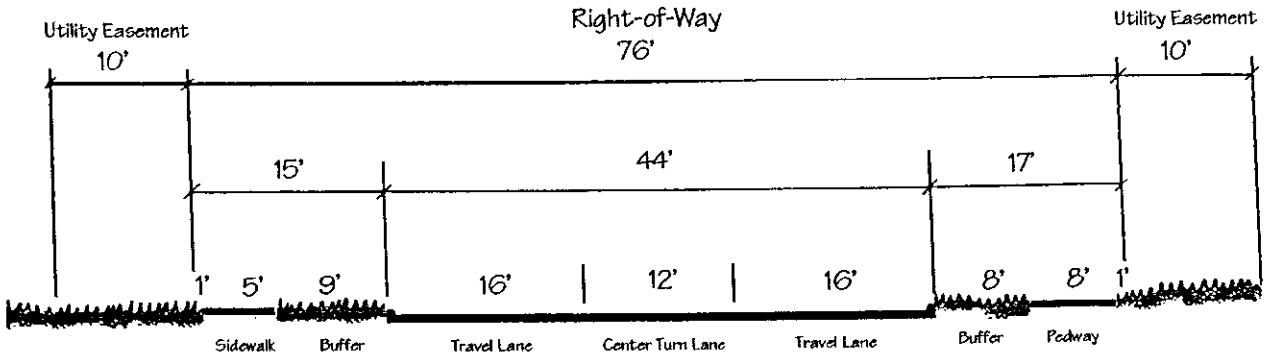
(Revised 12/17/03)



Major Collector



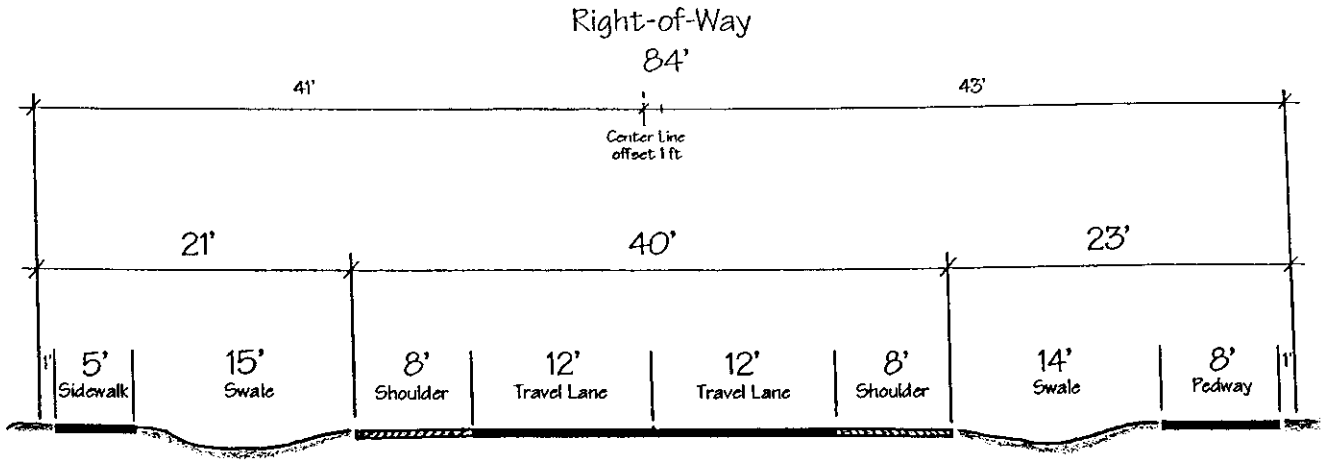
Major Collector 'Option A'



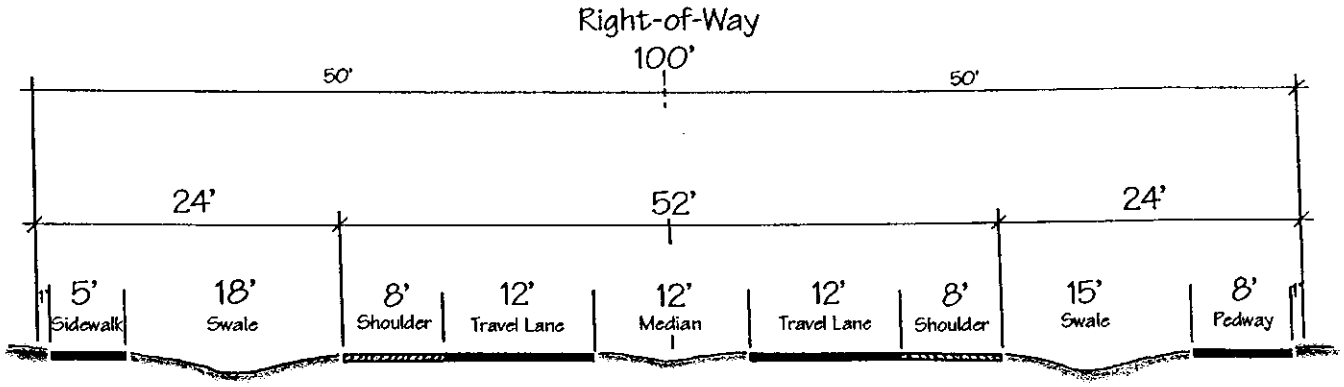
Major Collector 'Option B'

Major Collectors

(Revised 12/17/03)



Minor Arterial - Option 'A'



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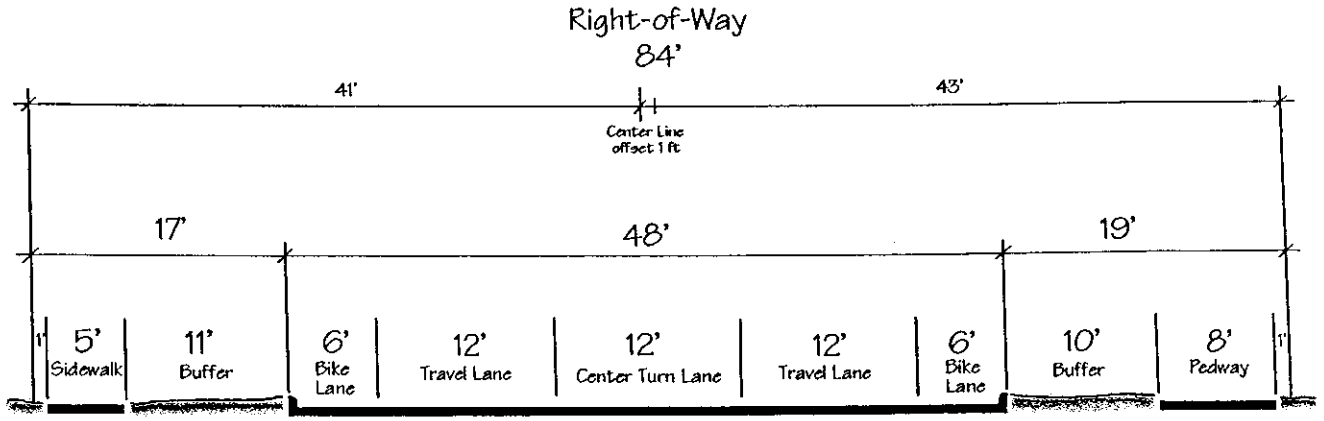
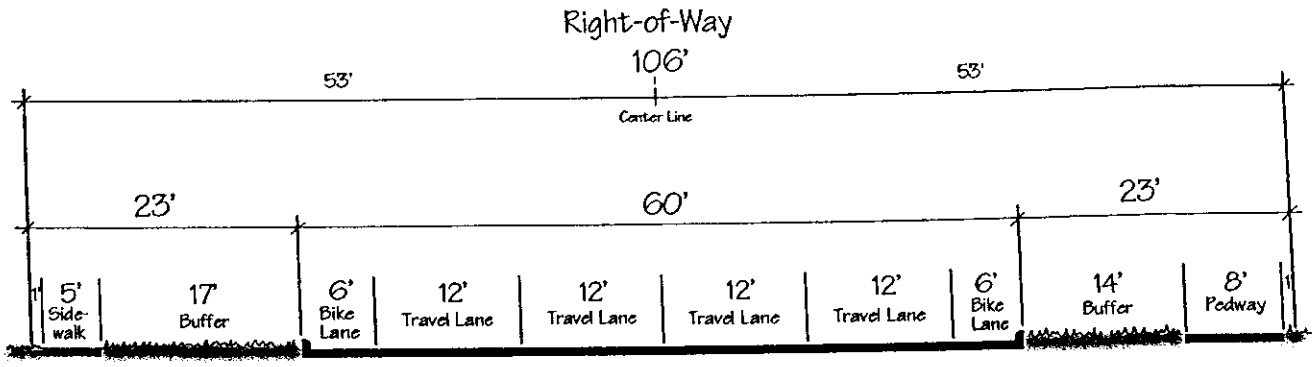
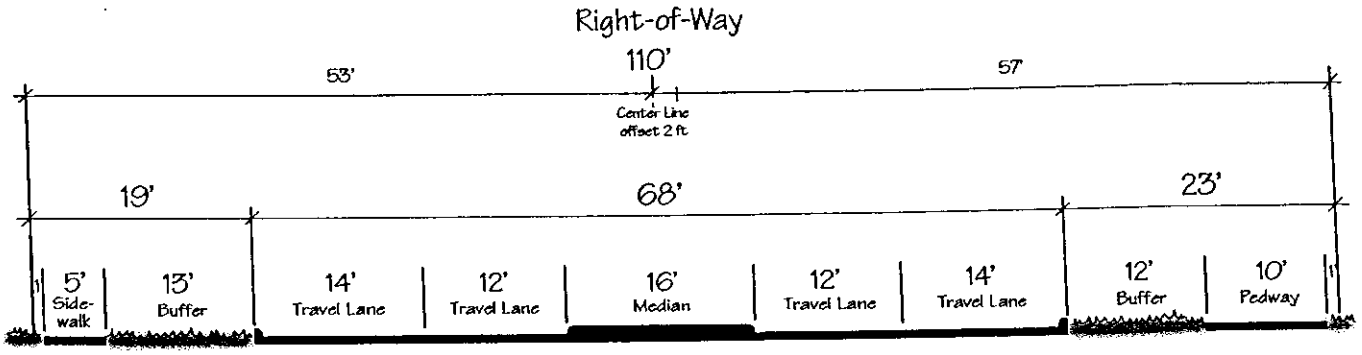


Minor Arterial - Option 'C'

Minor Arterials



Major Arterial - Option 'A'



Major Arterial - Option 'B'

Major Arterials

(Revised 12/17/03)

APPENDIX F:
EXISTING AND PLANNED SIGNALIZED INTERSECTIONS AND ROUNDABOUTS

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Appendix F:
Existing MoDOT Signalized Intersections (April 2008)

Intersection_ID	Location	Agency	Traffic Control
91	Audubon Dr.-East Pointe Dr. & Stadium Blvd.	MoDOT	Signal
131	Bearfield Rd. & Grindstone Pkwy.	MoDOT	Signal
133	Bluff Creek Dr. & Grindstone Pkwy.	MoDOT	Signal
38	College Ave. & Broadway	MoDOT	Signal
177	College Ave. & Business Loop 70	MoDOT	Signal
48	College Ave. & Paris Rd.-Rogers St.	MoDOT	Signal
50	College Ave. & Rollins St.	MoDOT	Signal
47	College Ave. & Walnut St.	MoDOT	Signal
49	College Ave.-Rock Quarry Rd. & Stadium Blvd.	MoDOT	Signal
51	College Park Dr. & Stadium Blvd.	MoDOT	Signal
110	Creekwood Pkwy. & Clark Ln.	MoDOT	Signal
39	Fairview Rd. & Broadway	MoDOT	Signal
159	Forum Blvd. & Stadium Blvd.	MoDOT	Signal
154	Garth Ave. & Business Loop 70	MoDOT	Signal
121	Green Meadows Rd.-Nifong Connector & Grindstone Pkwy.	MoDOT	Signal
45	I-70 Drive SW & Business Loop 70	MoDOT	Signal
35	Keene St. & Route WW-Broadway	MoDOT	Signal
89	Maryland Ave.-Mick Deaver Memorial Dr. & Stadium Blvd.	MoDOT	Signal
82	Monk Dr.-Champions Dr. & Stadium Blvd.	MoDOT	Signal
170	Old 63 & Business Loop 70	MoDOT	Signal
85	Old 63 & Stadium Blvd.	MoDOT	Signal
166	Paris Rd. & East Brown Station Rd.	MoDOT	Signal
169	Paris Rd. & North Browns Station Rd.	MoDOT	Signal
63	Paris Rd. & Vandiver Dr.	MoDOT	Signal
64	Paris Rd. & White Gate Dr.-Heriford Rd.	MoDOT	Signal
176	Park De Ville Dr.-Broadfield Dr. & Broadway	MoDOT	Signal
162	Providence Rd & Old Route K	MoDOT	Signal
25	Providence Rd. & Ash St.	MoDOT	Signal
71	Providence Rd. & Broadway	MoDOT	Signal
155	Providence Rd. & Business Loop 70	MoDOT	Signal
68	Providence Rd. & Elm St.	MoDOT	Signal
70	Providence Rd. & Green Meadows Rd.	MoDOT	Signal
66	Providence Rd. & I-70 EB Ramp	MoDOT	Signal
69	Providence Rd. & I-70 WB Ramp	MoDOT	Signal
65	Providence Rd. & Locust St.	MoDOT	Signal
67	Providence Rd. & Nifong Blvd.	MoDOT	Signal
72	Providence Rd. & Rollins Rd.	MoDOT	Signal
173	Providence Rd. & Southampton Dr.	MoDOT	Signal
73	Providence Rd. & Stadium Blvd.	MoDOT	Signal
125	Providence Rd. & State Hwy. 163-Old Plank Rd.	MoDOT	Signal
74	Providence Rd. & Stewart Rd.	MoDOT	Signal
76	Providence Rd. & Walnut St.	MoDOT	Signal

Intersection_ID	Location	Agency	Traffic Control
174	Providence Rd. & Worley St.-Rogers St.	MoDOT	Signal
29	Range Line St. & Big Bear Blvd.	MoDOT	Signal
30	Range Line St. & Blue Ridge Rd.	MoDOT	Signal
128	Range Line St. & Brown School Rd.	MoDOT	Signal
171	Range Line St. & Business Loop 70	MoDOT	Signal
78	Range Line St. & I-70 EB Ramp	MoDOT	Signal
79	Range Line St. & I-70 WB Ramp	MoDOT	Signal
214	Range Line St. & Route VV	MoDOT	Signal
172	Range Line St. & Smiley Ln.	MoDOT	Signal
77	Range Line St. & Vandiver Dr.	MoDOT	Signal
132	Rock Quarry Rd. & Grindstone Pkwy.	MoDOT	Signal
46	Route 63 Connection & Clark Ln.	MoDOT	Signal
93	Route 63 Connection & I-70 Drive SE-Conley Rd.	MoDOT	Signal
94	Route 63 Connection & I-70 EB Ramp	MoDOT	Signal
92	Route 63 Connection & I-70 WB Ramp	MoDOT	Signal
138	Scott Blvd. & Chapel Hill Rd.	MoDOT	Signal
163	St Charles Rd. & Bull Run Dr.	MoDOT	Signal
164	St. Charles Rd. & I-70 EB Ramp	MoDOT	Signal
165	St. Charles Rd. & I-70 WB Ramp	MoDOT	Signal
80	Stadium Blvd. & I-70 EB Ramp	MoDOT	Signal
26	Stadium Blvd. & Ash St.	MoDOT	Signal
28	Stadium Blvd. & Bernadette Dr.	MoDOT	Signal
81	Stadium Blvd. & Broadway	MoDOT	Signal
101	Stadium Blvd. & Carrie Francke Dr.	MoDOT	Signal
90	Stadium Blvd. & I-70 Drive NW-Business Loop 70	MoDOT	Signal
84	Stadium Blvd. & I-70 Drive SW	MoDOT	Signal
88	Stadium Blvd. & I-70 WB Ramp	MoDOT	Signal
83	Stadium Blvd. & Rollins Rd.	MoDOT	Signal
87	Stadium Blvd. & Worley St.	MoDOT	Signal
42	US Hwy. 63 NB Ramp & Broadway	MoDOT	Signal
59	US Hwy. 63 NB Ramp & New Haven Rd.	MoDOT	Signal
168	US Hwy. 63 NB Ramp & Paris Rd.	MoDOT	Signal
44	US Hwy. 63 SB Ramp & Broadway	MoDOT	Signal
100	US Hwy. 63 SB Ramp & Grindstone Pkwy.	MoDOT	Signal
167	US Hwy. 63 SB Ramp & Paris Rd.	MoDOT	Signal
144	US Hwy. 63 SB Ramp & Vandiver Dr.	MoDOT	Signal
86	West Blvd. & Stadium Blvd.	MoDOT	Signal

Existing City Signalized Intersections (April 2008)

Intersection_ID	Location	Agency	Traffic Control
27	Bernadette Dr. & Worley St.	Columbia	Signal
161	Bethel St. & Nifong Blvd.	Columbia	Signal
158	Clinkscales Rd. & Worley St.	Columbia	Signal
33	Clinkscales Rd.-Manor Dr. & Broadway	Columbia	Signal
52	Columbia Mall Ent. & Worley St.	Columbia	Signal
24	Eighth St. & Ash St.	Columbia	Signal
32	Eighth St. & Broadway	Columbia	Signal
145	Eighth St. & Walnut St.	Columbia	Signal
147	Eighth St.& Cherry St.	Columbia	Signal
40	Fifth St. & Broadway	Columbia	Signal
160	Forum Blvd. & Chapel Hill Rd.	Columbia	Signal
55	Forum Blvd. & Forum Katy Pkwy.	Columbia	Signal
54	Forum Blvd. & Mills Dr.	Columbia	Signal
61	Forum Blvd. & Nifong Blvd.	Columbia	Signal
156	Garth Ave. & Broadway	Columbia	Signal
56	Garth Ave. & Worley St.	Columbia	Signal
175	Green Meadows Rd. & Red Oak Plaza Ent.	Columbia	Signal
34	Hitt St. & Broadway	Columbia	Signal
5	Keene St. & St Charles Rd.	Columbia	Signal
36	Ninth St. & Broadway	Columbia	Signal
148	Ninth St. & Cherry St.	Columbia	Signal
53	Ninth St. & Elm St.	Columbia	Signal
57	Ninth St. & Locust St.	Columbia	Signal
98	Ninth St. & Walnut St.	Columbia	Signal
62	Oakland Gravel Rd. & Vandiver Dr.	Columbia	Signal
151	Old 63 & Broadway	Columbia	Signal
75	Providence Rd. & Vandiver Dr.-Leslie Ln.	Columbia	Signal
10	Rock Quarry Rd. & Nifong Blvd.	Columbia	Signal
37	Seventh St. & Broadway	Columbia	Signal
146	Seventh St. & Cherry St.	Columbia	Signal
97	Seventh St. & Walnut St.	Columbia	Signal
41	Sixth St. & Broadway	Columbia	Signal
95	Sixth St. & Walnut St.	Columbia	Signal
43	Tenth St. & Broadway	Columbia	Signal
149	Tenth St. & Cherry St.	Columbia	Signal
96	Tenth St. & Walnut St.	Columbia	Signal
152	Trimble Rd. & Broadway	Columbia	Signal
157	West Blvd. & Broadway	Columbia	Signal
99	West Blvd. & Worley St.	Columbia	Signal
150	William St. & Broadway	Columbia	Signal

Existing Roundabout Locations (April 2008)

Intersection_ID	Location	Agency	Traffic Control
201	Trailside Dr.-Post Oak Dr. & Grant Ln.	Columbia	Roundabout
202	Garth Avenue & Blue Ridge Rd. & Caribou Dr.	Columbia	Roundabout
203	Port Way & Bull Run Dr.	Columbia	Roundabout
204	Rollins Rd. & Bonnie View Park	Columbia	Roundabout
205	Saddlebrook Pl. & American Pkwy.	Columbia	Roundabout
206	Durango Dr. & Flatwater Dr.	Columbia	Roundabout
207	Cascades Dr. & Chelan Dr.-Chelan Cir.	Columbia	Roundabout
208	Cascades Dr. & Marietta Falls Ln.-Vancouver Cir.	Columbia	Roundabout
209	Bradington Dr. & Bristol Lake Dr.	Columbia	Roundabout
210	State Farm Pkwy. & Southampton Dr.	Columbia	Roundabout
211	Creasy Springs Rd. & Business Loop 70 & I-70 Ramps	MoDOT	Roundabout
212	Old 63 & Bearfield Rd.-Chinaberry Dr.	MoDOT	Roundabout

Planned Intersection Improvements

Int_ID	Location	Agency	Traffic Contro	Funding Source	Design Year	Funding Amount	Ward	Primary Reason	Possible Improvements	Notes
103	Ballenger Lane & Clark Ln.	MoDOT	Sign	2005 10 Year Street Plan	FY08-FY09		3	Capacity		
199	Creekwood Parkway & Vandiver Dr.	MoDOT	Sign	2005 10 Year Street Plan	FY08-FY09		3	Capacity		
200	Hinkson Creek Rd. & Mexico Gravel Rd.	Columbia	Sign	2005 10 Year Street Plan	FY08-FY09		3	Capacity		
72	Providence Rd. & Rollins Rd.	MoDOT	Signal	2005 10 Year Street Plan	FY08-FY09	$1,000,000	1,5	N.M.T. Enhancement, Capacity		Design + some construction being funded by Non Motorized Transportation
75	Providence Rd. & Vandiver Dr.-Leslie Ln.	Columbia	Signal	2005 10 Year Street Plan	FY08-FY09	$345,000	2	N.M.T. Enhancement, Capacity	countdown pedestrian signals, add lane(s)	No countdown timers
117	Route PP & Mexico Gravel Rd.	MoDOT	Sign	2005 10 Year Street Plan	FY08-FY09		3	Capacity		
138	Scott Blvd. & Chapel Hill Rd.	MoDOT	Sign	2005 10 Year Street Plan	FY08-FY09	$300,000	4,5	Capacity		
196	Scott Blvd. & Georgetown Dr.	MoDOT	Sign	2005 10 Year Street Plan	FY08-FY09	$300,000	4	Capacity		
137	Scott Blvd. & Rollins Rd.-Smith Dr.	MoDOT	Sign	2005 10 Year Street Plan	FY08-FY09	$300,000	4	Capacity		
139	Scott Blvd. & Vawter School Rd.	Columbia	Sign	2005 10 Year Street Plan	FY08-FY09	$300,000	5	Capacity		
6	St Charles Rd. & Lakewood Dr. & Clark Ln.	Columbia/ Boone	Sign	2005 10 Year Street Plan	FY10-FY12	$350,000	3	Capacity	signal, roundabout	To be persued as part of joint development & City project
130	Grace Ln.-Rolling Hills Rd. & Richland Rd.	Columbia	Sign	2005 10 Year Street Plan			3	Capacity		
197	Fairview Rd. & Worley St.	Columbia	Sign	Development	FY08-FY09	$1,000,000	2	Capacity		
5	Keene St. & St. Charles Rd.	Columbia	Sign	Development	FY10-FY12		3	Capacity	spanwire signal, permament signal	ROW along St. Charles should be persued
178	Keene St. & I-70 Drive SE	MoDOT	Sign	Development			3	Capacity	roundabout, signal	
48	College Ave. & Paris Rd.-Rogers St.	MoDOT	Signal	N.M.T.	FY08-FY09	$200,000	1,3	N.M.T. Enhancement		
159	Forum Blvd. & Stadium Blvd.	MoDOT	Signal	N.M.T.	FY08-FY09	$200,000	4	N.M.T. Enhancement		
154	Garth Ave. & Business Loop 70	MoDOT	Signal	N.M.T.	FY08-FY09	$200,000	1	N.M.T. Enhancement		
155	Providence Rd. & Business Loop 70	MoDOT	Signal	N.M.T.	FY08-FY09	$200,000	1	N.M.T. Enhancement		
70	Providence Rd. & Green Meadows Rd.	MoDOT	Signal	N.M.T.	FY08-FY09	$200,000	5,6	N.M.T. Enhancement		
73	Providence Rd. & Stadium Blvd.	MoDOT	Signal	N.M.T.	FY08-FY09	$200,000	1,5,6	N.M.T. Enhancement		
74	Providence Rd. & Stewart Rd.	MoDOT	Signal	N.M.T.	FY08-FY09	$200,000	1,4	N.M.T. Enhancement		
3	Bethel St. & Green Meadows Rd.	Columbia	Sign	Proposed C.I.P.	FY08-FY09	$260,000	5	Capacity	spanwire signal, roundabout, permament signal	Spanwire limits reconstruction- probably should be reconstructed
1	Fairview Rd. & Chapel Hill Rd.	Columbia	Sign	Proposed C.I.P.	FY08-FY09	$310,000	4	Capacity	spanwire signal, roundabout	Possible expansion # of Chapel lanes ~ 15 yrs.
180	Fifth St. & Walnut St.	Columbia	Sign	Proposed C.I.P.	FY08-FY09	$180,000	1	Safety	bulb outs	
160	Forum Blvd. & Chapel Hill Rd.	Columbia	Signal	Proposed C.I.P.	FY08-FY09	$320,000	4	N.M.T. Enhancement, Capacity	countdown pedestrian signals, add lane(s)	No countdown timers
55	Forum Blvd. & Forum Katy Pkwy.	Columbia	Signal	Proposed C.I.P.	FY08-FY09	$25,000	4	N.M.T. Enhancement	countdown pedestrian signals	No countdown timers
4	Forum Blvd. & Green Meadows Rd.	Columbia	Sign	Proposed C.I.P.	FY08-FY09	$310,000	5	Capacity	spanwire signal, permament signal	Spanwire limits reconstruction- probably should be reconstructed
182	Hitt St. & Paquin St.	Columbia	Sign	Proposed C.I.P.	FY08-FY09	$30,000	1	Safety	bulb outs	
62	Oakland Gravel Rd. & Vandiver Dr.	Columbia	Signal	Proposed C.I.P.	FY08-FY09	$690,000	2,3	Capacity	extensive modifications	No countdown timers
151	Old 63 & Broadway	Columbia	Signal	Proposed C.I.P.	FY08-FY09	$250,000	3,6	N.M.T. Enhancement	pedestrian modifications	No countdown timers
179	Old 63 & Walnut St.	Columbia	Sign	Proposed C.I.P.	FY08-FY09	$265,000	3	Capacity	roundabout	
181	Tenth St.-Watson Pl. & Elm St.	Columbia	Sign	Proposed C.I.P.	FY08-FY09	$45,000	1	Safety	bulb outs	
27	Bernadette Dr. & Worley St.	Columbia	Signal	Proposed C.I.P.	FY10-FY12	$75,000	2	N.M.T. Enhancement	countdown pedestrian signals	No countdown timers
2	Bethel St. & Southampton Dr.	Columbia	Sign	Proposed C.I.P.	FY10-FY12	$275,000	5	Capacity	spanwire signal, roundabout, permament signal	Spanwire limits reconstruction- probably should be reconstructed
185	Garth Ave. & Sexton Rd.	Columbia	Sign	Proposed C.I.P.	FY10-FY12	$275,000	1	Capacity		
12	Old 63 & Shepard Blvd.	Columbia	Sign	Proposed C.I.P.	FY10-FY12	$275,000	6	N.M.T. Enhancement	roundabout, spanwire signal	Roundabout would be good now, future Old 63 expansion > 20 years out
186	Parker St. & Vandiver Dr.	Columbia	Sign	Proposed C.I.P.	FY10-FY12	$270,000	2	Capacity		
183	Peachtree Dr. & Nifong Blvd.	Columbia	Sign	Proposed C.I.P.	FY10-FY12	$275,000	5	Capacity	roundabout, signal, lane(s)	
23	Providence Rd. & Texas Ave.	Columbia	Sign	Proposed C.I.P.	FY10-FY12	$170,000	2	Capacity	modification, access	Unknown how to handle, Providence extension significantly influences, turning movements will be an issue

Planned Intersection Improvements

7	Sinclair Rd. & Nifong Blvd.	Columbia	Sign	Proposed C.I.P.	FY10-FY12	$270,000	5	Capacity	spanwire signal, roundabout	Possible expansion # of Nifong lanes ~10-15 years
184	William St. & Paris Rd.	Columbia	Sign	Proposed C.I.P.	FY10-FY12	$275,000	3	Capacity	roundabout, signal	
11	Bearfield Rd.& Nifong Blvd.	Columbia	Sign	Proposed C.I.P.	FY13-FY15	$310,000	6	Capacity	spanwire signal, roundabout, permament signal	Development driven
190	Brown Station Rd. & Blue Ridge Rd.	Columbia	Sign	Proposed C.I.P.	FY13-FY15	$340,000	3	Capacity		
21	Creasy Springs Rd. & Texas Ave.	Columbia	Sign	Proposed C.I.P.	FY13-FY15	$310,000	2	Capacity	modification	Unknown how to handle, turning movements will be an issue as Creasy volumes increase
193	Derby Ridge Dr. & Blue Ridge Rd.	Columbia	Sign	Proposed C.I.P.	FY13-FY15	$310,000	2	Capacity		
15	Derby Ridge Dr. & Brown School Rd.	Columbia	Sign	Proposed C.I.P.	FY13-FY15	$310,000	2	Capacity	permament signal, spanwire signal	Lanes in place, development/volume driven
16	Derby Ridge Dr. & Smiley Ln.	Columbia	Sign	Proposed C.I.P.	FY13-FY15	$310,000	2	Capacity	roundabout, spanwire signal	Smiley likely to remain 3 lane max for 20+ years
18	Edenton Blvd. & Brown School Rd.	Columbia	Sign	Proposed C.I.P.	FY13-FY15	$370,000	2	Capacity	permament signal, spanwire signal	Lanes in place, development/volume driven
188	Fairview Rd. & Rollins Rd.	Columbia	Sign	Proposed C.I.P.	FY13-FY15	$380,000	4	Capacity	roundabout	
9	Forum Blvd. & Southampton Dr.	Columbia	Sign	Proposed C.I.P.	FY13-FY15	$310,000	5	Capacity	roundabout, spanwire signal	Given future volumes, roundabout best option
192	Garth Ave. & Ash St.	Columbia	Sign	Proposed C.I.P.	FY13-FY15	$370,000	1	Capacity		
22	Garth Ave. & Texas Ave.	Columbia	Sign	Proposed C.I.P.	FY13-FY15	$320,000	2	Capacity	modification, access	May function as 4-way stop, but roundabout would be better traffic alternative
56	Garth Ave. & Worley St.	Columbia	Signal	Proposed C.I.P.	FY13-FY15	$370,000	1	Capacity	roundabout, signal	
187	Grant Ln.-Cunningham Rd. & Chapel Hill Rd.	Columbia	Sign	Proposed C.I.P.	FY13-FY15	$310,000	4	Capacity	roundabout	
194	Limerick Ln. & Chapel Hill Rd.	Columbia	Sign	Proposed C.I.P.	FY13-FY15	$300,000		Capacity	roundabout	
13	Oakland Gravel Rd. & Smiley Ln.-Springdale Dr.	Columbia	Sign	Proposed C.I.P.	FY13-FY15	$310,000	2,3	Capacity	roundabout, spanwire signal	Likely to meet signal warrants in 10 years, roundabout a better traffic option
14	Oakland Gravel Rd.-Roger I. Wilson Memorial Dr. & Brown School Rd.	Columbia	Sign	Proposed C.I.P.	FY13-FY15	$350,000	2,3	Capacity	spanwire signal, permament signal	Brown School Road future 4 lane (Major Arterial)
8	Old Millcreek Rd.-Country Woods Rd. & Nifong Blvd.	Columbia	Sign	Proposed C.I.P.	FY13-FY15	$330,000	5	Capacity	spanwire signal, roundabout	Possible expansion # of Nifong lanes ~10-15 years
189	Range Line St. & Rogers St.	Columbia	Sign	Proposed C.I.P.	FY13-FY15	$420,000	1	Capacity		
191	West Blvd. & Ash St.	Columbia	Sign	Proposed C.I.P.	FY13-FY15	$370,000	1	Capacity		
126	Providence Rd. & Blueridge Rd.	Columbia	Sign	Unassigned	FY10-FY12	$250,000	2	Capacity		
19	St Charles Rd. & Richland Rd.	Columbia	Sign	Unassigned	FY13-FY15	$300,000		Capacity	roundabout, spanwire signal	Reconstruction necessary, 740 heavily influences
17	Lake of the Woods Rd. & St. Charles Rd.	Columbia	Sign	Unassigned	FY16+	$370,000		Capacity	roundabout, spanwire signal	LOTW needs to be improved, Clark as well, County currently
107	Providence Rd. & Brown School Rd.	Columbia	Sign	Unassigned	FY16+	$370,000	2	Capacity		
198	Providence Rd. & Rain Forest Pkwy.	Columbia	Sign	Unassigned	FY16+	$370,000	2	Capacity		
127	Providence Rd. & Smiley Ln.	Columbia	Sign	Unassigned	FY16+	$370,000	2	Capacity		
10	Rock Quarry Rd. & Nifong Blvd.	Columbia	Signal	Unassigned	FY16+	$310,000	6	Capacity	spanwire signal, roundabout, permament signal	Exist. spanwire signal, considering removal, likely nearby development<5 years away, no countdown timers
20	Wyatt Ln. & Thompson Rd.	Columbia	Sign	Unassigned	FY16+	$310,000		Capacity	roundabout, spanwire signal	Increased development in area
213	Grace Ln. & St. Charles Rd.	Columbia	Sign	Unassigned			3			
195	Green Meadows Rd & Outer Roadway (NE)	Columbia	Sign	Unassigned		$275,000	6			
35	Keene St. & Route WW-Broadway	MoDOT	Signal	Unassigned			3,6			

APPENDIX G:
FREIGHT HAULERS

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Local Freight Haulers

ABF Freight System Inc.
4640 Interstate Drive
Columbia, MO
(573) 875-2237

Consolidated Freightways
901 Dinwiddie Circle
Columbia, MO
(573) 443-2551

Central Freight Lines
8830 Columbus Court East
Columbia, MO
(573) 474-0906

Dayton Freight Lines
2701 Vandiver
Columbia, MO
(573) 814-1206

Estes Express Line
8830 Columbus Court
Columbia, MO
(573) 474-0803

FedEx Freight
5501 Paris Road
Columbia, MO
(573) 886-9411

Overnite Transportation Company
3301 Paris Road
Columbia, MO
(573)474-8402

Roadway Express
4636 Interstate Drive
Columbia, MO
(573) 449-2794

Yellow Freight System Inc.
8989 Columbia Court East
Columbia, MO
(573) 474-8465

Rail Freight

Columbia Terminal Railroad (COLT)
City of Columbia
P.O. Box 6015
Columbia, MO

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APPENDIX H:
CATSO 2030 MAJOR ROADWAY PLAN BY STREET

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NAME	MRP Functional Classification	FROM	TO	Project Description	Agency	Est.Cost $ 2007
Akeman Bridge Road	Major Collector	O.B. Brown Road	Route VV	Capacity upgrade	Boone County	$28,512,000
Alfalfa	Neighborhood Collector	Oakland Gravel Rd	Northwood Dr	No change	Boone County	(note- project extends
Alfalfa	Neighborhood Collector	Northwood Dr	Oakland Gravel Rd	No change	Boone County	beyond Metro area)
Andrews Lane	Neighborhood Collector	Mexico Gravel Road	Route Z	No change	Boone County	
Andrews Lane extension	Neighborhood Collector	Route Z	Hawk Road	Future	Boone County	
Arrowhead Lake Drive & Extension	Neighborhood Collector	Arrowhead Lake Drive	Old Mill Creek Road	Future	County & City	
Arterial EBC-7	Minor Arterial	Route Z	Dozier's Station Road	Future	Boone County	
Arterial Z-8	Minor Arterial	Mexico Gravel Road	Mount Hope Road	Future	Boone County	
Audubon	Neighborhood Collector	Stadium Blvd	Shepard Blvd	No change	Columbia	
Ballenger	Major Arterial	St Charles Rd	I-70 Drive SE	New construction	Columbia	$6,410,000
Ballenger	Major Arterial	I-70 Dr SE	Route PP	New construction	MoDOT	$4,000,000
Ballenger	Major Arterial	Richland Rd	St Charles Rd	New construction	Columbia	
Bearfield	Major Collector	Gans Rd	Nifong Blvd	Capacity upgrade	Boone County	$7,200,000
Bearfield	Major Collector	Nifong Blvd	Route AC	No change	Columbia	
Bell Road	Major Collector	Locust Grove Church Road	O.B. Brown Rd	No change	Boone County	
Bennett Drive	Neighborhood Collector	Southern terminus	Highway 163	No change	Boone County	
Bentpath Drive & Extension	Local Residential	Terminus of Bentpath	Old Plank Road	Future	City of Columbia	
Bernadette	Major Collector	Worley Street	Stadium Boulevard	No change	Columbia	
Bernadette	Major Collector	I-70 Drive SW	Fairview Rd	New construction	Columbia	$3,400,000
Bernadette	Major Collector		Stadium Blvd	No change	Columbia	
Bernadette	Major Collector	Ash Street	Worley Street	No change	Columbia	
Bethel	Neighborhood Collector	Southampton Dr	Nifong Blvd	No change	Columbia	
Bethel	Neighborhood Collector	Nifong Blvd	Green Meadows Rd	No change	Columbia	
Bethel Church	Neighborhood Collector	Old Plank Rd	Southampton Dr	No change	Columbia	
Bethel Church	Neighborhood Collector	St Hwy K	Old Plank Rd	No change	Boone County	
Blackfoot	Major Arterial	St Hwy E	O'Neal Rd	Capacity upgrade	Columbia	$9,400,000
Blue Ridge	Major Collector	Northland Dr	Derby Ridge Dr	No change	Columbia	
Blue Ridge	Major Collector	Garth Ave	Providence Rd	No change	Columbia	
Blue Ridge	Major Collector	Derby Ridge Dr	Parker St	No change	Columbia	
Blue Ridge	Major Collector	Creasy Springs Rd	Garth St	No change	Columbia	
Blue Ridge	Major Collector	Providence Rd	Rangeline St	No change	Columbia	
Blue Ridge	Major Collector	Rangeline St	Northland Dr	No change	Columbia	
Blue Ridge	Major Collector	Parker St	Oakland Gravel Rd	No change	Columbia	
Blue Ridge	Neighborhood Collector	Oakland Gravel Rd	Brown Station Rd	No change	Columbia	
Bluff Creek	Neighborhood Collector	Route AC	East Pointe Dr	No change	Columbia	
Boatman Hill Road	Neighborhood Collector	Ketterer Road	Calvert Hill Road	No change	Boone County	
Bonne Femme Church	Neighborhood Collector	Gans Creek Rd	Ponderosa St	No change	Boone County	
Bonne Femme Church	Neighborhood Collector	St Hwy 163	Gans Creek Rd	No change	Boone County	
Boothe	Neighborhood Collector	Terminus	US Hwy 40	No change	Boone County	
Boothe	Neighborhood Collector	Hwy 40	Westlake Rd	No change	Boone County	
Boothe Lane	Major Collector	Lathrop School Road	Westlake Road	No change	Boone County	
Bozarth Lane & extension	Major Collector	Carter School Road	Purdy Lane	Future	Boone County	
Bray	Neighborhood Collector	Cunningham Rd	Fairview Rd	No change	Columbia	
Bray	Neighborhood Collector	Dublin Ave	Cunningham Rd	No change	Columbia	
Brickton	Major Collector	Broadway	Conley Rd	No change	Columbia	
Broadway	Major Arterial	Route UU	Scott Blvd	New construction	MoDOT	$5,111,040
Brown School	Major Arterial	Oakland Gravel Rd	US Hwy 63	New construction	Columbia	
Brown School	Major Arterial	Derby Ridge Dr	Oakland Gravel Rd	No change	Columbia	
Brown School	Major Arterial	St Hwy 763	Derby Ridge Dr	No change	Columbia	
Brown School	Major Arterial	US Hwy 63	Starke Ave	New construction	Columbia	
Brown School	Major Arterial	Creasy Springs Rd	Clearview Rd	Capacity upgrade	Columbia	$2,500,000
Brown School	Major Arterial	Providence	Rangeline St	Capacity upgrade	Columbia	$5,200,000
Brown School	Major Arterial	Clearview Rd	Providence Rd	Capacity upgrade	Columbia	

NAME	MRP Functional Classification	FROM	TO	Project Description	Agency	Est.Cost $ 2007
Brown Station	Major Collector	Blue Ridge Rd	Starke Ave	No change	Columbia	
Brown Station	Major Collector	Waco Rd	Route B	No change	Columbia	
Brown Station	Major Collector	Starke Ave	Waco Rd	No change	Columbia	
Brown Station	Major Collector	Route B	Blue Ridge Dr	No change	Columbia	
Brown Station	Major Collector	Oakland Church Road	Route Hh	No change	Columbia	
Brushwood Lake	Neighborhood Collector	Howard Orchard Rd	Scott Blvd	No change	Boone County	
Brushwood Lake Rd Realign	Neighborhood Collector	Scott Boulevard	700' W of Scott Blvd.	No change	Boone County	
Burr Oak	Major Collector	Grocery Branch Rd	Perche Ave	No change	Boone County	
Business Loop 70 E	Major Arterial	College Ave	Route B Ramp	No change	MoDOT	
Business Loop 70 E	Major Arterial	Rangeline St	College Ave	No change	MoDOT	
Business Loop 70 E	Major Arterial	Garth St	Providence Rd	No change	MoDOT	
Business Loop 70 E	Major Arterial	Providence Rd	Rangeline St	No change	MoDOT	
Business Loop 70 E	Major Collector	Old 63	East Blvd	No change	MoDOT	
Business Loop 70 W	Major Arterial	I-70 Drive SW	Garth St	No change	MoDOT	
Business Loop 70 W	Major Collector	Stadium Blvd	Creasy Springs Rd	No change	MoDOT	
Buttonwood Drive	Major Collector	Grindstone Parkway	Green Meadows Road	No change	City of Columbia	
Calvert Hill Road	Major Collector	US Hwy 63	Boatman Hill Road	No change	Boone County	
Carter School Road	Major Collector	Rangeline Road	Outer Road South	No change	Boone County	
Chapel Hill	Minor Arterial	Fairview Rd	Limerick Ln	No change	Columbia	
Chapel Hill	Minor Arterial	Scott Blvd	Grant Ln	No change	Columbia	
Chapel Hill	Minor Arterial	Old Gillespie Bridge Rd	Louisville Dr	New construction	Columbia	
Chapel Hill	Minor Arterial	Limerick Ln	Forum Blvd	No change	Columbia	
Chapel Hill	Minor Arterial	Louisville Dr	Scott Blvd	New construction	Columbia	
Chapel Hill	Minor Arterial	Grant Ln	Fairview Rd	No change	Columbia	
Clark	Major Collector	Lake Ridgeway Rd	Route PP	No change	MoDOT	
Clark	Major Collector	Route B	Sylvan Ln	No change	MoDOT	
Clark	Major Collector	Sylvan Ln	Lake Ridgeway Rd	No change	MoDOT	
Clark	Minor Arterial	Ballenger Ln	St Charles Rd	Capacity upgrade	Columbia	$3,900,000
Clays Fork Road	Neighborhood Collector	Wagon Trail Road	Oakland Gravel Road	No change	Boone County	
Clearview	Neighborhood Collector	Brown School Rd	Hackberry Boulevard	No change	Boone County	
Clearview	Neighborhood Collector	Hackberry Boulevard	East Cedar Ct	No change	Boone County	
Clinkscales	Major Collector	Broadway	Ash St	No change	Columbia	
Clinkscales	Major Collector	Ash St	Worley St	No change	Columbia	
Clinkscales	Neighborhood Collector	Worley St	I-70 Drive SW	No change	Columbia	
Coats	Neighborhood Collector	Grocery Branch Rd	Gillespie Bridge Rd	No change	Boone County	
Collector EBC-4	Neighborhood Collector	Judy School Road	Dozier's Station extension	Future	Boone County	
Collector EBC-5	Neighborhood Collector	Mexico Gravel Road	Glendale Drive	Future	Boone County	
Collector EBC-8	Major Collector	Arterial EBC-7	Mexico Gravel Road	Future	Boone County	
Collector K-10	Neighborhood Collector	Smith Hatchery Road	High Point Lane	Future	Boone County	
Collector K-15	Neighborhood Collector	Stanley Poe Road	Route N	Future	Boone County	
Collector K-16/Unnamed Road 330	Neighborhood Collector	Collector K-3	Mt.Celestial Road	Future	Boone County	
Collector K-2	Neighborhood Collector	Howard Orchard Road	Route K	Future	Boone County	
Collector K-3	Neighborhood Collector	Route K	Collector K-16	Future	Boone County	
Collector K-8	Neighborhood Collector	Warren School Road	Timberview Drive	Future	Boone County	
Collector SB-14	Neighborhood Collector	Nifong Boulevard	Southampton Drive	Future	City of Columbia	
Collector SB-2	Neighborhood Collector	Brushwood Lake Road	Scott Boulevard	Future	Boone County & City	
Collector SB-3 (Thornbrook Extension)	Neighborhood Collector	Existing terminus	Brushwood Lake Road	Extension of existing	Boone County & City	
Collector SB-4	Neighborhood Collector	Scott Boulevard	Route KK	Future	City of Columbia	
Collector SB-8	Neighborhood Collector	Collector SB-7	Highlands Parkway	Future	Boone County & City	
Collector Z-10	Neighborhood Collector	Rogers Road	Kircher Road	Future	Boone County	
Collector Z-11	Major Collector	Mexico Gravel Road	Liddell Lane	Future	Boone County	
Collector Z-12	Neighborhood Collector	Route PP	Andrews Lane/Mexico Gravel	Future	Boone County	
Collector Z-5	Neighborhood Collector	Liddell Lane	Kircher Road	Future	Boone County	

NAME	MRP Functional Classification	FROM	TO	Project Description	Agency	Est.Cost $ 2007
Collector Z-9	Neighborhood Collector	Palmer Road	Guy Nowlan Road	Future	Boone County	
College	Major Arterial	Rollins St	Broadway	No change	MoDOT	
College	Major Arterial	Broadway	Paris Rd	No change	MoDOT	
College	Major Arterial	Paris Rd	E Business Loop 70	No change	MoDOT	
College	Major Arterial	Stadium Blvd	Rollins St	No change	MoDOT	
College Park	Neighborhood Collector	Stadium Blvd	Rollins Rd	No change	Columbia	
Conley	Major Collector	Brickton Rd	East Blvd	No change	Columbia	
Conley	Major Collector	East Blvd	US Hwy 63 Connector	No change	Columbia	
Crabapple	Neighborhood Collector	Scott Blvd	Old Mill Creek Rd	No change	Boone County	
Crabapple	Neighborhood Collector	Old Mill Creek Rd	Sinclair Rd	New construction	Boone County	
Creasy Springs	Minor Arterial	Texas Ave	Bear Creek	No change	Boone County	
Creasy Springs	Minor Arterial	Obermiller	Brown School Rd	No change	Boone County	
Creasy Springs	Minor Arterial	Bear Creek	Obermiller	Capacity upgrade	Columbia	$9,300,000
Creasy Springs	Minor Arterial	Business Loop 70 W	Texas Ave	No change	Columbia	
Creasy Springs	Neighborhood Collector	Brown School Rd	Mauller Rd	No change	Columbia	
Creekwood	Major Collector	Route PP	Golden Bear Dr	No change	Columbia	
Creekwood	Major Collector	Golden Bear Dr	Vandiver Dr	New construction	Columbia	$6,300,000
Cunningham	Neighborhood Collector	Bray Ave	Rollins Rd	New construction	Columbia	$1,100,000
Cunningham	Neighborhood Collector	Chapel Hill Rd	Bray Ave	No change	Columbia	
Deer Park Road	Neighborhood Collector	Western terminus	US Hwy 63	No change	Boone County	
Denninghoff	Neighborhood Collector	Route UU	Sugar Creek Dr	No change	Boone County	
Derby Ridge	Neighborhood Collector	Blue Ridge Rd	Smiley Ln	No change	Columbia	
Derby Ridge	Neighborhood Collector	Blue Ridge Rd	Smiley Ln	No change	Columbia	
Derby Ridge	Neighborhood Collector	Smiley Ln	Brown School Rd	No change	Columbia	
Dometrorch	Neighborhood Collector	terminus	Hickory Grove School Road	No change	Boone County	
Dozier's Station Road	Major Collector	Outer Road North	St.Charles Road	No change	Boone County	
Dozier's Station Road realignment	Major Collector	Dozier's Station Road	St.Charles Road/EBC-4	Future	Boone County	
Driskel	Neighborhood Collector	terminus	Yeager Rd	No change	Boone County	
Driskel	Neighborhood Collector	Yeager Rd	St Hwy E	No change	Boone County	
Dublin	Neighborhood Collector	Scott Blvd	terminus	New construction	Columbia	$2,500,000
Dublin	Neighborhood Collector	terminus	Bray Ave	No change	Columbia	
Dusty Rhodes	Neighborhood Collector	Route PP	Liddell Ln	No change	Boone County	
E Ash	Major Collector	Providence Rd	10th St	No change	Columbia	
E Ash	Major Collector	Garth St	Providence Rd	No change	Columbia	
E Broadway	Major Arterial	College Ave	William St	No change	Columbia	
E Broadway	Major Arterial	10th St	College Ave	No change	Columbia	
E Broadway	Major Arterial	Providence Rd	10th St	No change	Columbia	
E Broadway	Major Arterial	Garth St	Providence Rd	No change	Columbia	
E Broadway	Major Arterial	William St	Old 63	No change	Columbia	
E Business Loop 70	Major Arterial	Route B Ramp	Route B Ramp	No change	MoDOT	
E Green Meadows	Major Collector	Bethel St	Outer Road	No change	Columbia	
E Green Meadows	Major Collector	US Hwy 163	Route AC	New construction	Columbia	
E Green Meadows	Major Collector	Outer Road	US Hwy 163	No change	Columbia	
E Old Plank	Neighborhood Collector	Bethel Church Rd	Outer Rd	No change	Boone County	
E Old Plank	Neighborhood Collector	Outer Rd	US Hwy 163	No change	Boone County	
E Texas	Neighborhood Collector	Garth St	Providence Rd	No change	Columbia	
E Worley	Major Collector	Garth St	Providence Rd	No change	Columbia	
East	Major Collector	E Business Loop 70	Conley Rd	New construction	Columbia	$5,800,000
East Cedar	Neighborhood Collector	Clearview Rd	Providence Rd	No change	Boone County	
East Pointe	Neighborhood Collector	Bluff Creek Dr	Stadium Blvd	No change	Columbia	
Fairview	Major Collector	Chapel Hill Rd	Bray Ave	No change	Columbia	
Fairview	Major Collector	Bray Ave	Rollins Rd	No change	Columbia	
Fairview	Major Collector	Ash St	Worley St	No change	Columbia	

NAME	MRP Functional Classification	FROM	TO	Project Description	Agency	Est.Cost $ 2007
Fairview	Major Collector	Broadway	Ash St	No change	Columbia	
Fairview	Major Collector	Rollins Rd	Broadway	No change	Columbia	
Fairview	Major Collector	Worley St	Bernadette Dr	No change	Columbia	
Fenton Road	Major Collector	O'Neal Road	Creasy Springs Road	No change	Boone County	
Forum	Minor Arterial	Nifong Blvd	Green Meadows Rd	No change	Columbia	
Forum	Minor Arterial	Woodrail Ave	Chapel Hill Rd	No change	Columbia	
Forum	Minor Arterial	Green Meadows Rd	Woodrail Ave	No change	Columbia	
Forum	Minor Arterial	Chapel Hill Rd	Stadium Blvd	No change	Columbia	
Forum	Neighborhood Collector	Old Plank Rd	terminus	No change	Columbia	
Forum	Neighborhood Collector	Southampton Dr	Nifong Blvd	No change	Columbia	
Forum	Neighborhood Collector	terminus	Southampton Dr	No change	Columbia	
Gans	Minor Arterial	US Hwy 63 SB Ramps	US Hwy 63 NB Ramps	New construction	Boone County	
Gans	Minor Arterial	Old Gans Rd	Ponderosa St	New construction	Boone County	
Gans	Minor Arterial	US Hwy 163	Rock Quarry Rd	New construction	Boone County	
Gans	Minor Arterial	Bearfield Rd	Woodhaven Dr	No change	Boone County	
Gans	Minor Arterial	Woodhaven Dr	Old Gans Rd	No change	Boone County	
Gans	Minor Arterial	Rock Quarry Rd	Bearfield Rd	No change	Boone County	
Gans	Minor Arterial	Ponderosa St	US Hwy 63	New construction	Boone County	
Gans	Minor Arterial	US Hwy 63	Lenoir St	New construction	Boone County	
Gans Creek	Neighborhood Collector	Bonne Femme Church Rd	Old Gans Rd	No change	Boone County	
Garden	Neighborhood Collector	I-70 Drive Nw	Primrose Dr	No change	Columbia	
Garth	Major Collector	Broadway	Ash St	No change	Columbia	
Garth	Major Collector	Worley St	W Business Loop 70	No change	Columbia	
Garth	Major Collector	Business Loop 70	Texas Ave	No change	Columbia	
Garth	Major Collector	Ash St	Worley St	No change	Columbia	
Garth	Neighborhood Collector	Stewart Rd	Broadway	No change	Columbia	
Garth	Neighborhood Collector	Texas Ave	Blue Ridge Rd	No change	Columbia	
Gateway Boulevard & Extension	Local Residential	Gateway Boulevard	Keegan Court	Future	Boone County	
Georgetown	Neighborhood Collector	Louisville Dr	Scott Blvd	No change	Boone County	
Gibbs	Neighborhood Collector	Sorrel's Overpass Dr	Sunflower St	No change	Columbia	
Gillespie Bridge	Minor Arterial	Coats Ln	Old Gillespie Bridge Rd	No change	Boone County	
Gillespie Bridge	Minor Arterial	St Hwy UU	Coats Ln	No change	Boone County	
Golden Bear	Neighborhood Collector	US Hwy 63 Connector	Creekwood Pkwy	No change	Columbia	
Grace	Minor Arterial	St Hwy WW	MO 740	New construction	Boone County	
Grace	Minor Arterial	St. Charles Rd	Route WW	New construction	Boone County	
Grant	Neighborhood Collector	Scott Blvd	Maple Bluff Dr	No change	Columbia	
Grant	Neighborhood Collector	Maple Bluff Dr	Chapel Hill Rd	No change	Columbia	
Grayson	Neighborhood Collector	I-70 Drive NW	Sunflower St	No change	Columbia	
Green Meadows	Major Collector	US Hwy 163	Route AC	No change	Columbia	
Grocery Branch	Major Collector	Coats Ln	St Hwy O	No change	Boone County	
Guy Nowlin Road	Neighborhood Collector	Rogers Road	Kircher Road	Extension of existing	Boone County	
Hackberry	Neighborhood Collector	Clearview Rd	Providence Rd	No change	Boone County	
Hackberry	Neighborhood Collector	Providence Rd	Rangeline St	New construction	Boone County	
Hanover	Neighborhood Collector	Olympic Blvd	Rice Road	New construction	Columbia	
Harvestor	Neighborhood Collector	St Hwy 763	Lakeshore Dr	New construction	Boone County	
Harvestor	Neighborhood Collector	Lakeshore Dr	Roger I. Wilson Memorial Dr	New construction	Boone County	
Hatton Chapel	Neighborhood Collector	Yeager Rd	St Hwy E	New construction	Boone County	
Hatton Chapel	Neighborhood Collector	Locust Grove Church Rd	Yaeger Rd	New construction	Boone County	
Hawk Road	Neighborhood Collector	Liddell Lane	Route Z	Extension/realignment	Boone County	
Heller	Major Collector	North Brown Station Rd	Rogers Rd	No change	Boone County	
Henderson	Neighborhood Collector	Hwy 40	Westlake Rd	No change	Boone County	
Heriford	Major Collector	Parker St	Route B	Capacity upgrade	Columbia	$700,000
Hickory Grove School	Neighborhood Collector	St Hwy O	Wehmeyer Rd	No change	Boone County	

NAME	MRP Functional Classification	FROM	TO	Project Description	Agency	Est.Cost $ 2007
High Point	Neighborhood Collector	Route K	Hill Creek Rd	No change	Boone County	
High Point	Neighborhood Collector	Hill Creek Rd	St Hwy N	No change	Boone County	
Highlands Parkway	Neighborhood Collector	Forum Boulevard	Bentpath Drive	No change	City of Columbia	
Hill Creek	Neighborhood Collector	High Point Ln	St Hwy K	No change	Boone County	
Hinkson Creek	Neighborhood Collector	Northeast Loop	Rogers Rd	No change	Boone County	
Hinkson Creek Road	Major Collector	Mexico Gravel Road	Circumferential Arterial	No change	City of Columbia	
Hinton Road	Major Collector	Route VV	US Hwy 63	No change	Boone County	
Howard Orchard	Neighborhood Collector	St Hwy Kk	Brushwood Lake Rd	No change	Boone County	
I-70 Drive NW	Major Collector	Garden Dr	St Hwy E	No change	MoDOT	
I-70 Drive NW	Major Collector	Grayson Dr	Garden Dr	No change	MoDOT	
I-70 Drive NW	Major Collector	Sorrel's Overpass Dr	Grayson Dr	No change	MoDOT	
I-70 Drive SE	Major Collector	Woodridge	St. Charles	No change	MoDOT	
I-70 Drive SE	Major Collector	Keene	Woodridge	No change	MoDOT	
I-70 Drive SE	Major Collector	US Hwy 63	Keene	No change	MoDOT	
I-70 Drive SE	Major Collector	Olivet Rd	Rangeline Rd	No change	MoDOT	
I-70 Drive SE	Major Collector	St Charles Rd	Olivet Rd	No change	MoDOT	
I-70 Drive SW	Major Collector	Sorrel's Overpass	Silvey Ln	No change	MoDOT	
I-70 Drive SW	Major Collector	Bernadette Dr	Stadium Blvd	No change	MoDOT	
I-70 Drive SW	Major Collector	Van Horn Tavern Rd	Strawn Rd	No change	MoDOT	
I-70 Drive SW	Major Collector	West Blvd	Business Loop 70 W	No change	MoDOT	
I-70 Drive SW	Major Collector	Clinkscales Rd	West Blvd	No change	MoDOT	
I-70 Drive SW	Major Collector	Strawn Rd	Sorrel's Overpass	No change	MoDOT	
I-70 Drive SW	Major Collector	Stadium Blvd	Clinkscales Rd	No change	MoDOT	
I-70 Drive SW	Major Collector	Silvey St	Bernadette Dr	No change	MoDOT	
I-70 EB	Freeway	West Metro Boundary	St Hwy Z/East Metro Boundary	Capacity upgrade	MoDOT	$313,998,500
I-70 WB	Freeway	West Metro Boundary	St Hwy Z/East Metro Boundary	Capacity upgrade	MoDOT	$313,998,500
I-70/63	Freeway	US 63 Connector	I-70	No change	MoDOT	
Judy School Road	Major Collector	Route Z	Glendale Drive	No change	Boone County	
Keene	Major Collector	St. Charles Rd	I-70 Drive SE	No change	Columbia	
Keene	Major Collector	Route WW	St. Charles Rd	No change	Columbia	
Ketterer Road	Neighborhood Collector	Oakland Gravel Road	North Brown Station Rd	No change	Boone County	
Kircher	Minor Arterial	Dusty Rhodes Ln	Mount Hope Rd	No change	Boone County	
Kircher	Minor Arterial	Mount Hope Rd	Route HH	Capacity upgrade	Boone County	
Lake of the Woods	Minor Arterial	Clark Ln	Mexico Gravel Road	Capacity upgrade	Columbia	$7,200,000
Lake Ridgeway	Major Collector	Clark Ln	Vandiver Dr	New construction	Columbia	$2,100,000
Lakeshore	Neighborhood Collector	Brown School Rd	Harvestor Rd	New construction	Boone County	
Lakeshore	Neighborhood Collector	Harvestor Rd	Prathersville Rd	Capacity upgrade	Boone County	
Lemone Industrial	Major Collector	Grindstone Ck	Mo 740	New construction	Columbia	$9,300,000
Lemone Industrial	Major Collector	New Haven Rd	Grindstone Ck	No change	Columbia	
Lenoir	Major Collector	Gans Rd	Sugar Grove Rd	No change	Columbia	
Lenoir	Major Collector	Sugar Grove Rd	New Haven Rd	No change	Columbia	
Liddell	Neighborhood Collector	Dusty Rhodes Ln	Mount Hope Rd	No change	Boone County	
Liddell	Neighborhood Collector	Dusty Rhodes Ln	Mount Hope Rd	No change	Boone County	
Liddell	Neighborhood Collector	Route Z	Dusty Rhodes Ln	No change	Boone County	
Local Non-residential EBC-9	Local Non-residential	Outer Road North	Arterial EBC-7	Future	Boone County	
Local residential SB-6	Local Residential	Sundance Drive	Arrowhead Lake Drive	Future	Boone County	
Locust Grove Church	Neighborhood Collector	Hwy 40	Westlake Rd	No change	Boone County	
Locust Grove Church	Neighborhood Collector	Westlake Rd	Hatton Chapel Rd	No change	Boone County	
Locust Grove Church	Neighborhood Collector	Hatton Chapel Rd	Northern Metro Boundary	No change	Boone County	
Louisville	Neighborhood Collector	Georgetown Dr	Smith Dr	New construction	Columbia	
Louisville	Neighborhood Collector	Chapel Hill Rd	Georgetown Dr	New construction	Columbia	
Manor	Neighborhood Collector	Rollins Rd	Broadway	No change	Columbia	
Mauller	Neighborhood Collector	Creasy Springs Rd	St Hwy VV	No change	Boone County	

NAME	MRP Functional Classification	FROM	TO	Project Description	Agency	Est.Cost $ 2007
McGee Road	Major Collector	Boatman Hill Road	North Brown Station Rd	No change	Boone County	
Mexico Gravel	Major Arterial	Route PP	Route Z	No change	Boone County	
Mexico Gravel	Major Arterial	Vandiver Dr	Route PP	New construction	Columbia	$2,700,000
Mexico Gravel	Major Collector	Route B	Vandiver Dr	New construction	Columbia	
Mexico Gravel Road	Major Collector	Route Z	Glendale Drive	No change	Boone County	
Mexico Gravel Road	Major Collector	Route B	Pioneer Drive	No change	City of Columbia	
Mount Hope	Neighborhood Collector	Kircher Rd	Liddell Ln	No change	Boone County	
Mount Hope Road	Neighborhood Collector	Liddell Lane	Route Z	No change	Boone County	
Mount Hope Road	Neighborhood Collector	Kircher Road	Guy Nowlin Road	Extension of existing	Boone County	
Mt. Celestial Road	Neighborhood Collector	Route K	Route K	No change	Boone County	
N 10th	Major Collector	Broadway	Ash St	No change	Columbia	
N 10th	Major Collector	Ash St	Rogers St	No change	Columbia	
N Grace	Minor Arterial	Richland Rd	St Charles Rd	New construction	Boone County	
Nebo Cemetery	Neighborhood Collector	St Hwy O	St Hwy UU	No change	Boone County	
New Haven	Minor Arterial	Olivet Rd	Rangeline Rd	No change	Boone County	
New Haven	Minor Arterial	US Hwy 63 NB Ramps	Lemone Industrial Blvd	No change	Boone County	
New Haven	Minor Arterial	Rolling Hills Rd	Olivet Rd	No change	Boone County	
New Haven	Minor Arterial	Lemone Industrial Blvd	Big Timber Drive	No change	Boone County	
New Haven	Minor Arterial	Big Timber Drive	Rolling Hills Rd	Capacity upgrade	Boone County	$9,500,000
Nifong	Major Arterial	Bethel St	Outer Road	No change	Columbia	
Nifong	Major Arterial	Sinclair St	Forum Blvd	No change	Columbia	
Nifong	Major Arterial	Old Mill Creek Rd	Sinclair St	No change	Columbia	
Nifong	Major Arterial	Forum Blvd	Bethel St	No change	Columbia	
Nifong	Major Arterial	Outer Rd	Providence Rd	No change	Columbia	
Nifong	Major Collector	Rock Quarry Rd	Bearfield Rd	No change	Columbia	
Nifong	Major Collector	Southampton Dr	Rock Quarry Rd	No change	Columbia	
Nifong	Major Collector	Bearfield Rd	Woodhaven Dr	No change	Columbia	
Nifong	Major Collector	Woodhaven Dr	Ponderosa St	No change	Columbia	
North Brown Station Road	Major Collector	Route HH	McGee Road	No change	Boone County	
North Browns Station	Major Collector	Route B	Oakland Church Rd	No change	Columbia	
Northeast Loop	Major Collector	Route B	Hinkson Creek Rd	New construction	Columbia	
Northeast Loop	Major Collector	Mexico Gravel Rd	Hinkson Creek Rd	New construction	Columbia	
Northland	Neighborhood Collector	Parker St	Blue Ridge Rd	No change	Columbia	
Northwest Loop	Major Arterial	O'Neal Road	Creasy Springs Road	New construction	Columbia	$22,109,000
O.B. Brown Road	Major Collector	Bell Road	Akeman Bridge Road	No change	Boone County	
Oakland Church	Major Collector	Oakland Gravel Rd	Route B	No change	Boone County	
Oakland Church	Major Collector	Route B	North Brown Station Rd	No change	Boone County	
Oakland Church	Neighborhood Collector	Wagon Trail Rd	Oakland Gravel Rd	No change	Boone County	
Oakland Church Road	Neighborhood Collector	Wagon Trail Road	Western terminus	No change	Boone County	
Oakland Gravel	Major Collector	Vandiver Dr	Blue Ridge Rd	No change	Columbia	
Oakland Gravel	Major Collector	Blue Ridge Rd	Smiley Ln	No change	Columbia	
Oakland Gravel	Major Collector	Smiley Ln	Brown School Rd	No change	Columbia	
Oakland Gravel	Neighborhood Collector	Prathersville Rd	Alfalfa Dr	No change	Boone County	
Oakland Gravel	Neighborhood Collector	Alfalfa Dr	Alfalfa Dr	No change	Boone County	
Oakland Gravel Road	Neighborhood Collector	Oakland Church Road	Ketterer Road	No change	Boone County	
Obermiller	Major Collector	Northwest Loop	Creasy Springs Rd	No change	Boone County	
Old 63	Minor Arterial	Shepard Blvd	Broadway	No change	Columbia	
Old 63	Minor Arterial	Stadium Blvd	Shepard Blvd	No change	Columbia	
Old 63	Minor Arterial	Broadway	E Business Loop 70	No change	Columbia	
Old 63	Minor Arterial	Route AC	Stadium Blvd	Realignment (S end)	Columbia	
Old Gans	Neighborhood Collector	Gans Rd	Gans Creek Rd	No change	Boone County	
Old Gans	Neighborhood Collector	Gans Creek Rd	Ponderosa St	No change	Boone County	
Old Gillespie Bridge	Neighborhood Collector	Gillespie Bridge Road	Scott Blvd	No change	Boone County	

NAME	MRP Functional Classification	FROM	TO	Project Description	Agency	Est.Cost $ 2007
Old Mill Creek	Neighborhood Collector	Old Field Road	Nifong Blvd	No change	Boone County	
Old Mill Creek	Neighborhood Collector	Crabapple Ln	Old Field Road	No change	Boone County	$3,300,000
Old Plank	Neighborhood Collector	St Hwy K	Forum Blvd	No change	Columbia	
Old Plank	Neighborhood Collector	Forum Blvd	Bethel Church Rd	No change	Columbia	
Old Plank Road	Major Collector	West Dothage Road	Route K	No change	Boone County	
Olivet	Major Collector	New Haven Rd	Route WW	No change	Boone County	
Olivet	Major Collector	Turner Farm Rd	Richland Rd	No change	Boone County	
Olivet	Major Collector	Route WW	Turner Farm Rd	No change	Boone County	
Olivet	Major Collector	Richland Rd	I-70 Drive SE	No change	Boone County	
Olympic	Neighborhood Collector	Clark Ln	Hanover Blvd	No change	Columbia	
O'Neal	Major Collector	Wilcox Rd	Blackfoot Rd	No change	Boone County	
O'Neal	Neighborhood Collector	Wilcox Rd	Metro Boundary	No change	Boone County	
O'Neal Road	Major Collector	North of Fenton Road	Akeman Bridge Road	No change	Boone County	
O'Rear Road	Neighborhood Collector	North Brown Station Road	Route HH	No change	Boone County	
Outer	Major Collector	Green Meadows Rd	Providence Rd	No change	MoDOT	
Outer	Major Collector	Southampton Dr	Nifong Blvd	No change	MoDOT	
Outer	Major Collector	Nifong Blvd	Green Meadows Rd	No change	MoDOT	
Outer	Neighborhood Collector	Old Plank Rd	Southampton Dr	No change	MoDOT	
Outer Road North	Local Non-residential	Route Z	Dozier's Station Road	No change	Boone County	
Outer Road South	Local Non-residential	Rangeline Road	Purdy Lane	No change	Boone County	
Palmer	Minor Arterial	Rogers Rd	Route PP	No change	Boone County	
Paris	Major Collector	William St	Route B	No change	Columbia	
Paris	Major Collector	College Ave	William St	No change	Columbia	
Parker	Neighborhood Collector	Terminus	Blue Ridge Dr	No change	Columbia	
Parker	Neighborhood Collector	Vandiver Dr	Northland Dr	No change	Columbia	
Perche	Major Collector	Star School Rd	St Hwy K	No change	Boone County	
Phillipe Road	Major Collector	Route HH	Spiva Crossing Road	No change	Boone County	
Phillips Farm	Neighborhood Collector	Rock Quarry Rd	Bearfield Rd	New construction	Boone County	
Phillips Farm	Neighborhood Collector	Southampton Dr	Rock Quarry Rd	New construction	Boone County	
Phillips Farm	Neighborhood Collector	Woodhaven Dr	Ponderosa St	New construction	Boone County	
Phillips Farm	Neighborhood Collector	Bearfield Rd	Woodhaven Dr	New construction	Boone County	
Ponderosa	Major Collector	Gans Rd	Phillips Farm Rd	New construction	Boone County	
Ponderosa	Major Collector	Phillips Farm Rd	Nifong Blvd	No change	Boone County	
Ponderosa	Major Collector	Nifong Blvd	Route AC	No change	Boone County	
Ponderosa	Neighborhood Collector	Bonne Femme Church	Old Gans Rd	No change	Boone County	
Ponderosa Street	Major Collector	Southern terminus	Bonne Femme Church Rd	No change	Boone County	
Prathersville	Minor Arterial	US Hwy 63 NB Ramps	Oakland Gravel Rd	No change	Boone County	
Prathersville	Minor Arterial	US Hwy 63 SB Ramps	US Hwy 63 NB Ramps	No change	Boone County	
Prathersville	Minor Arterial	Lakeshore Dr	Roger I Wilson Memorial Dr	No change	Boone County	
Prathersville	Minor Arterial	Oakland Gravel Rd	Brown Station Rd	New construction	Boone County	
Prathersville	Minor Arterial	Roger I. Wilson Memorial Dr	US Hwy 63 SB Ramps	No change	Boone County	
Prathersville	Minor Arterial	Wagon Trail Rd	Lakeshore Dr	No change	Boone County	
Prathersville	Minor Arterial	St Hwy 763	Wagon Trail Rd	No change	Boone County	
Prathersville	Neighborhood Collector	Providence Rd	St Hwy 763	New construction	Boone County	
Primrose	Neighborhood Collector	Sunflower St	Garden Dr	No change	Columbia	
Primrose	Neighborhood Collector	Stadium Blvd	Garden Dr	No change	Columbia	
Providence	Expressway	Green Meadows Rd	Outer Road	No change	MoDOT	
Providence	Expressway	Green Meadows Rd	Outer Road	No change	MoDOT	
Providence	Expressway	Route AC	Green Meadows Rd	No change	MoDOT	
Providence	Expressway	Southampton Dr	Route AC	No change	MoDOT	
Providence	Expressway	Outer Rd	Stadium Blvd	No change	MoDOT	
Providence	Expressway	St Hwy K	Southampton Dr	Capacity upgrade	MoDOT	
Providence	Expressway	Southampton Dr	Route AC	No change	MoDOT	

NAME	MRP Functional Classification	FROM	TO	Project Description	Agency	Est.Cost $ 2007
Providence	Major Arterial	Worley St	E Business Loop 70	No change	MoDOT	
Providence	Major Arterial	I-70 EB Ramps	i_70 WB Ramps	No change	MoDOT	
Providence	Major Arterial	Stadium Blvd	Rollins St	No change	MoDOT	
Providence	Major Arterial	Stewart Rd	Broadway	No change	MoDOT	
Providence	Major Arterial	Broadway	Ash St	No change	MoDOT	
Providence	Major Arterial	Ash St	Worley St	No change	MoDOT	
Providence	Major Arterial	Business Loop 70 E	I-70 EB Ramps	No change	MoDOT	
Providence	Major Arterial	Rollins St	Stewart Rd	No change	MoDOT	
Providence	Minor Arterial	Blue Ridge Rd	Smiley Ln	New construction	Columbia	
Providence	Minor Arterial	Smiley Ln	Brown School Rd	New construction	Columbia	$5,900,000
Providence	Minor Arterial	Vandiver Dr	Blue Ridge Rd	New construction	Columbia	$4,100,000
Providence	Minor Arterial	East Cedar Ct	St Hwy VV	New construction	Boone County	
Providence	Minor Arterial	Texas Ave	Vandiver Dr	No change	Columbia	
Providence	Minor Arterial	Hackberry Boulevard	Prathersville Road	New construction	Boone County	
Providence	Minor Arterial	I-70 WB Ramps	Texas Ave	No change	Columbia	
Providence	Minor Arterial	Brown School Road	Hackberry Boulevard	New construction	Boone County	
Rangeline	Major Arterial	Richland Rd	I-70 Drive SE	No change	Boone County	
Rangeline	Major Arterial	New Haven Rd	Route WW	No change	Boone County	
Rangeline	Major Arterial	Turner Farm Rd	Richland Rd	No change	Boone County	
Rangeline	Major Arterial	Route WW	Turner Farm Rd	No change	Boone County	
Rangeline	Major Arterial	I-70 Drive SE	I-70 EB Ramps	No change	Boone County	
Rangeline	Major Collector	Rogers St	E Business Loop 70	No change	Columbia	
Rangeline Road	Major Arterial	Vemers Ford Road	New Haven Road	No change	Boone County	
Rice	Neighborhood Collector	terminus	Lake of the Woods	New construction	Columbia	$1,500,000
Rice	Neighborhood Collector	Ballenger Ln	terminus	No change	Columbia	
Rice	Neighborhood Collector	Hanover Blvd	Ballenger Ln	No change	Columbia	
Richland	Major Arterial	Olivet Rd	Rangeline Rd	No change	Boone County	
Richland	Major Collector	St Charles Rd	Olivet Rd	Capacity upgrade	Columbia	$12,000,000
Rock Quarry	Major Collector	Phillips Farm Rd	Nifong Blvd	No change	Boone County	
Rock Quarry	Major Collector	Route AC	Stadium Blvd	No change	Columbia	
Rock Quarry	Major Collector	Gans Rd	Phillips Farm Rd	No change	Boone County	
Rock Quarry	Major Collector	Nifong Blvd	Route AC	No change	Columbia	
Rock Quarry	Neighborhood Collector	US Hwy 163	Gans Rd	No change	Boone County	
Roger I. Wilson Memorial	Major Collector	Brown School Rd	Harvestor Rd	No change	Boone County	
Roger I. Wilson Memorial	Major Collector	Harvestor Rd	Prathersville Rd	No change	Boone County	
Rogers	Major Collector	Providence Rd	Rangeline St	No change	Columbia	
Rogers	Major Collector	Heller Rd	Route Hh	No change	Columbia	
Rogers	Major Collector	Rangeline St	College Ave	No change	Columbia	
Rogers	Major Collector	Palmer Rd	Heller Rd	No change	Columbia	
Rolling Hills	Minor Arterial	US Hwy 63 NB	Sugar Grove Rd	No change	Boone County	
Rolling Hills	Minor Arterial	Sugar Grove Rd	New Haven Ave	No change	Boone County	
Rolling Hills	Minor Arterial	New Haven Rd	Route WW	No change	Boone County	
Rollingwood	Neighborhood Collector	Trails West Ave	US Hwy 40	No change	Boone County	
Rollins	Major Collector	Providence Rd	College Ave	No change	Columbia	
Rollins	Neighborhood Collector	Scott Blvd	Cunningham Rd	No change	Columbia	
Rollins	Neighborhood Collector	Stadium Blvd	College Park Dr	No change	Columbia	
Rollins	Neighborhood Collector	Cunningham Rd	Fairview Rd	No change	Columbia	
Rollins	Neighborhood Collector	Fairview Rd	Stadium Blvd	No change	Columbia	
Rollins	Neighborhood Collector	College Park Dr	Manor Dr	No change	Columbia	
Rollins	Neighborhood Collector	College Ave	William St	No change	Columbia	
Route AB	Major Collector	US Hwy 63	2,500' E of US 63	No change	Boone County	
Route AC	Major Arterial	State Hwy 163	Green Meadows Rd	Capacity upgrade	MoDOT	
Route AC	Major Arterial	Green Meadows Rd	US 63	New construction	MoDOT	

NAME	MRP Functional Classification	FROM	TO	Project Description	Agency	Est.Cost $ 2007
Route B	Minor Arterial	Waco Rd	Brown Station Rd	No change	MoDOT	
Route B	Minor Arterial	Clark Ln	Heriford Dr	No change	MoDOT	
Route B	Minor Arterial	US Hwy 63 NB Ramps	Hinkson Creek Rd	No change	MoDOT	
Route B	Minor Arterial	Vandiver Dr	Brown Station Rd	No change	MoDOT	
Route B	Minor Arterial	Oakland Church Rd	St Hwy Hh	No change	MoDOT	
Route B	Minor Arterial	Heriford Dr	Vandiver Dr	No change	MoDOT	
Route B	Minor Arterial	Route B Ramp	Clark Ln	No change	MoDOT	
Route B	Minor Arterial	US Hwy 63 SB Ramps	US Hwy 63 NB Ramps	No change	MoDOT	
Route B	Minor Arterial	Northeast Loop	Waco Rd	No change	MoDOT	
Route B	Minor Arterial	Brown Station Rd	US Hwy 63 SB Ramps	No change	MoDOT	
Route B	Minor Arterial	Route HH	McGee Road	No change	MoDOT	
Route B Rmp	Minor Arterial	E Business Loop 70	Route B	No change	MoDOT	
Route E	Minor Arterial	Blackfoot Dr	Sunflower St	No change	MoDOT	
Route E	Minor Arterial	Wilcox Rd	Driskell Rd	No change	MoDOT	
Route E	Minor Arterial	Driskell Rd	Hatton Chapel Rd	No change	MoDOT	
Route E	Minor Arterial	Sunflower St	Wilcox Rd	No change	MoDOT	
Route E	Minor Arterial	Hatton Chapel Rd	Metro Boundary	No change	MoDOT	
Route HH	Minor Arterial	Rogers Rd	Kircher Rd	No change	MoDOT	
Route HH	Minor Arterial	Route B	Rogers Rd	No change	MoDOT	
Route HH	Minor Arterial	Kircher Road	Route Z	No change	Boone County	
Route N	Major Collector	Stanley Poe Road	High Point Lane	No change	MoDOT	
Route PP	Major Arterial	Robert Ray Drive	east urban limit	Capacity upgrade	MoDOT	$5,050,000
Route PP	Minor Arterial	US Hwy 63 Connector	Creekwood Pkwy	No change	MoDOT	
Route PP	Minor Arterial	Creekwood Pkwy	Olympic Blvd	No change	MoDOT	
Route PP	Minor Arterial	Palmer Rd	Dusty Rhodes Ln	No change	MoDOT	
Route PP	Minor Arterial	Olympic Blvd	Robert Ray Drive	No change	MoDOT	
Route PP	Minor Arterial	east urban limit	Palmer Rd	No change	MoDOT	
Route WW	Major Arterial	Us 63	east urban limit	Capacity upgrade	MoDOT	$1,151,400
Route WW	Major Arterial	Old 63	US 63	No change	MoDOT	
Route WW	Major Arterial	east urban limit	Mo 740	No change	MoDOT	
Route WW	Minor Arterial	Mo 740	Rolling Hills Rd	No change	MoDOT	
Route WW	Minor Arterial	Rolling Hills Rd	Olivet Rd	No change	MoDOT	
Route WW	Minor Arterial	Olivet Rd	Rangeline Rd	No change	MoDOT	
Route Z	Major Arterial	I-70 EB Ramps	I-70 WB Ramps	No change	MoDOT	
Route Z	Minor Arterial	I-70 WB Ramps	St Charles Rd	No change	MoDOT	
Route Z	Minor Arterial	Mexico Gravel Rd	Liddell Ln	No change	MoDOT	
Route Z	Minor Arterial	St Charles Rd	Mexico Gravel Rd	No change	MoDOT	
Route Z	Minor Arterial	Liddell Lane	Route HH	No change	Boone County	
Route ZZ	Major Collector	Broadway	I-70 Drive SW	No change	MoDOT	
Schuster Road Extension	Local Residential	Terminus of Schuster	Collector SB-8	Future	Boone County	
Scott	Major Arterial	Smith Dr	Strawn Rd	No change	MoDOT	
Scott	Minor Arterial	St Hwy K	St Hwy Kk	New construction	Boone County	
Scott	Minor Arterial	St Hwy KK	Vawter School Rd	Capacity upgrade	Columbia	$9,500,000
Scott	Major Arterial	St Hwy KK	Brookview Terrrace	Capacity upgrade	Boone County	$15,312,000
Scott	Major Arterial	Smith Drive	Brookview Terrrace	Capacity upgrade	MoDOT	$11,000,000
Scott/Route TT	Major Arterial	Broadway	Sorrell's Overpass	New construction	MoDOT	$8,000,000
Shepard	Neighborhood Collector	Old 63	Audubon Dr	No change	Columbia	
Silvey	Neighborhood Collector	Broadway	Worley St	No change	Columbia	
Silvey	Neighborhood Collector	Worley St	I-70 Drive SW	Capacity upgrade	Columbia	$1,500,000
Sinclair	Major Collector	Southampton Dr	Nifong Blvd	No change	Columbia	
Sinclair	Major Collector	Crabapple Ln	Southampton Dr	No change	Boone County	
Sinclair	Major Collector	St Hwy K	Crabapple Ln	No change	Boone County	
Smiley	Major Collector	Providence Rd	Rangeline St	No change	Columbia	

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Smiley	Major Collector	Creasy Springs Rd	Providence Rd	New construction	Columbia	
Smiley	Neighborhood Collector	Derby Ridge Dr	Oakland Gravel Rd	No change	Columbia	
Smiley	Neighborhood Collector	St Hwy 763	Derby Ridge Dr	No change	Columbia	
Smith	Neighborhood Collector	Louisville Dr	Stone Valley Pkwy	No change	Columbia	
Smith	Neighborhood Collector	Stone Valley Pkwy	Scott Blvd	No change	Columbia	
Smith Hatchery Road	Major Collector	West Dothage Road	Old Plank Road	No change	Boone County	
Sorrel's Overpass	Major Collector	I-70 Drive NW	St Hwy E	New construction	Columbia	$16,500,000
Sorrel's Overpass	Major Collector	I-70 Drive SW	I-70 Drive NW	No change	MoDOT	
Southampton	Major Collector	Nifong Blvd	Route AC	New construction	Columbia	
Southampton	Major Collector	Outer Rd	US Hwy 163	No change	MoDOT	
Southampton	Major Collector	Phillips Farm Rd	Nifong Blvd	New construction	Columbia	
Southampton	Major Collector	US Hwy 163	Phillips Farm Rd	New construction	Columbia	
Southampton	Neighborhood Collector	Forum Blvd	Bethel St	No change	Columbia	
Southampton	Neighborhood Collector	Sinclair St	terminus	New construction	Columbia	$870,000
Southampton	Neighborhood Collector	terminus	Forum Blvd	No change	Columbia	
Southampton	Neighborhood Collector	Bethel St	Outer Rd	No change	Columbia	
Southern Hills Drive & Extension	Neighborhood Collector	Route KK	Collector SB-7	Future	Boone County	
Spiva Crossing Road	Major Collector	North Brown Station Road	Phillipe Road	No change	Boone County	
St Charles	Major Collector	Keene St	Grace Ln	Capacity upgrade	Columbia	$11,300,000
St Charles	Minor Arterial	I-70 WB Ramps	Clark Ln	No change	Boone County	
St Charles	Minor Arterial	I-70 Drive SE	N Grace Lane	No change	Boone County	
St Charles	Minor Arterial	Lake of the Woods Rd	Route Z	Capacity upgrade	Boone County	
St Charles	Minor Arterial	Clark Ln	Lake of the Woods Rd	Capacity upgrade	Boone County	
St Charles	Minor Arterial	I-70 EB Ramps	I-70 Drive SE	No change	Boone County	
St Hwy 163	Major Collector	Bonne Femme Church Rd	US Hwy 63 SB	No change	MoDOT	
St Hwy 163	Major Collector	St Hwy N	Bonne Femme Church Rd	No change	MoDOT	
St Hwy 163	Major Collector	Rock Quarry Rd	Gans Rd	No change	MoDOT	
St Hwy 163	Major Collector	Rock Quarry Rd	St Hwy N	No change	MoDOT	
St Hwy 163	Minor Arterial	St Hwy K	Gans Rd	No change	MoDOT	
St Hwy 763	Major Arterial	I-70 EB Ramps	I-70 WB Ramps	No change	MoDOT	
St Hwy 763	Major Arterial	Business Loop 70 E	I-70 EB Ramps	No change	MoDOT	
St Hwy 763	Major Arterial	I-70 WB Ramps	Vandiver Dr	No change	MoDOT	
St Hwy 763	Major Arterial	Vandiver Dr	Big Bear Blvd	No change	MoDOT	
St Hwy 763	Major Arterial	US 63	Big Bear Blvd	Capacity upgrade	MoDOT	
St Hwy 763 NB Ramps	Freeway	St Hwy 763	US Hwy 63 NB	No change	MoDOT	
St Hwy 763 SB Ramps	Major Arterial	US Hwy 63 SB	St Hwy 763	No change	MoDOT	
St Hwy K	Major Collector	Perche Ave	St Hwy Kk	No change	MoDOT	
St Hwy K	Minor Arterial	Bethel Church Rd	Hwy 163	No change	MoDOT	
St Hwy K	Minor Arterial	Perche Ave	St Hwy Kk	No change	MoDOT	
St Hwy K	Minor Arterial	Hill Creek Rd	Bethel Church Rd	No change	MoDOT	
St Hwy K	Minor Arterial	Old Plank Rd	Scott Blvd	Capacity upgrade	MoDOT	$4,900,000
St Hwy K	Minor Arterial	St Hwy Kk	Scott Blvd	No change	MoDOT	
St Hwy KK	Major Collector	Howard Orchard Rd	Scott Blvd	No change	MoDOT	
St Hwy KK	Major Collector	St Hwy K	Howard Orchard Rd	No change	MoDOT	
St Hwy KK	Neighborhood Collector	Scott Blvd	Crabapple Ln	No change	MoDOT	
St Hwy N	Major Collector	High Point Ln	St Hwy 163	No change	MoDOT	
St Hwy O	Major Collector	Grocery Branch Rd	Nebo Cemetery Rd	No change	MoDOT	
St Hwy UU	Major Arterial	Broadway	Van Horn Tavern Rd	No change	MoDOT	
St Hwy UU	Major Arterial	Van Horn Tavern Rd	US Hwy 40	No change	MoDOT	
St Hwy UU	Minor Arterial	St Hwy O	Nebo Cemetery Rd	No change	MoDOT	
St Hwy UU	Minor Arterial	Denninghoff Rd	Broadway	No change	MoDOT	
St Hwy UU	Minor Arterial	Denninghoff Rd	Broadway	No change	MoDOT	
St Hwy UU	Minor Arterial	Nebo Cemetery Rd	Gillespie Bridge Rd	No change	MoDOT	

NAME	MRP Functional Classification	FROM	TO	Project Description	Agency	Est.Cost $ 2007
St Hwy UU	Minor Arterial	Gillespie Bridge Rd	Denninghoff Rd	No change	MoDOT	
St Hwy VV	Minor Arterial	Providence Rd	Mauller Rd	No change	MoDOT	
St Hwy VV	Minor Arterial	Providence Rd	Prathersville Rd	No change	MoDOT	
St Hwy VV	Minor Arterial	Mauller Rd	Metro Boundary	No change	MoDOT	
St Hwy VV	Minor Arterial	Prathersville Rd	St Hwy 763	No change	MoDOT	
St.Charles Road	Major Collector	Route Z	Glendale Drive	No change	Boone County	
Stadium	Expressway	Ash St	Worley St	No change	MoDOT	
Stadium	Expressway	Forum Blvd	West Blvd	No change	MoDOT	
Stadium	Expressway	Broadway	Ash St	No change	MoDOT	
Stadium	Expressway	Rollins Rd	Broadway	No change	MoDOT	
Stadium	Expressway	Worley St	Bernadette Dr	No change	MoDOT	
Stadium	Expressway	College Park Dr	Forum Blvd	No change	MoDOT	
Stadium	Major Arterial	Primrose Ln	Blackfoot Dr	No change	MoDOT	
Stadium	Major Arterial	I 70 Drive SW	I-70 EB Ramps	No change	MoDOT	
Stadium	Major Arterial	I-70 EB Ramps	I-70 WB Ramps	No change	MoDOT	
Stadium	Major Arterial	I-70 WB Ramps	Business Loop 70 W	No change	MoDOT	
Stadium	Major Arterial	Business Loop 70 W	Primrose Ln	No change	MoDOT	
Stadium/Mo 740	Expressway	Bernadette Drive	I-70 Drive SW	No change	MoDOT	
Stadium/Mo 740	Expressway	West Blvd	Providence Rd	No change	MoDOT	
Stadium/Mo 740	Expressway	Old 63	Audubon Dr	No change	MoDOT	
Stadium/Mo 740	Expressway	College Ave	Old 63	No change	MoDOT	
Stadium/Mo 740	Expressway	Audubon Dr	US Hwy 63	No change	MoDOT	
Stadium/Mo 740	Expressway	Providence Rd	College Ave	No change	MoDOT	
Stadium/Mo 740	Major Arterial	US 63	I-70	New construction	MoDOT	
Stanley Poe Road	Major Collector	High Point Lane	Route N	No change	Boone County	
Starke	Major Collector	Brown School Rd	Brown Station Rd	Capacity upgrade	Boone County	
Starke	Major Collector	Brown Station Rd	Route B	Capacity upgrade	Columbia	
State Hwy O	Major Collector	Nebo Cemetery Rd	St Hwy UU	No change	MoDOT	
State Hwy O	Minor Arterial	Hickory Grove School Rd	St Hwy UU	No change	MoDOT	
Stedman Road & extension	Neighborhood Collector	Howard Orchard Road	Route K	Future	Boone County	
Stewart	Neighborhood Collector	Garth St	Providence Rd	No change	Columbia	
Stewart	Neighborhood Collector	West Blvd	Garth	No change	Columbia	
Stone Valley	Neighborhood Collector	Smith Dr	West Broadway	No change	Columbia	
Sugar Creek	Neighborhood Collector	Wehmeyer Rd	Denninghoff Rd	No change	Boone County	
Sugar Creek	Neighborhood Collector	Denninghoff Rd	Route UU	No change	Boone County	
Sugar Grove	Neighborhood Collector	Lenoir St	Rolling Hills Rd	Capacity upgrade	Boone County	
Sunflower	Neighborhood Collector	Grayson Dr	Primrose Dr	Capacity upgrade	Columbia	
Sunflower	Neighborhood Collector	Primrose Dr	St Hwy E	Capacity upgrade	Columbia	
Sylvan	Neighborhood Collector	Clark Ln	Vandiver Dr	No change	Columbia	
Thompson Road	Neighborhood Collector	Wyatt Lane	Route PP	Capacity upgrade	Columbia	$2,000,000
Thornbrook Parkway	Neighborhood Collector	Scott Boulevard	Brushwood Lake Rd	No change	City of Columbia	
Timber View Drive	Neighborhood Collector	Route K	Old Plank Road	No change	Boone County	
Trail West	Neighborhood Collector	Rollingwood Blvd	US Hwy 40	No change	Boone County	
Turner Farm	Neighborhood Collector	Olivet Rd	Rangeline Rd	No change	Boone County	
United States 63 NB	Freeway	Stadium Blvd/Mo 740	Broadway/ St Hwy WW	No change	MoDOT	
United States 63 NB	Freeway	Broadway/St Hwy WW	I-70	No change	MoDOT	
United States 63 NB	Freeway	Route AC/New Haven Ave	Stadium Blvd/Mo 740	No change	MoDOT	
United States 63 SB	Freeway	Stadium Blvd/Mo 740	Broadway/ St Hwy WW	No change	MoDOT	
United States 63 SB	Freeway	Vandiver Dr	Route B	No change	MoDOT	
United States 63 SB	Freeway	Route AC/New Haven Ave	Stadium Blvd/Mo 740	No change	MoDOT	
United States 63 SB	Freeway	Broadway/St Hwy WW	I-70	No change	MoDOT	
United States 63 SB	Freeway	Brown School Rd	Prathersville Rd	No change	MoDOT	
United States Hwy 40	Minor Arterial	Boothe Ln	Semon Rd	No change	MoDOT	

NAME	MRP Functional Classification	FROM	TO	Project Description	Agency	Est.Cost $ 2007
United States Hwy 40	Minor Arterial	Westbound I-70 Ramps	Route UU	No change	MoDOT	
United States Hwy 40	Minor Arterial	Semon Rd	I-70 WB Ramps	No change	MoDOT	
United States Hwy 63 NB	Freeway	Brown School Rd	Prathersville Rd	No change	MoDOT	
United States Hwy 63 NB	Freeway	Route B	Brown School Rd	No change	MoDOT	
United States Hwy 63 NB	Freeway	Broadway/St Hwy WW	I-70	No change	MoDOT	
United States Hwy 63 NB	Freeway	I-70	Vandiver Dr	No change	MoDOT	
United States Hwy 63 NB	Freeway	Vandiver Dr	Route B	No change	MoDOT	
United States Hwy 63 NB	Freeway	Route B	Brown School Rd	No change	MoDOT	
United States Hwy 63 NB	Freeway	Rolling Hills Rd	Gans Rd	No change	MoDOT	
United States Hwy 63 NB	Freeway	Route B	Brown School Rd	No change	MoDOT	
United States Hwy 63 NB	Freeway	Prathersville Rd	Rangeline St/St Hwy 763	No change	MoDOT	
United States Hwy 63 NB	Freeway	Gans Rd	Route AC/New Haven Ave	No change	MoDOT	
United States Hwy 63 NB	Freeway	South Metro Boundary	Rolling Hills Rd	No change	MoDOT	
United States Hwy 63 NB	Freeway	Rangeline St/St Hwy 763	Northern Metro Boundary	No change	MoDOT	
United States Hwy 63 NB	Freeway	Route B	Brown School Rd	No change	MoDOT	
United States Hwy 63 NB	Freeway	Rangeline St/St Hwy 763	Northern Metro Boundary	No change	MoDOT	
United States Hwy 63 SB	Freeway	Broadway/St Hwy WW	I-70	No change	MoDOT	
United States Hwy 63 SB	Freeway	South Metro Boundary	Rolling Hills Rd	No change	MoDOT	
United States Hwy 63 SB	Freeway	Route B	Brown School Rd	No change	MoDOT	
United States Hwy 63 SB	Freeway	South Metro Boundary	Rolling Hills Rd	No change	MoDOT	
United States Hwy 63 SB	Freeway	Prathersville Rd	Rangeline St/St Hwy 763	No change	MoDOT	
United States Hwy 63 SB	Freeway	Rolling Hills Rd	Gans Rd	No change	MoDOT	
United States Hwy 63 SB	Freeway	Gans Rd	Route AC/New Haven Ave	No change	MoDOT	
United States Hwy 63 SB	Freeway	Vandiver Dr	Route B	No change	MoDOT	
United States Hwy 63 SB	Freeway	I-70	Vandiver Dr	No change	MoDOT	
United States Hwy 63 SB	Freeway	Rangeline St/St Hwy 763	Northern Metro Boundary	No change	MoDOT	
United States Hwy 63 SB	Freeway	Brown School Rd	Prathersville Rd	No change	MoDOT	
US Hwy 63 Connector	Freeway	I-70 EB Ramps	I-70 WB Ramps	No change	MoDOT	
US Hwy 63 Connector	Freeway	Golden Bear Dr	US Hwy 63 Ramps	No change	MoDOT	
US Hwy 63 Connector	Freeway	Clark Ln/Route PP	Golden Bear Dr	No change	MoDOT	
US Hwy 63 Connector	Freeway	US Hwy 63 Ramps	I-70 Drive SE	No change	MoDOT	
US Hwy 63 Connector	Freeway	I-70 Drive SE	I-70 EB Ramps	No change	MoDOT	
US Hwy 63 Connector	Freeway	I-70 WB Ramps	Clark Ln/Route PP	No change	MoDOT	
US Hwy 63/I-70	Freeway	US 63 Connector	I-70	Capacity upgrade	MoDOT	
Van Horn Tavern	Major Collector	Route UU	I-70 Drive SW	New construction	Boone County	$5,000,000
Vandiver	Major Arterial	Creekwood Pkwy	Mexico Gravel Rd	New construction	Columbia	$3,600,000
Vandiver	Major Arterial	Sylvan Ln	US Hwy 63	New construction	Columbia	$2,300,000
Vandiver	Major Arterial	Route B	Sylvan Ln	No change	Columbia	
Vandiver	Minor Arterial	Oakland Gravel Rd	Route B	No change	Columbia	
Vandiver	Minor Arterial	Parker St	Oakland Gravel Rd	No change	Columbia	
Vandiver	Minor Arterial	Rangeline St	Parker St	No change	Columbia	
Vandiver	Minor Arterial	Providence Rd	Rangeline St	No change	Columbia	
Vawter	Major Arterial	Old Mill Creek Rd	Sinclair St	No change	Boone County	
Vawter	Major Arterial	Scott Blvd	Old Mill Creek Rd	No change	Boone County	
W Ash	Major Collector	Stadium Blvd	Clinkscales Rd	No change	Columbia	
W Ash	Major Collector	Clinkscales Rd	West Blvd	No change	Columbia	
W Ash	Major Collector	West Blvd	Garth St	No change	Columbia	
W Ash	Major Collector	Fairview Rd	Stadium Blvd	No change	Columbia	
W Broadway	Major Arterial	Stadium Blvd	Clinkscales Rd	No change	MoDOT	
W Broadway	Major Arterial	Silvey St	Fairview Rd	No change	MoDOT	
W Broadway	Major Arterial	Manor Dr	West Blvd	No change	MoDOT	
W Broadway	Major Arterial	Strawn Rd	Silvey St	No change	MoDOT	
W Broadway	Major Arterial	West Blvd	Garth St	No change	Columbia	

NAME	MRP Functional Classification	FROM	TO	Project Description	Agency	Est.Cost $ 2007
W Broadway	Major Arterial	Scott Blvd	Silvey St	No change	MoDOT	
W Broadway	Major Arterial	Manor Dr	West Blvd	No change	MoDOT	
W Business Loop 70	Major Arterial	I-70 EB Ramps	I-70 Drive SW	No change	MoDOT	
W Business Loop 70	Major Arterial	I-70 WB Ramps	I-70 EB Ramps	No change	MoDOT	
W Business Loop 70	Major Arterial	Creasy Springs Rd	I-70 WB Ramp	No change	MoDOT	
W Green Meadows	Major Collector	Forum Blvd	Bethel St	No change	Columbia	
W Stewart	Neighborhood Collector	West Blvd	Garth	No change	Columbia	
W Texas	Neighborhood Collector	Creasy Springs Rd	Garth	No change	Columbia	
W Worley	Major Collector	Clinkscales Rd	West Blvd	No change	Columbia	
W Worley	Major Collector	West Blvd	Garth	No change	Columbia	
W Worley	Major Collector	Fairview Rd	Bernadette Drive	No change	Columbia	
W Worley	Major Collector	Bernadette Drive	Clinkscales Road	No change	Columbia	
W Worley	Neighborhood Collector	Silvey St	Fairview Rd	No change	Columbia	
W. Worley	Neighborhood Collector	Strawn Rd	Silvey Ln	No change	Columbia	
Waco	Minor Arterial	Brown Station Road	Oakland Gravel Road	New construction	Columbia	$4,200,000
Waco	Minor Arterial	Brown Station Rd	Route B	No change	Columbia	
Waco	Minor Arterial	Route B	Rogers Rd	New construction	Columbia	$9,500,000
Wade School Road	Major Collector	Mauller Road	Akeman Bridge Road	No change	Boone County	
Wagon Trail	Neighborhood Collector	Prathersville Rd	Oakland Church Rd	No change	Boone County	
Wagon Trail Road	Neighborhood Collector	Calvert Hill Road	Oakland Church Road	No change	Boone County	
Warren School Road	Neighborhood Collector	Mt.Celestial Road	Old Plank Road	No change	Boone County	
Wehmeyer	Neighborhood Collector	Hickory Grove School Rd	Denninghoff Rd	No change	Boone County	
West	Minor Arterial	Worley St	I-70 Drive SW	No change	Columbia	
West	Minor Arterial	Ash St	Worley St	No change	Columbia	
West	Minor Arterial	Stadium Blvd	Stewart Rd	No change	Columbia	
West	Minor Arterial	Broadway	Ash St	No change	Columbia	
West	Minor Arterial	Stewart Rd	Broadway	No change	Columbia	
West Dothage Road	Neighborhood Collector	Old Plank Road	Smith Hatchery Road	No change	Boone County	
Westlake	Neighborhood Collector	Boothe Ln	Locust Grove Church Rd	Capacity upgrade	Boone County	$4,752,000
Wilcox	Major Collector	St Hwy E	O'Neal Rd	No change	Boone County	
William	Neighborhood Collector	Broadway	Paris Rd	No change	Columbia	
William	Neighborhood Collector	Rollins St	Broadway	No change	Columbia	
Woodhaven	Neighborhood Collector	Gans Rd	Nifong Blvd	New construction	Columbia	$3,800,000
Woodridge	Neighborhood Collector	terminus	St Charles Rd	New construction	Columbia	$5,000,000
Woodridge	Neighborhood Collector	I-70 Dr SE	terminus	No change	Columbia	
Woody Proctor Rd/Miller Rd/Extension	Neighborhood Collector	Smith Hatchery Road	Stanley Poe Road	Future	Boone County	
Wyatt	Major Collector	Thompson Road	Palmer Road	Capacity upgrade	Boone County	$4,500,000
Wyatt	Major Collector	Thompson Road	Mexico Gravel Rd	No change	Boone County	
Yeager	Neighborhood Collector	Driskel Rd	Hatton Chapel Rd	No change	Boone County	

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APPENDIX I:
BOONE COUNTY REVENUE PROJECTIONS

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Boone County Projected Revenues for Road and Bridge Operations
2007-2030

Year	Revenue Sources: Property Tax $.0475	Sales Tax 1/2 cent	MV Sales Tax & MV Lic Fees	CART	Other	Total Revenue	Deductions: Reimb to Gen Rev	Payments to Cities & CSRD	Total Reimb & Payments	Net Revenue for County Roads/Bridges
2007	$ 1,127,218	11,610,745	515,531	1,283,456	275,000	**14,811,950**	150,000	2,618,081	2,768,081	**12,043,869**
2008	1,161,035	11,726,852	520,686	1,289,873	275,000	**14,973,447**	150,000	2,775,166	2,925,166	**12,048,281**
2009	1,195,866	11,844,121	525,893	1,296,323	275,000	**15,137,202**	150,000	2,941,676	3,091,676	**12,045,527**
Five Year Total	3,484,118	35,181,718	1,562,110	3,869,652	825,000	**44,922,599**	450,000	8,334,923	8,784,923	**36,137,676**
2010	1,231,742	12,081,003	531,152	1,302,804	275,000	**15,421,701**	200,000	3,118,176	3,318,176	**12,103,525**
2011	1,268,694	12,322,623	536,464	1,309,318	275,000	**15,712,099**	200,000	3,305,267	3,505,267	**12,206,832**
2012	1,306,755	12,569,076	541,828	1,315,865	275,000	**16,008,524**	200,000	3,503,583	3,703,583	**12,304,941**
2013	1,345,957	12,820,457	547,247	1,322,444	275,000	**16,311,105**	200,000	3,713,798	3,913,798	**12,397,307**
2014	1,386,336	13,076,867	552,719	1,329,056	275,000	**16,619,978**	200,000	3,936,626	4,136,626	**12,483,352**
Five Year Total	6,539,483	62,870,027	2,709,410	6,579,488	1,375,000	**80,073,408**	1,000,000	17,577,450	18,577,450	**61,495,958**
2015	1,427,926	13,469,173	558,246	1,335,702	285,000	**17,076,047**	200,000	4,172,823	4,372,823	**12,703,223**
2016	1,470,764	13,873,248	563,829	1,342,380	285,000	**17,535,220**	200,000	4,423,193	4,623,193	**12,912,028**
2017	1,514,887	14,289,445	569,467	1,349,092	285,000	**18,007,891**	200,000	4,688,584	4,888,584	**13,119,307**
2018	1,560,333	14,718,129	575,162	1,355,838	285,000	**18,494,461**	200,000	4,969,899	5,169,899	**13,324,562**
2019	1,607,143	15,159,672	580,913	1,362,617	285,000	**18,995,346**	200,000	5,268,093	5,468,093	**13,527,252**
Five Year Total	7,581,053	71,509,667	2,847,617	6,745,628	1,425,000	**90,108,965**	1,000,000	23,522,593	24,522,593	**65,586,372**
2020	1,655,358	15,614,463	586,722	1,369,430	285,000	**19,510,972**	200,000	5,584,179	5,784,179	**13,726,793**
2021	1,705,018	16,082,896	592,590	1,376,277	285,000	**20,041,781**	200,000	5,919,230	6,119,230	**13,922,552**
2022	1,756,169	16,565,383	598,515	1,383,158	285,000	**20,588,226**	200,000	6,274,383	6,474,383	**14,113,843**
2023	1,808,854	17,062,345	604,501	1,390,074	285,000	**21,150,774**	200,000	6,650,846	6,850,846	**14,299,927**
2024	1,863,120	17,574,215	610,546	1,397,025	285,000	**21,729,905**	200,000	7,049,897	7,249,897	**14,480,008**
Five Year Total	8,788,519	82,899,303	2,992,874	6,915,964	1,425,000	**103,021,659**	1,000,000	31,478,536	32,478,536	**70,543,123**
2025	1,919,013	18,101,442	616,651	1,404,010	290,000	**22,331,116**	200,000	7,472,891	7,672,891	**14,658,225**
2026	1,976,584	18,644,485	622,818	1,411,030	290,000	**22,944,916**	200,000	7,921,265	8,121,265	**14,823,651**
2027	2,035,881	19,203,819	629,046	1,418,085	290,000	**23,576,831**	200,000	8,396,540	8,596,540	**14,980,291**
2028	2,096,958	19,779,934	635,336	1,425,175	290,000	**24,227,403**	200,000	8,900,333	9,100,333	**15,127,070**
2029	2,159,866	20,373,332	641,690	1,432,301	290,000	**24,897,189**	200,000	9,434,353	9,634,353	**15,262,836**
Five Year Total	10,188,302	96,103,012	3,145,540	7,090,601	1,450,000	**117,977,455**	1,000,000	42,125,382	43,125,382	**74,852,073**
Total 2007 - 2029 Available Revenue	**36,581,475**	**348,563,727**	**13,257,551**	**31,201,333**	**6,500,000**	**436,104,085**	**4,450,000**	**123,038,884**	**127,488,884**	**308,615,201**

Note: Assumes 3% growth for Property Tax; assumes growth rates for Sales Tax varying between 1% and 3%; 1% growth for MV Sales Tax; 1/2% growth for CART. "Other" consists of interest, various reimbursements from other funds, misc. revenues, and ROW permit revenues for which nominal growth is expected. Excludes one-time revenues (such as FEMA, special project, etc.). Assumes renewal of the one-half cent sales tax. "Payments to Cities and the Centralia Special Road District" assumes 6% growth, based on historical trends

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APPENDIX J:
CITY OF COLUMBIA REVENUE PROJECTIONS

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City of Columbia Revenue Projections

Year	Projected Total Revenues Assuming Growth of 3%	Operating Transfer to Airport 5%	Operating Transfer to Transit	Operating Transfer for Street & Sidewalk Maint	Projected Revenues After Operating Transfers	Projected Revenues County rebate	Capital Improvement Sales Tax Bonds	Development Fees	Federal Funds STP/Bridges	Projected Revenues After Operating Transfers including other sources	Projected Fed Funding for Transit Operations	Non-Motorized Grant	Total Revenue
2006	$ 9,396,971									$ -		$30,794,000	
2007	$ 9,678,880	$ 1,000,000	$ 1,400,000	$ 5,740,000	$ 1,538,880		$35,000,000	$ 700,000	$ 1,319,200	$ 38,558,080	$ 1,000,000		
2008	$ 9,969,247	$ 1,050,000	$ 1,200,000	$ 6,200,000	$ 1,519,247			$ 1,190,000	$ 1,100,000	$ 3,809,247	$ 1,000,000		
2009	$ 10,268,324	$ 1,102,500	$ 1,200,000	$ 6,386,000	$ 1,579,824			$ 1,215,000	$ 360,000	$ 3,154,824	$ 1,000,000		
2010	$ 10,576,374	$ 1,157,625	$ 1,200,000	$ 6,577,580	$ 1,641,169			$ 2,485,000	$ 360,000	$ 4,486,169	$ 1,000,000		
(5) Yr Total	$ 49,889,795	$ 4,310,125	$ 5,000,000	$ 24,903,580	$ 6,279,119	$ -	$35,000,000	$ 5,590,000	$ 3,139,200	$ 50,008,319	$ 4,000,000	$30,794,000	
2011	$ 10,893,665	$ 1,192,354	$ 1,300,000	$ 6,577,581	$ 1,823,730			$ 2,485,000	$ 388,203	$ 4,696,933	$ 1,100,000		
2012	$ 11,220,475	$ 1,228,124	$ 1,300,000	$ 6,774,908	$ 1,917,442			$ 2,485,000	$ 392,085	$ 4,794,527	$ 1,133,000		
2013	$ 11,557,089	$ 1,264,968	$ 1,300,000	$ 6,978,156	$ 2,013,965			$ 2,485,000	$ 396,006	$ 4,894,971	$ 1,166,990		
2014	$ 11,903,802	$ 1,302,917	$ 1,300,000	$ 7,187,500	$ 2,113,384			$ 2,485,000	$ 399,966	$ 4,998,350	$ 1,202,000		
2015	$ 12,260,916	$ 1,342,005	$ 1,300,000	$ 7,403,125	$ 2,215,786			$ 2,485,000	$ 403,966	$ 5,104,752	$ 1,238,060		
(5) Yr Total	$ 57,835,946	$ 6,330,368	$ 6,500,000	$ 34,921,271	$ 10,084,307	$ -	$ -	$ 12,425,000	$ 1,980,226	$ 24,489,533	$ 5,840,050		
2016	$ 12,628,743	$ 1,382,265	$ 1,400,000	$ 7,403,126	$ 2,443,352			$ 2,485,000	$ 408,005	$ 5,336,357	$ 1,275,201		
2017	$ 13,007,606	$ 1,423,733	$ 1,400,000	$ 7,625,220	$ 2,558,653			$ 2,485,000	$ 412,085	$ 5,455,738	$ 1,300,705		
2018	$ 13,397,834	$ 1,466,445	$ 1,400,000	$ 7,853,977	$ 2,677,412			$ 2,485,000	$ 416,206	$ 5,578,618	$ 1,326,719		
2019	$ 13,799,769	$ 1,510,438	$ 1,400,000	$ 8,089,596	$ 2,799,735			$ 2,485,000	$ 420,368	$ 5,705,103	$ 1,353,254		
2020	$ 14,213,762	$ 1,555,751	$ 1,400,000	$ 8,332,284	$ 2,925,727			$ 2,485,000	$ 424,572	$ 5,835,299	$ 1,380,319		
(5) Yr Total	$ 67,047,713	$ 7,338,631	$ 7,000,000	$ 39,304,204	$ 13,404,878	$ -	$ -	$ 12,425,000	$ 2,081,236	$ 27,911,114	$ 6,636,197		
2021	$ 14,640,175	$ 1,602,424	$ 1,500,000	$ 8,332,285	$ 3,205,466			$ 2,485,000	$ 428,818	$ 6,119,284	$ 1,407,925		
2022	$ 15,079,380	$ 1,650,496	$ 1,500,000	$ 8,582,254	$ 3,346,630			$ 2,485,000	$ 433,106	$ 6,264,736	$ 1,436,083		
2023	$ 15,531,761	$ 1,700,011	$ 1,500,000	$ 8,839,721	$ 3,492,029			$ 2,485,000	$ 437,437	$ 6,414,466	$ 1,464,805		
2024	$ 15,997,714	$ 1,751,012	$ 1,500,000	$ 9,104,913	$ 3,641,790			$ 2,485,000	$ 441,811	$ 6,568,601	$ 1,494,101		
2025	$ 16,477,646	$ 1,803,542	$ 1,500,000	$ 9,378,060	$ 3,796,043			$ 2,485,000	$ 446,230	$ 6,727,273	$ 1,523,983		
(5) Yr Total	$ 77,726,675	$ 8,507,485	$ 7,500,000	$ 44,237,233	$ 17,481,957	$ -	$ -	$ 12,425,000	$ 2,187,402	$ 32,094,359	$ 7,326,898		
2026	$ 16,971,975	$ 1,857,648	$ 1,600,000	$ 9,378,061	$ 4,136,265			$ 2,485,000	$ 450,692	$ 7,071,957	$ 1,554,463		
2027	$ 17,481,134	$ 1,913,378	$ 1,600,000	$ 9,659,403	$ 4,308,353			$ 2,485,000	$ 455,199	$ 7,248,552	$ 1,585,552		
2028	$ 18,005,568	$ 1,970,779	$ 1,600,000	$ 9,949,185	$ 4,485,604			$ 2,485,000	$ 459,751	$ 7,430,355	$ 1,617,263		
2029	$ 18,545,735	$ 2,029,902	$ 1,600,000	$ 10,247,661	$ 4,668,172			$ 2,485,000	$ 464,368	$ 7,617,540	$ 1,649,608		
(5) Yr Total	$ 71,004,412	$ 7,771,708	$ 6,400,000	$ 39,234,310	$ 17,598,395	$ -	$ -	$ 9,940,000	$ 1,830,010	$ 29,368,405	$ 6,406,887		
Plan Total	$ 323,504,542	$ 34,258,317	$32,400,000	$182,600,598	$ 64,848,656	$88,300,000	$35,000,000	$ 52,805,000	$ 11,218,074	$ 163,871,730	$ 29,557,412	$30,794,000	$ 527,523,740

Sources - City of Columbia Finance Department, Department of Planning & Development

Indirect Funds - Developer Funded Streets	$ 14,770,000
Projected Federal Funding for Transit Capital	$ 19,895,513
Total Revenue with Above Funding Included	$ 562,189,253

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APPENDIX K:
MoDOT REVENUE PROJECTIONS

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MoDOT Columbia MPO Long-Range Financial Projections
Rev. 5-12-2008

Year	Safety	Taking Care of the System	Major Projects and Emerging Needs	Net Revenue Available for Road Maintenance / Construction	Metro Planning	Total
2007	$160,000	$2,480,000	$3,220,000	**$5,860,000**	$275,000	**$6,135,000**
2008	$160,000	$2,490,000	$2,820,000	**$5,470,000**	$275,000	**$5,745,000**
2009	$160,000	$2,460,000	$2,320,000	**$4,940,000**	$275,000	**$5,215,000**
Three Year Total	**$480,000**	**$7,430,000**	**$8,360,000**	**$16,270,000**	$825,000	**$17,095,000**
2010	$140,000	$2,170,000	$140,000	**$2,450,000**	$275,000	**$2,725,000**
2011	$130,000	$2,080,000	$110,000	**$2,320,000**	$275,000	**$2,595,000**
2012	$120,000	$1,860,000	$0	**$1,980,000**	$275,000	**$2,255,000**
2013	$120,000	$1,860,000	$0	**$1,980,000**	$275,000	**$2,255,000**
2014	$120,000	$1,860,000	$0	**$1,980,000**	$275,000	**$2,255,000**
Five Year Total	**$630,000**	**$9,830,000**	**$250,000**	**$10,710,000**	$1,375,000	**$12,085,000**
2015	$120,000	$1,860,000	$0	**$1,980,000**	$285,000	**$2,265,000**
2016	$120,000	$1,860,000	$0	**$1,980,000**	$285,000	**$2,265,000**
2017	$120,000	$1,860,000	$0	**$1,980,000**	$285,000	**$2,265,000**
2018	$120,000	$1,860,000	$0	**$1,980,000**	$285,000	**$2,265,000**
2019	$120,000	$1,860,000	$0	**$1,980,000**	$285,000	**$2,265,000**
Five Year Total	**$600,000**	**$9,300,000**	**$0**	**$9,900,000**	$1,425,000	**$11,325,000**
2020	$120,000	$1,860,000	$0	**$1,980,000**	$285,000	**$2,265,000**
2021	$120,000	$1,860,000	$0	**$1,980,000**	$285,000	**$2,265,000**
2022	$120,000	$1,860,000	$0	**$1,980,000**	$285,000	**$2,265,000**
2023	$120,000	$1,860,000	$0	**$1,980,000**	$285,000	**$2,265,000**
2024	$120,000	$1,860,000	$0	**$1,980,000**	$285,000	**$2,265,000**
Five Year Total	**$600,000**	**$9,300,000**	**$0**	**$9,900,000**	$1,425,000	**$11,325,000**
2025	$120,000	$1,860,000	$0	**$1,980,000**	$290,000	**$2,270,000**
2026	$120,000	$1,860,000	$0	**$1,980,000**	$290,000	**$2,270,000**
2027	$120,000	$1,860,000	$0	**$1,980,000**	$290,000	**$2,270,000**
2028	$120,000	$1,860,000	$0	**$1,980,000**	$290,000	**$2,270,000**
2029	$120,000	$1,860,000	$0	**$1,980,000**	$290,000	**$2,270,000**
Five Year Total	**$600,000**	**$9,300,000**	**$0**	**$9,900,000**	$1,450,000	**$11,350,000**
Total 2007 - 2029	**$2,910,000**	**$45,160,000**	**$8,610,000**	**$56,680,000**	**$6,500,000**	**$63,180,000**

Note: Metro Planning is federal Combined Planning Grant (CPG) funding available to the MPO for staffing and consultant and is not utilized directly for road construction & maintenance projects.

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APPENDIX L:
ROADWAY PROJECT LISTINGS BY JURISDICTION WITH INFLATION FACTORS TO 2030

A. Missouri Department of Transportation (MoDOT)
Long Range Projects with Inflation Factor
over all years of Plan Period 2007-2029
Including Illustrative Projects

	Estimated Cost Year 2007 $	Year 1	Year 2	Year 3	Year 4	Year 5
1. New Construction						
Freeways/Expressways:						
MO 740: U.S. Highway 63 to I-70.	$40,000,000	$ 41,200,000	$ 42,436,000	$ 43,709,080	$ 45,020,352	$ 46,370,963
(Illustrative - $40,000,000)						
Major Arterials - 4 lanes						
Route TT: Route UU to Scott Boulevard.	$5,111,040	$ 5,264,371	$ 5,422,302	$ 5,584,971	$ 5,752,521	$ 5,925,096
(Illustrative - $5,111,040)						
Ballenger Lane: I-70 Drive SE to Route PP	$4,000,000	$ 4,120,000	$ 4,243,600	$ 4,370,908	$ 4,502,035	$ 4,637,096
2. Capacity Upgrade						
Interstate						
Interstate 70: West urban limit to East urban limit	$627,997,000	$ 646,836,910	$666,242,017	$ 686,229,278	$ 706,816,156	$ 728,020,641
(Illustrative - $627,997,000)						
Freeways/Expressways						
MO 163: Southampton Drive to State Route K	$1,875,000	$ 1,931,250	$ 1,989,188	$ 2,048,863	$ 2,110,329	$ 2,173,639
(Illustrative - $1,875,000)		$ -	$ -	$ -	$ -	$ -
Major Arterials		$ -	$ -	$ -	$ -	$ -
Route PP: Robert Ray Drive to East urban limit.	$5,050,000	$ 5,201,500	$ 5,357,545	$ 5,518,271	$ 5,683,819	$ 5,854,334
(Illustrative - $5,050,000)						
Route WW: U.S. Highway 63 to East urban limit.	$1,151,400	$ 1,185,942	$ 1,221,520	$ 1,258,166	$ 1,295,911	$ 1,334,788
Route TT: Smith Drive to end of State maintenance.	$2,262,000	$ 2,329,860	$ 2,399,756	$ 2,471,748	$ 2,545,901	$ 2,622,278
Total Estimated Project Costs - Constrained	$7,413,400	$ 7,635,802	$ 7,864,876	$ 8,100,822	$ 8,343,847	$ 8,594,162
Total Estimated Project Costs - Unconstrained, including all Illustrative Projects	$687,446,440	$708,069,833	$729,311,928	$751,191,286	$773,727,025	$796,938,835
Note: Presumes annual inflation rate of 3%.	3.0%					

A. Missouri Department of Transportation (MoDOT)
Long Range Projects with Inflation Factor
over all years of Plan Period 2007-2029
Including Illustrative Projects

	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 15
1. New Construction							
Freeways/Expressways:							
MO 740: U.S. Highway 63 to I-70.	$ 47,762,092	$ 49,194,955	$ 50,670,803	$ 52,190,927	$ 53,756,655	$ 55,369,355	$ 62,318,697
(Illustrative - $40,000,000)							
Major Arterials - 4 lanes							
Route TT: Route UU to Scott Boulevard.	$ 6,102,849	$ 6,285,935	$ 6,474,513	$ 6,668,748	$ 6,868,810	$ 7,074,875	$ 7,962,834
(Illustrative - $5,111,040)							
Ballenger Lane: I-70 Drive SE to Route PP	$ 4,776,209	$ 4,919,495	$ 5,067,080	$ 5,219,093	$ 5,375,666	$ 5,536,935	$ 6,231,870
2. Capacity Upgrade							
Interstate							
Interstate 70: West urban limit to East urban limit	$ 749,861,260	$ 772,357,098	$ 795,527,811	$ 819,393,645	$ 843,975,454	$ 869,294,718	$ 978,398,864
(Illustrative - $627,997,000)							
Freeways/Expressways							
MO 163: Southampton Drive to State Route K	$ 2,238,848	$ 2,306,013	$ 2,375,194	$ 2,446,450	$ 2,519,843	$ 2,595,439	$ 2,921,189
(Illustrative - $1,875,000)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Major Arterials	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Route PP: Robert Ray Drive to East urban limit.	$ 6,029,964	$ 6,210,863	$ 6,397,189	$ 6,589,105	$ 6,786,778	$ 6,990,381	$ 7,867,735
(Illustrative - $5,050,000)							
Route WW: U.S. Highway 63 to East urban limit.	$ 1,374,832	$ 1,416,077	$ 1,458,559	$ 1,502,316	$ 1,547,385	$ 1,593,807	$ 1,793,844
Route TT: Smith Drive to end of State maintenance.	$ 2,700,946	$ 2,781,975	$ 2,865,434	$ 2,951,397	$ 3,039,939	$ 3,131,137	$ 3,524,122
Total Estimated Project Costs - Constrained	$ 8,851,987	$ 9,117,547	$ 9,391,073	$ 9,672,806	$ 9,962,990	$ 10,261,879	$ 11,549,836
Total Estimated Project Costs - Unconstrained, including all Illustrative Projects	$820,847,000	$845,472,410	$870,836,583	$896,961,680	$923,870,531	$951,586,647	$1,071,019,154

Note: Presumes annual inflation rate of 3%.

A. Missouri Department of Transportation (MoDOT)
Long Range Projects with Inflation Factor
over all years of Plan Period 2007-2029
Including Illustrative Projects

	Year 16	Year 20	Year 21	Year 22
1. New Construction				
Freeways/Expressways:				
MO 740: U.S. Highway 63 to I-70.	$ 64,188,258	$ 72,244,449	$ 74,411,783	$ 76,644,136
(Illustrative - $40,000,000)				
Major Arterials - 4 lanes				
Route TT: Route UU to Scott Boulevard.	$ 8,201,719	$ 9,231,107	$ 9,508,040	$ 9,793,281
(Illustrative - $5,111,040)				
Ballenger Lane: I-70 Drive SE to Route PP	$ 6,418,826	$ 7,224,445	$ 7,441,178	$ 7,664,414
2. Capacity Upgrade				
Interstate				
Interstate 70: West urban limit to East urban limit	$1,007,750,830	$ 1,134,232,437	$1,168,259,410	$ 1,203,307,192
(Illustrative - $627,997,000)				
Freeways/Expressways				
MO 163: Southampton Drive to State Route K	$ 3,008,825	$ 3,386,459	$ 3,488,052	$ 3,592,694
(Illustrative - $1,875,000)	$ -	$ -	$ -	$ -
Major Arterials	$ -	$ -	$ -	$ -
Route PP: Robert Ray Drive to East urban limit.	$ 8,103,768	$ 9,120,862	$ 9,394,488	$ 9,676,322
(Illustrative - $5,050,000)				
Route WW: U.S. Highway 63 to East urban limit.	$ 1,847,659	$ 2,079,556	$ 2,141,943	$ 2,206,201
Route TT: Smith Drive to end of State maintenance.	$ 3,629,846	$ 4,085,424	$ 4,207,986	$ 4,334,226
Total Estimated Project Costs - Constrained	$ 11,896,331	$ 13,389,425	$ 13,791,108	$ 14,204,841
Total Estimated Project Costs - Unconstrained, including all Illustrative Projects	$1,103,149,729	$1,241,604,739	$1,278,852,881	$1,317,218,467

Note: Presumes annual inflation rate of 3%.

B. City of Columbia Long Range Projects with Inflation Factor over all years of Plan Period 2007-2029	Estimated Cost in Year 2007 $	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
1. New Construction								
Major Arterials								
Ballenger Lane: St.Charles Road to Clark Lane.	$6,410,000	$ 6,602,300	$ 6,800,369	$ 7,004,380	$ 7,214,511	$ 7,430,947	$ 7,653,875	$ 7,883,491
Northwest Loop: Creasy Springs Rd to Brown School Rd.	$22,109,000	$ 22,772,270	$ 23,455,438	$ 24,159,101	$ 24,883,874	$ 25,630,391	$ 26,399,302	$ 27,191,281
Scott Boulevard: West Broadway to Sorrel's Overpass.	$8,000,000	$ 8,240,000	$ 8,487,200	$ 8,741,816	$ 9,004,070	$ 9,274,193	$ 9,552,418	$ 9,838,991
Vandiver Drive: US 63 to Mexico Gravel Road.	$3,600,000	$ 3,708,000	$ 3,819,240	$ 3,933,817	$ 4,051,832	$ 4,173,387	$ 4,298,588	$ 4,427,546
Brown School Road: Creasy Springs Road to City limit *	$2,500,000	$ 2,575,000	$ 2,652,250	$ 2,731,818	$ 2,813,772	$ 2,898,185	$ 2,985,131	$ 3,074,685
Sub-Total	$42,619,000							
Minor Arterials		$ -	$ -	$ -	$ -	$ -	$ -	$ -
Providence Road: Vandiver Drive to Blue Ridge Rd.	$4,100,000	$ 4,223,000	$ 4,349,690	$ 4,480,181	$ 4,614,586	$ 4,753,024	$ 4,895,614	$ 5,042,483
Waco Road: Brown Station Rd to Oakland Gravel Rd *	$4,200,000	$ 4,326,000	$ 4,455,780	$ 4,589,453	$ 4,727,137	$ 4,868,951	$ 5,015,020	$ 5,165,470
Waco Road: Route B to Rogers Road.	$9,500,000	$ 9,785,000	$ 10,078,550	$ 10,380,907	$ 10,692,334	$ 11,013,104	$ 11,343,497	$ 11,683,802
Providence Road: Smiley Lane to Brown School Road.	$5,900,000	$ 6,077,000	$ 6,259,310	$ 6,447,089	$ 6,640,502	$ 6,839,717	$ 7,044,909	$ 7,256,256
Prathersville Road: Tower Drive to US 63 *	$3,168,000	$ 3,263,040	$ 3,360,931	$ 3,461,759	$ 3,565,612	$ 3,672,580	$ 3,782,758	$ 3,896,240
Sub-Total	$26,868,000							
Major Collectors		$ -	$ -	$ -	$ -	$ -	$ -	$ -
Bernadette Drive: I-70 Drive SW to Fairview Road.	$3,400,000	$ 3,502,000	$ 3,607,060	$ 3,715,272	$ 3,826,730	$ 3,941,532	$ 4,059,778	$ 4,181,571
Creekwood Parkway: Golden Bear Dr. to Vandiver Dr.	$6,300,000	$ 6,489,000	$ 6,683,670	$ 6,884,180	$ 7,090,706	$ 7,303,427	$ 7,522,529	$ 7,748,205
East Boulevard: East Business Loop 70 to Conley Rd.	$5,800,000	$ 5,974,000	$ 6,153,220	$ 6,337,817	$ 6,527,951	$ 6,723,790	$ 6,925,503	$ 7,133,268
Lake Ridgeway Drive: Clark Lane to terminus.	$2,100,000	$ 2,163,000	$ 2,227,890	$ 2,294,727	$ 2,363,569	$ 2,434,476	$ 2,507,510	$ 2,582,735
Lemone Industrial Blvd: Grindstone Creek to MO 740.	$9,300,000	$ 9,579,000	$ 9,866,370	$ 10,162,361	$ 10,467,232	$ 10,781,249	$ 11,104,686	$ 11,437,827
Sorrel's Overpass: I-70 Drive NW to State Highway E.	$16,500,000	$ 16,995,000	$ 17,504,850	$ 18,029,996	$ 18,570,895	$ 19,128,022	$ 19,701,863	$ 20,292,919
Van Horn Tavern Road/I-70 Drive SW *	$5,000,000	$ 5,150,000	$ 5,304,500	$ 5,463,635	$ 5,627,544	$ 5,796,370	$ 5,970,261	$ 6,149,369
Sub-Total	$48,400,000	$ 49,852,000	$ 51,347,560	$ 52,887,987	$ 54,474,626	$ 56,108,865	$ 57,792,131	$ 59,525,895
Neighborhood Collectors		$ -	$ -	$ -	$ -	$ -	$ -	$ -
Cunningham Road: Bray Avenue to Rollins Road.	$1,100,000	$ 1,133,000	$ 1,166,990	$ 1,202,000	$ 1,238,060	$ 1,275,201	$ 1,313,458	$ 1,352,861
Dublin Avenue: Scott Boulevard to terminus.	$2,500,000	$ 2,575,000	$ 2,652,250	$ 2,731,818	$ 2,813,772	$ 2,898,185	$ 2,985,131	$ 3,074,685
Rice Road: Lake of the Woods Road to terminus.	$1,500,000	$ 1,545,000	$ 1,591,350	$ 1,639,091	$ 1,688,263	$ 1,738,911	$ 1,791,078	$ 1,844,811
Southampton Drive: Sinclair Street to terminus.	$870,000	$ 896,100	$ 922,983	$ 950,672	$ 979,193	$ 1,008,568	$ 1,038,825	$ 1,069,990
Woodhaven Drive: Gans Road to Nifong Boulevard.	$3,800,000	$ 3,914,000	$ 4,031,420	$ 4,152,363	$ 4,276,933	$ 4,405,241	$ 4,537,399	$ 4,673,521
Woodridge Drive: St. Charles Road to terminus.	$5,000,000	$ 5,150,000	$ 5,304,500	$ 5,463,635	$ 5,627,544	$ 5,796,370	$ 5,970,261	$ 6,149,369
Sub-Total	$14,770,000	$ 15,213,100	$ 15,669,493	$ 16,139,578	$ 16,623,765	$ 17,122,478	$ 17,636,152	$ 18,165,237
2. Capacity Upgrades								
Major Arterials								
Blackfoot Road: State Highway E to O'Neal Road.	$9,400,000	$ 9,682,000	$ 9,972,460	$ 10,271,634	$ 10,579,783	$ 10,897,176	$ 11,224,092	$ 11,560,814
Brown School Rd: Providence Road to State Hwy 763.	$5,200,000	$ 5,356,000	$ 5,516,680	$ 5,682,180	$ 5,852,646	$ 6,028,225	$ 6,209,072	$ 6,395,344
Scott Boulevard: Rollins Road to Brookview Terrace.	$11,025,000	$ 11,355,750	$ 11,696,423	$ 12,047,315	$ 12,408,735	$ 12,780,997	$ 13,164,427	$ 13,559,359

B. City of Columbia Long Range Projects with Inflation Factor	Estimated Cost in Year 2007 $	1	2	3	4	5	6	7
Vandiver Drive: Sylvan Lane to US 63.	$2,300,000	$ 2,369,000	$ 2,440,070	$ 2,513,272	$ 2,588,670	$ 2,666,330	$ 2,746,320	$ 2,828,710
Scott Boulevard: Vawter School Road to MKT Trail.	$5,000,000	$ 5,150,000	$ 5,304,500	$ 5,463,635	$ 5,627,544	$ 5,796,370	$ 5,970,261	$ 6,149,369
Route 763/Rangeline: Big Bear to US 63. (City share only)	$11,000,000	$ 11,330,000	$ 11,669,900	$ 12,019,997	$ 12,380,597	$ 12,752,015	$ 13,134,575	$ 13,528,613
Mexico Gravel Road: Vandiver Drive to Route PP.	$2,700,000	$ 2,781,000	$ 2,864,430	$ 2,950,363	$ 3,038,874	$ 3,130,040	$ 3,223,941	$ 3,320,659
Richland Road: St. Charles Road to Olivet Road *	$12,000,000	$ 12,360,000	$ 12,730,800	$ 13,112,724	$ 13,506,106	$ 13,911,289	$ 14,328,628	$ 14,758,486
Sub-Total	$58,625,000	$ 60,383,750	$ 62,195,263	$ 64,061,120	$ 65,982,954	$ 67,962,443	$ 70,001,316	$ 72,101,355
Minor Arterials		$ -	$ -	$ -	$ -	$ -	$ -	$ -
Clark Lane: Ballenger Lane/Route PP to St. Charles Road.	$3,900,000	$ 4,017,000	$ 4,137,510	$ 4,261,635	$ 4,389,484	$ 4,521,169	$ 4,656,804	$ 4,796,508
Scott Boulevard: Vawter School Road to Route KK.	$9,500,000	$ 9,785,000	$ 10,078,550	$ 10,380,907	$ 10,692,334	$ 11,013,104	$ 11,343,497	$ 11,683,802
Grace Lane: Richland Road southward 2,700 feet.	$2,400,000	$ 2,472,000	$ 2,546,160	$ 2,622,545	$ 2,701,221	$ 2,782,258	$ 2,865,726	$ 2,951,697
Route K: Old Plank Road to Scott Boulevard *	$4,900,000	$ 5,047,000	$ 5,198,410	$ 5,354,362	$ 5,514,993	$ 5,680,443	$ 5,850,856	$ 6,026,382
Creasy Springs Road: Bear Creek to Obermiller Road *	$9,300,000	$ 9,579,000	$ 9,866,370	$ 10,162,361	$ 10,467,232	$ 10,781,249	$ 11,104,686	$ 11,437,827
New Haven Road: Rolling Hills Road to Big Timber *	$9,500,000	$ 9,785,000	$ 10,078,550	$ 10,380,907	$ 10,692,334	$ 11,013,104	$ 11,343,497	$ 11,683,802
Lake of the Woods Road: St. Charles Road to Route PP *	$7,200,000	$ 7,416,000	$ 7,638,480	$ 7,867,634	$ 8,103,663	$ 8,346,773	$ 8,597,177	$ 8,855,092
Sub-Total	$46,700,000							
Major Collectors		$ -	$ -	$ -	$ -	$ -	$ -	$ -
Bearfield Road: Gans Road to Nifong Boulevard.	$7,200,000	$ 7,416,000	$ 7,638,480	$ 7,867,634	$ 8,103,663	$ 8,346,773	$ 8,597,177	$ 8,855,092
Heriford Drive: Burlington to Route B.	$700,000	$ 721,000	$ 742,630	$ 764,909	$ 787,856	$ 811,492	$ 835,837	$ 860,912
St. Charles Road: Keene Street to Grace Lane. *	$11,300,000	$ 11,639,000	$ 11,988,170	$ 12,347,815	$ 12,718,250	$ 13,099,797	$ 13,492,791	$ 13,897,575
Sinclair Road: Nifong southward 9,000 feet. *	$6,700,000	$ 6,901,000	$ 7,108,030	$ 7,321,271	$ 7,540,909	$ 7,767,136	$ 8,000,150	$ 8,240,155
Wyatt Lane: Thompson Road to Palmer Road *	$4,500,000	$ 4,635,000	$ 4,774,050	$ 4,917,272	$ 5,064,790	$ 5,216,733	$ 5,373,235	$ 5,534,432
Sub-Total	$30,400,000							
Neighborhood Collectors								
Thompson Road: Wyatt Lane to Route PP *	$2,000,000	$ 2,060,000	$ 2,121,800	$ 2,185,454	$ 2,251,018	$ 2,318,548	$ 2,388,105	$ 2,459,748
Silvey Street: West Worley Street to I-70 Drive SW.	$1,500,000	$ 1,545,000	$ 1,591,350	$ 1,639,091	$ 1,688,263	$ 1,738,911	$ 1,791,078	$ 1,844,811
Old Mill Creek: Old Field Road to Crabapple Lane *	$3,300,000	$ 3,399,000	$ 3,500,970	$ 3,605,999	$ 3,714,179	$ 3,825,604	$ 3,940,373	$ 4,058,584
Sub-Total	$6,800,000							
Totals	$275,182,000	$283,437,460	$291,940,584	$300,698,801	$309,719,765	$319,011,358	$328,581,699	$ 338,439,150

B. City of Columbia
Long Range Projects with Inflation Factor
over all years of Plan Period 2007-2029

	Year 8	Year 9	Year 10	Year 11	Year 15	Year 16	Year 20	Year 21
1. New Construction								
Major Arterials								
Ballenger Lane: St.Charles Road to Clark Lane.	$ 8,119,996	$ 8,363,596	$ 8,614,504	$ 8,872,939	$ 9,986,571	$ 10,286,168	$ 11,577,173	$ 11,924,488
Northwest Loop: Creasy Springs Rd to Brown School Rd.	$ 28,007,020	$ 28,847,230	$ 29,712,647	$ 30,604,027	$ 34,445,102	$ 35,478,455	$ 39,931,313	$ 41,129,253
Scott Boulevard: West Broadway to Sorrel's Overpass.	$ 10,134,161	$ 10,438,185	$ 10,751,331	$ 11,073,871	$ 12,463,739	$ 12,837,652	$ 14,448,890	$ 14,882,357
Vandiver Drive: US 63 to Mexico Gravel Road.	$ 4,560,372	$ 4,697,183	$ 4,838,099	$ 4,983,242	$ 5,608,683	$ 5,776,943	$ 6,502,000	$ 6,697,060
Brown School Road: Creasy Springs Road to City limit *	$ 3,166,925	$ 3,261,933	$ 3,359,791	$ 3,460,585	$ 3,894,919	$ 4,011,766	$ 4,515,278	$ 4,650,736
Sub-Total								
Minor Arterials	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Providence Road: Vandiver Drive to Blue Ridge Rd.	$ 5,193,757	$ 5,349,570	$ 5,510,057	$ 5,675,359	$ 6,387,666	$ 6,579,296	$ 7,405,056	$ 7,627,208
Waco Road: Brown Station Rd to Oakland Gravel Rd *	$ 5,320,434	$ 5,480,047	$ 5,644,449	$ 5,813,782	$ 6,543,463	$ 6,739,767	$ 7,585,667	$ 7,813,237
Waco Road: Route B to Rogers Road.	$ 12,034,316	$ 12,395,345	$ 12,767,206	$ 13,150,222	$ 14,800,690	$ 15,244,711	$ 17,158,057	$ 17,672,798
Providence Road: Smiley Lane to Brown School Road.	$ 7,473,943	$ 7,698,162	$ 7,929,107	$ 8,166,980	$ 9,192,008	$ 9,467,768	$ 10,656,056	$ 10,975,738
Prathersville Road: Tower Drive to US 63 *	$ 4,013,128	$ 4,133,521	$ 4,257,527	$ 4,385,253	$ 4,935,641	$ 5,083,710	$ 5,721,760	$ 5,893,413
Sub-Total								
Major Collectors	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Bernadette Drive: I-70 Drive SW to Fairview Road.	$ 4,307,018	$ 4,436,229	$ 4,569,316	$ 4,706,395	$ 5,297,089	$ 5,456,002	$ 6,140,778	$ 6,325,002
Creekwood Parkway: Golden Bear Dr. to Vandiver Dr.	$ 7,980,652	$ 8,220,071	$ 8,466,673	$ 8,720,673	$ 9,815,195	$ 10,109,651	$ 11,378,501	$ 11,719,856
East Boulevard: East Business Loop 70 to Conley Rd.	$ 7,347,266	$ 7,567,684	$ 7,794,715	$ 8,028,556	$ 9,036,211	$ 9,307,297	$ 10,475,445	$ 10,789,709
Lake Ridgeway Drive: Clark Lane to terminus.	$ 2,660,217	$ 2,740,024	$ 2,822,224	$ 2,906,891	$ 3,271,732	$ 3,369,884	$ 3,792,834	$ 3,906,619
Lemone Industrial Blvd: Grindstone Creek to MO 740.	$ 11,780,962	$ 12,134,391	$ 12,498,422	$ 12,873,375	$ 14,489,097	$ 14,923,770	$ 16,796,834	$ 17,300,740
Sorrel's Overpass: I-70 Drive NW to State Highway E.	$ 20,901,706	$ 21,528,758	$ 22,174,620	$ 22,839,859	$ 25,706,462	$ 26,477,656	$ 29,800,835	$ 30,694,860
Van Horn Tavern Road/I-70 Drive SW *	$ 6,333,850	$ 6,523,866	$ 6,719,582	$ 6,921,169	$ 7,789,837	$ 8,023,532	$ 9,030,556	$ 9,301,473
Sub-Total	$ 61,311,672	$ 63,151,022	$ 65,045,553	$ 66,996,919	$ 75,405,623	$ 77,667,792	$ 87,415,784	$ 90,038,257
Neighborhood Collectors	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Cunningham Road: Bray Avenue to Rollins Road.	$ 1,393,447	$ 1,435,251	$ 1,478,308	$ 1,522,657	$ 1,713,764	$ 1,765,177	$ 1,986,722	$ 2,046,324
Dublin Avenue: Scott Boulevard to terminus.	$ 3,166,925	$ 3,261,933	$ 3,359,791	$ 3,460,585	$ 3,894,919	$ 4,011,766	$ 4,515,278	$ 4,650,736
Rice Road: Lake of the Woods Road to terminus.	$ 1,900,155	$ 1,957,160	$ 2,015,875	$ 2,076,351	$ 2,336,951	$ 2,407,060	$ 2,709,167	$ 2,790,442
Southampton Drive: Sinclair Street to terminus.	$ 1,102,090	$ 1,135,153	$ 1,169,207	$ 1,204,283	$ 1,355,432	$ 1,396,095	$ 1,571,317	$ 1,618,456
Woodhaven Drive: Gans Road to Nifong Boulevard.	$ 4,813,726	$ 4,958,138	$ 5,106,882	$ 5,260,089	$ 5,920,276	$ 6,097,884	$ 6,863,223	$ 7,069,119
Woodridge Drive: St. Charles Road to terminus.	$ 6,333,850	$ 6,523,866	$ 6,719,582	$ 6,921,169	$ 7,789,837	$ 8,023,532	$ 9,030,556	$ 9,301,473
Sub-Total	$ 18,710,194	$ 19,271,500	$ 19,849,645	$ 20,445,134	$ 23,011,179	$ 23,701,514	$ 26,676,263	$ 27,476,551
2. Capacity Upgrades								$ -
								$ -
Major Arterials								$ -
Blackfoot Road: State Highway E to O'Neal Road.	$ 11,907,639	$ 12,264,868	$ 12,632,814	$ 13,011,798	$ 14,644,894	$ 15,084,241	$ 16,977,446	$ 17,486,769
Brown School Rd: Providence Road to State Hwy 763.	$ 6,587,204	$ 6,784,821	$ 6,988,365	$ 7,198,016	$ 8,101,431	$ 8,344,473	$ 9,391,778	$ 9,673,532
Scott Boulevard: Rollins Road to Brookview Terrace.	$ 13,966,140	$ 14,385,124	$ 14,816,678	$ 15,261,178	$ 17,176,591	$ 17,691,888	$ 19,912,376	$ 20,509,748

C. Boone County Long Range Projects

C. Boone County Long-Range Projects with Inflation Factor over all years of Plan Period 2007 - 2029	Estimated Cost Year 2007 $	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
1. New Construction								
Minor Arterials								
St. Charles Road: Clark Lane to Route Z	$19,800,000	$ 20,394,000	$21,005,820	$ 21,635,995	$22,285,074	$ 22,953,627	$23,642,235	$ 24,351,503
Waco Road: Highway 63 to City limits	$6,336,000	$ 6,526,080	$ 6,721,862	$ 6,923,518	$ 7,131,224	$ 7,345,161	$ 7,565,515	$ 7,792,481
Northwest Loop Project: Creasy Springs Road to Providence Road	$23,000,000	$ 23,690,000	$24,400,700	$ 25,132,721	$25,886,703	$ 26,663,304	$27,463,203	$ 28,287,099
Providence Road: terminus to Hackberry Boulevard	$1,056,000	$ 1,087,680	$ 1,120,310	$ 1,153,920	$ 1,188,537	$ 1,224,193	$ 1,260,919	$ 1,298,747
Gans Road: US Highway 63 to Bearfield Road	$7,128,000	$ 7,341,840	$ 7,562,095	$ 7,788,958	$ 8,022,627	$ 8,263,306	$ 8,511,205	$ 8,766,541
Sub-Total	$57,320,000	$ 59,039,600	$60,810,788	$ 62,635,112	$64,514,165	$ 66,449,590	$68,443,078	$ 70,496,370
Major Collectors								
None								
Neighborhood Collectors								
Ponderosa Connector Project: near Boone County Public Works	$5,892,480	$ 6,069,254	$ 6,251,332	$ 6,438,872	$ 6,632,038	$ 6,830,999	$ 7,035,929	$ 7,247,007
Gans Creek Road: South extension	$633,600	$ 652,608	$ 672,186	$ 692,352	$ 713,122	$ 734,516	$ 756,552	$ 779,248
Sub-Total	$6,526,080	$ 6,721,862	$ 6,923,518	$ 7,131,224	$ 7,345,161	$ 7,565,515	$ 7,792,481	$ 8,026,255
2. Capacity Upgrades								
Major Arterials								
Rangeline Road: Route WW to New Haven Road	$6,336,000	$ 6,526,080	$ 6,721,862	$ 6,923,518	$ 7,131,224	$ 7,345,161	$ 7,565,515	$ 7,792,481
Sub-Total	$6,336,000	$ 6,526,080	$ 6,721,862	$ 6,923,518	$ 7,131,224	$ 7,345,161	$ 7,565,515	$ 7,792,481
Minor Arterials		$ -	$ -	$ -	$ -	$ -	$ -	$ -
Gans Road: Bearfield Road to Providence Road	$7,128,000	$ 7,341,840	$ 7,562,095	$ 7,788,958	$ 8,022,627	$ 8,263,306	$ 8,511,205	$ 8,766,541
Kircher Road: Mt.Hope Road to Route HH	$7,920,000	$ 8,157,600	$ 8,402,328	$ 8,654,398	$ 8,914,030	$ 9,181,451	$ 9,456,894	$ 9,740,601
Scott Boulevard: Brookview Terrace to Route KK	$15,312,000	$ 15,771,360	$16,244,501	$ 16,731,836	$17,233,791	$ 17,750,805	$18,283,329	$ 18,831,829
Sub-Total	$30,360,000	$ 31,270,800	$32,208,924	$ 33,175,192	$34,170,447	$ 35,195,561	$36,251,428	$ 37,338,971
Major Collectors								
Akeman Bridge Road/Wilhite Road: Route J to Route VV	$28,512,000	$ 29,367,360	$30,248,381	$ 31,155,832	$32,090,507	$ 33,053,222	$34,044,819	$ 35,066,164
Neighborhood Collectors								
Westlake Road: Boothe Lane to Locust Grove Road	$4,752,000	$ 4,894,560	$ 5,041,397	$ 5,192,639	$ 5,348,418	$ 5,508,870	$ 5,674,137	$ 5,844,361
Clearview Road: Brown School Road to dead end	$2,534,400	$ 2,610,432	$ 2,688,745	$ 2,769,407	$ 2,852,490	$ 2,938,064	$ 3,026,206	$ 3,116,992
Hackberry Boulevard: Clearview Road to Providence Road	$5,702,400	$ 5,873,472	$ 6,049,676	$ 6,231,166	$ 6,418,101	$ 6,610,644	$ 6,808,964	$ 7,013,233
Hatten Chapel Road: Route E to Locust Grove Road	$8,870,400	$ 9,136,512	$ 9,410,607	$ 9,692,926	$ 9,983,713	$ 10,283,225	$10,591,721	$ 10,909,473
Bonne Femme Church Road: Old Highway 63 to Gans Creek Road	$6,732,000	$ 6,933,960	$ 7,141,979	$ 7,356,238	$ 7,576,925	$ 7,804,233	$ 8,038,360	$ 8,279,511
Sub-Total	$28,591,200	$ 29,448,936	$30,332,404	$ 31,242,376	$32,179,647	$ 33,145,037	$34,139,388	$ 35,163,570
Totals	$157,645,280	$133,007,278	$136,997,497	$141,107,422	$145,340,644	$149,700,864	$154,191,890	$158,817,646

Note: Presumes 3% inflation rate.

C. Boone County Long-Range Projects with Inflation Factor over all years of Plan Period 2007 - 2029	Year 8	Year 9	Year 10	Year 11	Year 15	Year 16	Year 20	Year 21
1. New Construction								
Minor Arterials								
St. Charles Road: Clark Lane to Route Z	$ 25,082,048	$ 25,834,509	$ 26,609,544	$ 27,407,831	$ 30,847,755	$31,773,187	$ 35,761,002	$ 36,833,833
Waco Road: Highway 63 to City limits	$ 8,026,255	$ 8,267,043	$ 8,515,054	$ 8,770,506	$ 9,871,282	$10,167,420	$ 11,443,521	$ 11,786,826
Northwest Loop Project: Creasy Springs Road to Providence Road	$ 29,135,712	$ 30,009,783	$ 30,910,077	$ 31,837,379	$ 35,833,251	$36,908,248	$ 41,540,558	$ 42,786,775
Providence Road: terminus to Hackberry Boulevard	$ 1,337,709	$ 1,377,840	$ 1,419,176	$ 1,461,751	$ 1,645,214	$ 1,694,570	$ 1,907,253	$ 1,964,471
Gans Road: US Highway 63 to Bearfield Road	$ 9,029,537	$ 9,300,423	$ 9,579,436	$ 9,866,819	$ 11,105,192	$11,438,347	$ 12,873,961	$ 13,260,180
Sub-Total	$ 72,611,261	$ 74,789,599	$ 77,033,287	$ 79,344,285	$ 89,302,692	$91,981,773	$103,526,296	$106,632,085
Major Collectors								
None								
Neighborhood Collectors								
Ponderosa Connector Project: near Boone County Public Works	$ 7,464,417	$ 7,688,350	$ 7,919,000	$ 8,156,570	$ 9,180,292	$ 9,455,701	$ 10,642,474	$ 10,961,749
Gans Creek Road: South extension	$ 802,626	$ 826,704	$ 851,505	$ 877,051	$ 987,128	$ 1,016,742	$ 1,144,352	$ 1,178,683
Sub-Total	$ 8,267,043	$ 8,515,054	$ 8,770,506	$ 9,033,621	$ 10,167,420	$10,472,443	$ 11,786,826	$ 12,140,431
2. Capacity Upgrades								
Major Arterials								
Rangeline Road: Route WW to New Haven Road	$ 8,026,255	$ 8,267,043	$ 8,515,054	$ 8,770,506	$ 9,871,282	$10,167,420	$ 11,443,521	$ 11,786,826
Sub-Total	$ 8,026,255	$ 8,267,043	$ 8,515,054	$ 8,770,506	$ 9,871,282	$10,167,420	$ 11,443,521	$ 11,786,826
Minor Arterials	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Gans Road: Bearfield Road to Providence Road	$ 9,029,537	$ 9,300,423	$ 9,579,436	$ 9,866,819	$ 11,105,192	$11,438,347	$ 12,873,961	$ 13,260,180
Kircher Road: Mt.Hope Road to Route HH	$ 10,032,819	$ 10,333,804	$ 10,643,818	$ 10,963,132	$ 12,339,102	$12,709,275	$ 14,304,401	$ 14,733,533
Scott Boulevard: Brookview Terrace to Route KK	$ 19,396,783	$ 19,978,687	$ 20,578,048	$ 21,195,389	$ 23,855,597	$24,571,265	$ 27,655,175	$ 28,484,830
Sub-Total	$ 38,459,140	$ 39,612,914	$ 40,801,301	$ 42,025,340	$ 47,299,891	$48,718,887	$ 54,833,537	$ 56,478,543
								$ -
Major Collectors								$ -
Akeman Bridge Road/Wilhite Road: Route J to Route VV	$ 36,118,149	$ 37,201,693	$ 38,317,744	$ 39,467,276	$ 44,420,767	$45,753,390	$ 51,495,844	$ 53,040,719
Neighborhood Collectors								
Westlake Road: Boothe Lane to Locust Grove Road	$ 6,019,691	$ 6,200,282	$ 6,386,291	$ 6,577,879	$ 7,403,461	$ 7,625,565	$ 8,582,641	$ 8,840,120
Clearview Road: Brown School Road to dead end	$ 3,210,502	$ 3,306,817	$ 3,406,022	$ 3,508,202	$ 3,948,513	$ 4,066,968	$ 4,577,408	$ 4,714,731
Hackberry Boulevard: Clearview Road to Providence Road	$ 7,223,630	$ 7,440,339	$ 7,663,549	$ 7,893,455	$ 8,884,153	$ 9,150,678	$ 10,299,169	$ 10,608,144
Hatten Chapel Road: Route E to Locust Grove Road	$ 11,236,757	$ 11,573,860	$ 11,921,076	$ 12,278,708	$ 13,819,794	$14,234,388	$ 16,020,929	$ 16,501,557
Bonne Femme Church Road: Old Highway 63 to Gans Creek Road	$ 8,527,896	$ 8,783,733	$ 9,047,245	$ 9,318,662	$ 10,488,237	$10,802,884	$ 12,158,741	$ 12,523,503
Sub-Total	$ 36,218,477	$ 37,305,031	$ 38,424,182	$ 39,576,907	$ 44,544,158	$45,880,483	$ 51,638,888	$ 53,188,054
Totals	$163,582,176	$168,489,641	$173,544,330	$178,750,660	$201,185,443	$207,221,006	$233,229,068	$240,225,940

Note: Presumes 3% inflation rate.

C. Boone County Long-Range Projects with Inflation Factor over all years of Plan Period 2007 - 2029	Year 22
1. New Construction	
Minor Arterials	
St. Charles Road: Clark Lane to Route Z	$ 37,938,847
Waco Road: Highway 63 to City limits	$ 12,140,431
Northwest Loop Project: Creasy Springs Road to Providence Road	$ 44,070,378
Providence Road: terminus to Hackberry Boulevard	$ 2,023,405
Gans Road: US Highway 63 to Bearfield Road	$ 13,657,985
Sub-Total	$109,831,047
Major Collectors	
None	
Neighborhood Collectors	
Ponderosa Connector Project: near Boone County Public Works	$ 11,290,601
Gans Creek Road: South extension	$ 1,214,043
Sub-Total	$ 12,504,644
2. Capacity Upgrades	
Major Arterials	
Rangeline Road: Route WW to New Haven Road	$ 12,140,431
Sub-Total	$ 12,140,431
Minor Arterials	$ -
Gans Road: Bearfield Road to Providence Road	$ 13,657,985
Kircher Road: Mt.Hope Road to Route HH	$ 15,175,539
Scott Boulevard: Brookview Terrace to Route KK	$ 29,339,375
Sub-Total	$ 58,172,899
	$ -
Major Collectors	$ -
Akeman Bridge Road/Wilhite Road: Route J to Route VV	$ 54,631,940
Neighborhood Collectors	
Westlake Road: Boothe Lane to Locust Grove Road	$ 9,105,323
Clearview Road: Brown School Road to dead end	$ 4,856,172
Hackberry Boulevard: Clearview Road to Providence Road	$ 10,926,388
Hatten Chapel Road: Route E to Locust Grove Road	$ 16,996,604
Bonne Femme Church Road: Old Highway 63 to Gans Creek Road	$ 12,899,208
Sub-Total	$ 54,783,696
Totals	$247,432,718

Note: Presumes 3% inflation rate.

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APPENDIX M:
PROJECTED FEDERAL FUNDING FOR TRANSIT

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Projected Federal Fudning for Transit

Year	Totals	Amount Total	Section 5310 Capital	Section 5307 Operating Assistance	Section 5309 Capital Assistance	Section 5303 Planning
2007		$ 1,070,000	$ 40,000	$ 1,000,000	$ -	$ 30,000
2008		$ 1,071,200	$ 41,200	$ 1,000,000	$ -	$ 30,000
2009		$ 1,072,436	$ 42,436	$ 1,000,000	$ -	$ 30,000
2010		$ 1,073,709	$ 43,709	$ 1,000,000	$ -	$ 30,000
2011		$ 4,553,688	$ 45,020	$ 1,100,000	$ 3,358,668	$ 50,000
2012		$ 2,064,909	$ 46,371	$ 1,133,000	$ 835,538	$ 50,000
2013		$ 6,085,265	$ 47,762	$ 1,166,990	$ 4,820,513	$ 50,000
2014		$ 1,801,195	$ 49,195	$ 1,202,000	$ 500,000	$ 50,000
2015		$ 1,853,730	$ 50,671	$ 1,238,060	$ 515,000	$ 50,000
	Five Year Total	**$ 16,358,788**	**$ 239,019**	**$ 5,840,049**	**$ 10,029,719**	**$ 250,000**
2016		$ 1,907,842	$ 52,191	$ 1,275,201	$ 530,450	$ 50,000
2017		$ 1,963,578	$ 53,757	$ 1,313,458	$ 546,364	$ 50,000
2018		$ 2,020,985	$ 55,369	$ 1,352,861	$ 562,754	$ 50,000
2019		$ 2,080,115	$ 57,030	$ 1,393,447	$ 579,637	$ 50,000
2020		$ 2,141,018	$ 58,741	$ 1,435,251	$ 597,026	$ 50,000
	Five Year Total	**$ 10,113,538**	**$ 277,089**	**$ 6,770,218**	**$ 2,816,231**	**$ 250,000**
2021		$ 2,203,749	$ 60,504	$ 1,478,308	$ 614,937	$ 50,000
2022		$ 2,268,361	$ 62,319	$ 1,522,657	$ 633,385	$ 50,000
2023		$ 2,334,912	$ 64,188	$ 1,568,337	$ 652,387	$ 50,000
2024		$ 2,403,459	$ 66,114	$ 1,615,387	$ 671,958	$ 50,000
2025		$ 2,474,063	$ 68,097	$ 1,663,849	$ 692,117	$ 50,000
	Five Year Total	**$ 11,684,543**	**$ 321,222**	**$ 7,848,538**	**$ 3,264,784**	**$ 250,000**
2026		$ 2,546,785	$ 70,140	$ 1,713,764	$ 712,880	$ 50,000
2027		$ 2,621,688	$ 72,244	$ 1,765,177	$ 734,267	$ 50,000
2028		$ 2,698,839	$ 74,412	$ 1,818,132	$ 756,295	$ 50,000
2029		$ 2,778,304	$ 76,644	$ 1,872,676	$ 778,984	$ 50,000
2030		$ 2,860,153	$ 78,943	$ 1,928,857	$ 802,353	$ 50,000
	Five Year Total	**$ 13,505,770**	**$ 372,384**	**$ 9,098,607**	**$ 3,784,779**	**$ 250,000**
	Combined Total	**$ 51,662,639**	**$ 1,209,714**	**$ 29,557,412**	**$ 19,895,513**	**$ 1,000,000**

Note: Section 5303 Planning funds are primarily used for non-transit purposes - those funds not shown
Due to Federal funds being withheld and the expiration of the SAFETEA-LU funding bill in 2010, no Section 5309 Funds for 2007-2010 are anticipated.
5309 funds anticipated from 2007-2010 are shown as being received in 2011. Bus replacements are scheduled to occur in 2012 (2 buses) and 2013 (12 buses).

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APPENDIX N:
CATSO PEDESTRIAN & BICYCLE PROJECTS

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CATSO 2030 Pedestrian & Bicycle Projects	Estimated Cost
New Sidewalk Construction Projects	
City of Columbia	
Current Sidewalk Projects	
*Broadway , Fairview to Stadium	$545,000
*Rangeline Street, Bus.Loop 70 to Big Bear	$570,000
*Vandiver Drive, E of Route B	$210,000
*Stadium Boulevard, Providence to College Avenue	$408,000
*West Blvd. South, Stewart/Westwinds	$605,000
*Vandiver Drive, Route B/W of Warwick	$350,000
*Vandiver Drive, E of Providence/W of Westfall	$380,000
*West Boulevard, E side, Ash to Worley	$257,000
*Fairview Road, Broadway to Highland	$359,000
*W Ash Street, W of Stadium/E of Heather	$60,000
*Oakland Gravel Road, Smiley/Blue Ridge	$422,000
*Oakland Gravel Road, Blue Ridge/Vandiver	$311,500
*Garth Avenue, Thurman to Texas	$585,000
*Smiley Lane, E of Derby Ridge to Bold Venture	$50,000
*Manor Drive, Broadway to Rollins	$425,000
Sidewalks 1-2 Years	
*Fairview Road, Fairview School to N of Rollins Road	$219,000
Sidewalks 3-5 Years	
None at this time	
Sidwalks 6-10 Years	
Bus.Loop 70, Garth to Providence	$325,000
Bus.Loop 70, Providence to Rangeline	$410,000
Bus.Loop 70, 7th to Rangeline	$160,000
Bus.Loop 70, Rangeline to Route B	$910,000
Sidewalks 10+ Years	
Audobon Drive: Shepard Blvd to N. Azalea	-
Bernadette Drive: Ash to Stadium	-
Bourn Avenue:W. Broadway to Rollins Road	-
Bray Avenue: Fairview Road to Jake Lane	-
W. Broadway: Maplewood to West Boulevard	-
W. Broadway: Stadium Boulevard to Manor	-
Chapel Hill Road: Fairview to Handley and Face Rock to Hillcrest	-
Concord Street: Arlington to Yorktown	-
E. Walnut Street: William Street to Old 63	-
Forum Boulevard:Nifong to Mill Creek Drive	-
Garden Drive: I-70 Drive NW to Valley View Park	-
Hulen Drive: Bayonne Ct. to Ridgefield Road	-
I-70 Drive SE: 63 Connector to Hillsdale	-
I-70 Drive SW: BL 70 to Stadium Boulevard	-
Leslie Lane: N. Garth Avenue to Newton Drive	-
Maplewood Drive: Rollins Rd to Princeton Drive	-
Maplewood Drive: W. Broadway to Rollins Road	-
Mikel Street: Orange Street to Clayton Street	-
Nifong Boulevard: Sinclair Road to Country Woods	-
Paris Road: BL 70 to Edwards Court	-
Pershing Road: Gary to Pearl Avenue	-
Proctor Drive: Bear Creek Village subdivision	-
Providence Road: Southampton to Recreation Drive	-
Rangeline: Business Loop 70 to Big Bear Boulevard	-
Rock Quarry Road: Stadium to Hinkson	-
Rollins Road: Stadium to Bourn	-
Rothwell Drive: Rollins Road to W. Broadway	-
Shepard Boulevard: Old 63 to Danforth	-
Stadium Boulevard: Business Loop 70 to Sunflower	-
W. Worley: Health Dept to Bernadette Dr.	-

CATSO 2030 Pedestrian & Bicycle Projects	Estimated Cost
New Sidewalk Construction Projects	
Shared Use Paths/Greenbelt Trail Projects	
City of Columbia	
Current	
* County House Trail Twin Lakes to Stadium	$774,880
* Connect Cosmo Park/Brea Creek trail & I-70 Bridge	$550,000
* Cow Branch from Auburn Hills Park to N. Vanderveen	$215,000
* Hinkson Creek Trail connection to Rock Bridge	$810,000
* Hinkson to MU Rec Trail	$360,000
* Hinkson Cr Trail from Grindstone to Stephens Phase 1	$571,205
* Hinkson Cr Trail from Grindstone to Stephens Phase 2	$210,000
1-2 Years	
* Bear Creek Trail from Blue Ridge Rd to Lange MS	$ 700,000
* County House Trail Phase 2 from Stadium to Cowan	$ 571,644
* Hinkson Creek Trail from Stadium to Rockhill Phase 3	$ 940,000
* Hinkson Creek Trail from Stephens Lake to Vandiver	$ 1,144,000
* Hominy Trail from Woodridge Park to Clark Lane	$ 1,356,000
Hominy Branch Trail from Stephens to Woodridge Phase 1	$ 1,720,000
3-5 Years	
Hominy Branch Trail from Woodridge to Clark Lane Phase 2	$ 870,000
Perche Creek Trail Phase 1 from MKT to I-70	$ 4,825,000
Perche Creek Trail Phase 2 I-70 to Bear Creek	$ 4,700,000
Scott's Branch Phase 1 from Russell property to Gillespie Bridge Rd	$ 930,000
Scott's Branch Phase 2 from Gillespie Bridge Road to MKT Trail	$ 940,000
6-10 years	
Bear Creek Trail Blackfoot Road Extension	$ 450,000
Bear Creek Trail Lange MS to Fairgrounds	$ 1,250,000
10+ Years	-
Hominy Branch Trail" clark Lane to Thessalia subdivision Phase 3	-
N. Fork of Grindstone Creek:Grindstone to LOW Recreation Area	-
S. Fork of Grindstone Creek:Confluence to Olivet Rd	-
Hinkson Creek Trail: Stephens to Atkins	-
Cow Branch/Bear Creek: Blackfoot Road to Auburn Hills	-

* - funded committed from federal Non-Motorized Transportation funds (Get About Columbia project)

Note: Year categories, e.g. 1-2 Years, are based on estimated time frame for design, public input, and construction

Project listings are from latest City of Columbia Capital Improvements Program document

APPENDIX O:
REGIONAL ECONOMIC DEVELOPMENT MASTER PLAN SUMMARY

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Regional Economic Development, Incorporated (REDI) Master Plan (2002)

The Economic Development Master Plan's general development strategy has historically been based on two goals:

- Continue Columbia/Boone County's progressive economic growth.
- Continue to promote a balanced and sustainable growth through recruitment of new businesses, expansion of existing quality businesses, and providing a supportive atmosphere for new business ventures.

It is not surprising then that the goals identified for 2002 through 2006 are to:

- **Promote new economy industry sector growth across Boone County.**
- **Retain our existing industrial and large employer base and support its expansion and growth.**

To achieve these goals, 13 objectives have been developed, they are:

1. Increase the number of qualified workers in our labor pool.
2. Identify, quantify and monitor the labor pool requirements necessary to attract, retain and grow businesses in Columbia/Boone County.
3. Create a vibrant technology commercialization environment that links investment grade technology to productive enterprises.
4. Create a vibrant entrepreneurship environment.
5. Market Columbia/Boone County as a pro-positive development, new economy growth area and as pro-development to existing businesses.
6. Ensure a quick, thorough response from government entities to development questions, through a "one-stop" environment, that provides in-depth information necessary for business (new or existing) to make investment decisions in Columbia and across Boone County.
7. Create opportunities for prospective or existing companies, to link with the University of Missouri-Columbia.
8. Ensure that local ordinances affecting development costs protect the environment, promote attractive development and support growth initiatives.
9. Support the continuation of a high quality of life environment required to recruit desired employees.

10. Construct and rehabilitate roadways to allow for greater and safer growth opportunities.

11. Upgrade rail infrastructure and add a rail freight terminal, to enhance rail usage.

12. Ensure the existence of viable passenger air and freight travel for the area.

13. Maintain a viable core area in the City of Columbia that promotes small business development, and promote new business development in conjunction with similar efforts in outlying Boone County.

TRANSPORTATION

ACCOLADES

- CATSO recommends construction of a city loop in Columbia.
- Columbia/northern Boone County have sites on rail.
- Centralia sites offer rail service with Norfolk/Southern and Gateway Western Railway.
- Columbia Regional Airport (CRA) is a great asset, is in good condition and offers growth potential for general aviation and commercial use.
- Bus and para-transit vehicles are available in Columbia

OPPORTUNITIES

Several road projects are seen as critical to accommodate growth:

- 763 should be widened.
- The I-70/US 63 interchange needs improvement.
- Stadium extension from US 63 to the east needs to be constructed.
- Stadium/Route E north of I-70 need improving.
- Route B bypass, to support growth in Hallsville and Centralia.
- Interstate 70 rehabilitation needs to be completed in a manner that supports the continued business growth of the area.
- An east/west route, within the City of Columbia north of I-70, to allow easy crossing of the city, needs to be constructed.
- A public off-load/warehouse facility is needed for COLT.
- With only one commercial passenger air carrier, travel options at CRA are limited, leading to increased leakage of passenger air business to Kansas City and St. Louis.
- Grade crossings on US 63 should be eliminated; more interchanges (south) should be added to encourage development and mitigate safety concerns.
- Due to a need for longer runways by some users, a runway extension and a crosswind runway may be needed at CRA.
- Low ridership necessitates that the City of Columbia subsidize its bus and paratransit service, yet businesses not on bus routes have asked for bus service to increase labor availability.

PHYSICAL INFRASTRUCTURE/TRANSPORTATION COMMITTEE

Existing Situation/Barriers

Roads

Northern Loop doesn't exist. Timetable is a problem since much growth is headed north.

MoDOT (State) Issues

All of the following projects need upgraded to handle current and future growth:

- Widen 763 (Rangeline Street)
- Improve I-70/ U.S. 63 Interchange
- Stadium Extension from 63 to the east needs to be constructed
- Stadium/Route E north of I-70 need to be improved
- Route B Bypass around Hallsville needs to be constructed
- Lack of east/west streets (Columbia) north of I-70 is issue for both city and county.
- CATSO exists to address the construction of a city loop in Columbia.
- Additional 63 south interchanges needed for safer traffic movements.
- Transportation Development Districts (TDD) exist to allow special taxes for road improvements.

• Railroad

- Columbia and Northern Boone County have sites on rail
- Centralia gives option of Norfolk Southern and Gateway Western Railway
- Public off-load/warehouse facility needed for COLT
- Rail shipping is cost prohibitive for small volumes
- Adding container traffic to COLT has great potential
- At-grade rail crossing a safety concern at 63/Route B

• Airports

- Need to protect surrounding land for future airport expansions
- Roads at the intersection of U.S. 63 are a safety issue
- Airport is a great asset for area and in good condition
- Some users require longer runway, and runway extension and a crosswind
- runway will be needed in future
- Transportation to and from airport is lacking
- Airport has good potential for general aviation and commercial traffic
- Some area businesses and institutions rely on Airborne Express for delivery

• Mass Transportation

- Buses and para-transit vehicles are available in Columbia, but costly to maintain and operate. This service is subsidized by the city.
- Some businesses (included some office prospects of REDI) want availability of bus service to increase labor availability.