MOVING COLORADO
VISION FOR THE FUTURE

2035 Statewide Transportation Plan

Local Needs

TECHNICAL REPORT

March 2008

DEPARTMENT OF TRANSPORTATION

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INTRODUCTION

Consistent with other portions of the 2035 Statewide Transportation Plan, the local needs financial plan is updated from 2005 constant dollars to 2008 constant dollars, additionally local spending on roads as documented in regional transportation plans prepared by metropolitan planning organizations (MPOs) is included.

As part of the 2030 Statewide Transportation Plan, CDOT conducted an assessment of local road and bridge needs over the planning period and the revenues anticipated to be available to fund those needs. This effort was called the Local Needs Assessment. This note describes the methodologies used for updating the cost and revenue estimates from the Local Needs Assessment. The methodologies do not change any of the assumptions made in the original assessment. The local needs are comprised of three sets of dollar estimates: construction costs, maintenance costs and revenues. Figure 1 shows the 2030 (2005 dollar) estimates for each area.

Figure 1 – 2030 Plan Local Needs and Revenues

Figure 1. 2030 Plan Local Needs and Revenues

Construction Costs	**25,655**
Roadway System Backlog	805
System Preservation	17,995
Future Mobility Needs	4,655
Bridge Needs	2,200
Routine Maintenance	**5,931**
Total Need	**31,586**
Estimated Revenue	**18,836**

2005 Dollars (000,000)

Construction Costs

For the purposes of the 2035 Statewide Transportation Plan, **all construction costs are increased by 33 percent**. This inflation factor captures the increased costs of meeting the needs of the roadway system backlog, system preservation, future mobility, and bridges. The choice of 33 percent is consistent with the State Transportation Advisory Committee (STAC) approved construction cost inflation factor applied to state highway construction projects. A detailed discussion on the calculation of the 33 percent is included in the 2035 Financial Technical Report.

Maintenance Costs

The local needs study identified routine maintenance activities as snow and ice removal, street sweeping, mowing, culvert cleaning, sign replacement, etc. It is reasonable to believe that these activities would grow at rate comparable to the consumer price index. For the purposes of the 2035 Statewide Transportation Plan, **routine maintenance costs are increased by 8 percent.** The 8 percent factor is the compounded rate for the Denver-Boulder-Greeley Consumer Price Index (CPI) in 2005, 2006, and 2007.

Estimated Revenues

A study of Colorado's local governments found that between 1987 and 2002 the average portion of total local transportation revenues from (Highway Users Tax Fund) HUTF was 26.3 percent. The 2030 local need study found that on average HUTF funded 26.3 percent of total local road and bridge spending. Given the absence of any structural changes between the 2030 local need study and now, this update, assumes the 26.3 percent rate will remain constant. The local share HUTF projection is then used to estimate the total local spending on roads and bridges. The equation below illustrates this calculation.

X= Total local spending on roads and bridges in any given year
Y = HUTF
X=Y/0.263

These figures are then deflated back to constant 2008 dollars by the anticipated CDOT construction index rate, four percent. Figure 2 illustrates the models expected costs and revenue.

Figure 2 – 2035 Plan Local Needs and Revenues

Figure 2. 2035 Plan Local Needs and Revenues

	Add 2 Plan Years	Add Inflation
Construction Costs	**27,630**	**36,748**
Roadway System Backlog	867	1,153
System Preservation	19,381	25,776
Future Mobility Needs	5,013	6,668
Bridge Needs	2,369	3,151
Routine Maintenance	**6,388**	**6,899**
Total Need	**..**	**43,647**
Estimated Revenue	**..**	**18,921**

2008 Dollars (000,000)

Inclusion of Front Range MPO Local Road Spending

The regional transportation plans from metropolitan planning organizations along Colorado's Front Range include considerably greater forecasts for local revenues than estimated by the model. The Denver Regional Council of Governments (DRCOG) estimates that local spending is estimated to top $50 billion, in the Denver are alone. According to DRCOG estimates, $28 billion will be spent on new local streets, with an additional $10.5 billion spent on the preservation and maintenance of local streets, the region will further spend $12.5 billion to preserve, maintain, and expand the regional road network. The North Front Range and Pikes Peak Area MPOs anticipate local spending of $330 million and $2.1 billion, respectively.

Given this data it is necessary remove from the original statewide estimate ($19 billion) the portion that already accounted for revenues in the MPO areas. The original statewide estimate is based on 2004 study which used the Colorado Highway Users Tax Fund (HUTF) as a proxy for local road spending. In FY2007, the Front Range MPO cities and counties received 53 percent of all Colorado HUTF funds. Based on this number it is assumed that 53 percent of all local revenue for transportation is derived in the MPO areas.

The original statewide estimate is reduced by 53 percent to $8.9 billion. In combination with the funding identified in the Front Range MPO plans is estimated that there will be $61 billion for local streets, roads and bridge projects accounts for nearly half of the total $123 billion anticipated to be available for transportation over the plan period.

For the purpose of the 2035 Statewide Transportation Plan it is assumed that this level of spending will allow these regions to maintain the condition of local roads. To improve the condition would require additional spending. The cost shown in the plan for the third funding scenario – "implement the vision" – for local streets and roads is shown to exceed $74 billion. This figure includes $1 billion for bicycle and pedestrian improvements in DRCOG's vision plan.

Conclusion

The 2035 Statewide Transportation Plan estimates that local roadway needs have grown to $74 billion for the period between 2008 and 2035. Revenues available over the same period are estimated to be $61 billion. Over the last three years, the gap between local roadway needs and revenues has grown by $1 billion to $13 billion. Figure 3 shows a breakdown of needs along with available revenue.

Figure 3 – 2035 Plan Local Needs and Revenues

Figure 3. 2035 Plan Local Needs and Revenues

Construction Costs	**$36,748**
Roadway System Backlog	$1,153
System Preservation	$25,776
Future Mobility Needs	$6,668
Bridge Needs	$3,151
Routine Maintenance	**$6,899**
Total Need	**$74,000**
Front Range MPOs (billions)	$52
DRCOG Bike/Ped Vision	$1
Remainder of State (billions)	$21
Estimated Revenue	**$61,000**
Front Range MPOs (billions)	$52
Remainder of State (billions)	$9

2008 Dollars (000,000)

EXECUTIVE SUMMARY

The Colorado Local Needs Assessment assesses the sum total of road and bridge needs for all transportation facilities under county and city jurisdiction. Local government agencies provided guidance to the study through extensive work on oversight committees. The result of the study is an unprecedented, realistic assessment of local needs in Colorado, based on the best data and practices available. The study period includes the time period 2005 – 2030 and addresses the following components of the local road and bridge system:

- System Backlog
- System Preservation
- Routine Maintenance
- Future Mobility Needs (2030)
- Bridge
- Local Revenue Sources

STUDY PURPOSE

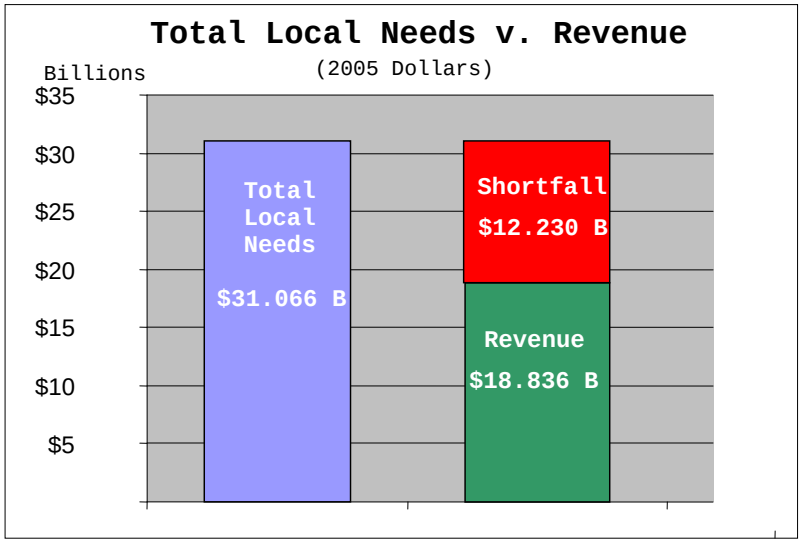
Create a sustainable process to identify statewide long-range municipal & county road, street & bridge capital, maintenance and revenue needs.

Key Assumptions

- Study based on available Colorado Department of Transportation (CDOT) databases and information provided by local governments
- Data stratified into System (city or county), Functional Classification (arterial, collector, and local), Surface Type (paved or nonpaved), and Terrain Type (plains, rolling, or mountain)
- System Backlog defined as surface condition and geometric deficiency (surface width and shoulder width)
- System Backlog standards applied only to arterial system
- System Preservation standard defined as 100 percent Good or Fair and 0 percent Poor surface condition
- Unit costs for improvements are averaged across jurisdictions
- Future Mobility Needs are based on historical growth of the local system
- Major bridges (span length greater than 20') analyzed using CDOT's bridge management system
- Minor structures (span length 4' - 20') estimated at 0.1 structures per centerline mile
- Bridges eligible for rehabilitation if Bridge Sufficiency Rating between 50 and 80; for replacement if Bridge Sufficiency Rating less than 50
- Revenue forecasts are based on the historical Highway Users Tax Fund (HUTF) percentage of total local revenues available for road and bridge improvements, discounted at the CDOT Construction Cost Index

Key Findings

- Roadway System Backlog – Total $0.805 billion (Design Standard Deficiency + Surface Condition)
- Backlog Geometric Design Standards (roadway width) were applied only to the 1,136 mile arterial system –$0.624 billion.
- Backlog of roads not meeting Surface Condition goals - $0.180 billion
- System Preservation – Separated into Existing & New Roads, and Paved & Nonpaved Roads – Total $17.995 billion
- Nonpaved - $14.684 billion
- Paved - $3.311 billion
- Routine Maintenance – Includes snow and ice removal, street sweeping, mowing, culvert cleaning, sign replacement, etc. – Total $5.931 billion
- Future Mobility Needs – Total $4.655 billion
- New road construction - $3.550 billion
- Improvements to existing roads - $1.105 billion
- Bridge – includes Backlog, System Preservation, New Bridges, Routine Maintenance, and Minor Structures – Total $1.680 billion
- Revenue –Local Revenues Available for Road and Bridge – Total $18.836 billion
- Total Local Needs - $31.066 billion
- Shortfall - A significant shortfall in revenues available to address local road and bridge needs across the state has been identified. Available revenue of $18.8 billion will serve to address approximately 60 percent of the identified total local roadway and bridge needs, leaving an approximate $12.2 billion shortfall.



Key Limitations

CDOT's 2002 HUTF and Highway Performance Monitoring System (HPMS) databases are the primary source of data on local streets and roads used in this assessment. It is worth noting for future needs assessments efforts that the current data available from that system has certain limitations.

Because the needs assessment of the local roadway system was primarily driven by the types of data available in the HUTF Inventory Data Base, the lack of data in relevant areas such as safety, traffic volumes, and right-of-way resulted in a conservative estimate of "need."

COLORADO LOCAL NEEDS ASSESSMENT

A Statewide Review of Local Roadway and Bridge System Needs and Anticipated Revenues

INTRODUCTION

Local roads are a vital component of the Colorado's transportation system. In addition to providing mobility for all citizens on a daily basis, local roads provide seamless access to and from markets and play a key role in the state's tourism industry.

The local roadway system represents over 88 percent – or 72,227 centerline miles – of the state's 81,369 centerline miles of public roadway that are eligible for state HUTF revenues. (Note: the total centerline miles of roadway in the state are over 85,000, with 81,369 centerline miles that are HUTF eligible). While Colorado's state highway system needs are well documented and provide a good background for highway investment decisions in the Statewide Plan, the same information has not historically been available for local roads.

WHY ASSESS LOCAL ROADWAYS?

- Prior local roadway data has been insufficient to support well-informed financial decisions
- Better information increases credibility with stakeholders and decision-makers

I. THE CURRENT LOCAL NEEDS ASSESSMENT PROCESS

In 2001, following adoption of the 2020 Statewide Plan, CDOT contracted with consultants to develop a local roadway needs assessment methodology that would be repeatable, and could be updated in conjunction with the 2030 Statewide Transportation Plan. CDOT is now implementing this methodology with consultant assistance. CDOT and the consultants are working in close partnership with volunteer municipal and county jurisdictions to develop the data and to oversee implementation of the methodology established.

Objectives

The objectives for the 2030 Local Needs Assessment were based on CDOT's experience with the needs assessment process and its desire to improve upon past needs assessment results. For the assessment to be successful, CDOT knew that it must:

- Ensure broad buy-in
- Be implementable and repeatable
- Be technically sound

WHAT ARE THE BENEFITS TO CITIES AND COUNTIES STATEWIDE?

- Substantiates needs
- Promotes cost-effective use of existing funds
- Provides future revenue information for counties and municipalities
- Reflects statewide need and revenue shortfall

- Build on existing approaches
- Provide consistent results across jurisdictions
- Be meaningful to policy makers, and
- Integrate with the existing planning processes

General Methodology

The 2030 Local Needs Assessment methodology is consistent with consultant recommendations to CDOT on how to improve upon previous needs assessments. The process includes the following steps for each component of the local roadway system:

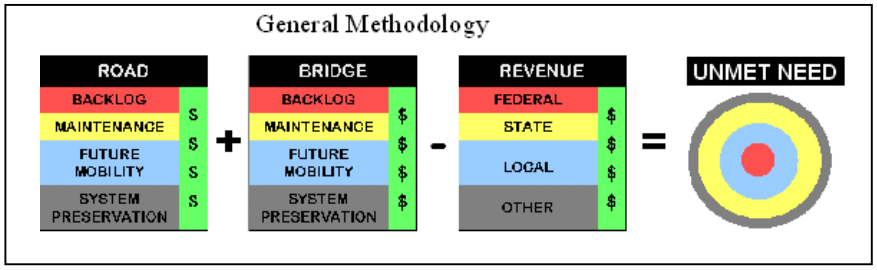
1. Inventory system
2. Assess condition
3. Define standards
4. Calculate current system backlog
5. Calculate future system preservation maintenance needs (to 2030)
6. Identify future system mobility needs (to 2030)
7. Project anticipated revenues (to 2030)
8. Compare aggregate needs to revenues and calculate unmet need (to 2030)

The methodology being used develops cost estimates for backlog, system preservation, maintenance, and future mobility needs on the local road and bridge system. Working closely with local jurisdictions, surface condition and performance and geometric design standards and goals were established for the various types of local roadways and bridges that make up Colorado's local roadway system. These standards and goals were then compared to the existing condition of road and bridge systems to develop cost estimates to improve the system. Similarly, long-term costs to preserve and maintain local roads and bridges at the agreed upon standards were also estimated. Finally, the Local Needs Assessment projects future mobility needs on Colorado's local roads and bridges.

OBJECTIVES

- Ensure broad buy in
- Approach must be implementable
- Technically sound
- Build upon existing approaches
- Assure consistent approach across jurisdictions
- Meaningful to policy makers
- Integrate with existing planning processes

The aggregate of these costs – for backlog, maintenance and future mobility needs of the system – was then compared to projected revenues to establish unfunded needs. The difference between projected needs and projected revenues illustrates the funding gap that should be addressed in ongoing statewide transportation policy discussions. The methodology is illustrated below:



Application of the Methodology

CDOT worked closely with Local Needs Assessment committee members to reach consensus in key areas to guide the assessment. The committee initially defined the system and determined how best to stratify it to capture its unique characteristics. It was determined that the 72,227 miles of local roads could be stratified into 71 categories of roadways, with different combinations of city/county roadways, functional classifications, surface type and terrain type.

Key decisions and assumptions included agreement on a method to project future mobility needs and revenues, specific geometric design standards and roadway surface performance goals, identification of specific roadway activities for new construction, reconstruction, system preservation, a range of unit cost figures to apply toward those roadway activities and specific system preservation improvement cycles to achieve the preferred goals and standards set by the committees.

KEY DECISION POINTS

- Definition of system
- Stratification of system
- Geometric design standards
- Surface performance goals
- Unit cost figures by activity
- System preservation improvement cycles
- Future needs
- Future Revenues

A range of geometric design standards and surface condition performance goals were proposed for local streets and roadways and bridges. These proposed geometric design standards were then compared to the existing road and street geometry and bridge system to arrive at miles of deficient roads, streets and bridge deck area. The number of miles of deficient roadways was determined for each of the 71 categories defined above and a cost estimate applied which was tailored to the conditions in each of the categories (e.g. the unit cost for repairing a road on a local county road in the plains would be different from the unit cost for repairing a city arterial in mountainous terrain).

Similarly, various surface condition performance goals were proposed that when compared to the existing surface condition reflected various levels of surface condition deficiency. Future mobility needs were developed based on historic increases of the system.

A range of specific roadway system activities (Reconstruct, Asphalt Overlay, Chip Seal, etc.) was proposed to achieve specific geometric standards and surface performance goals. In addition, various time frames or frequency of application were developed for each roadway specific activity to achieve the desired standards or goals proposed by Local Needs Assessment committees.

The Local Needs Assessment developed cost estimates for backlog needs, system preservation costs and future mobility needs on the local road, street and bridge system. The estimated needs were then compared to the revenues anticipated to be available for local system improvements, leading to an estimated unfunded need on Colorado's local roadway system.

Throughout the study, the committees guided the work in a "conservative" direction. Effective decisions and assumptions concerning the application of geometric and surface condition standards, future mobility needs based on historic trends, unit cost estimates, and growth in revenues have worked in concert to produce a product that is most likely to meet with general acceptance. Consequently, total estimated needs may not address the full cost of some desired improvements. However, consistent and supportive data were not available to support development of costs for all needs statewide. The result is a blending of average costs and needs, that while not reflecting specific needs in any one area, accurately reflect the scope and scale of needs across the state.

II. LOCAL AGENCY INVOLVEMENT

From the start, CDOT knew that obtaining local agency support for to the project, including the methods and data being used to generate conclusions, would be critical to the project's success. At the policy level, it was important that decision-makers actively support the study process as the mechanism to provide an objective assessment of local needs. This required agreement on what a "need" is and support for the overall analytical framework. Technical level buy-in was also necessary because acceptable levels of service, standards and, therefore needs, would have to be found reasonable to those who work in the field. Technical assistance was also critical to defining how costs and standards for maintaining similar facilities might differ between areas of the state.

A policy committee made up of representatives from the Colorado Municipal League (CML), Colorado Counties, Inc. (CCI), Colorado Department of Local Affairs, municipal and county elected officials and CDOT was established to provide policy oversight and jurisdictional support for the project.

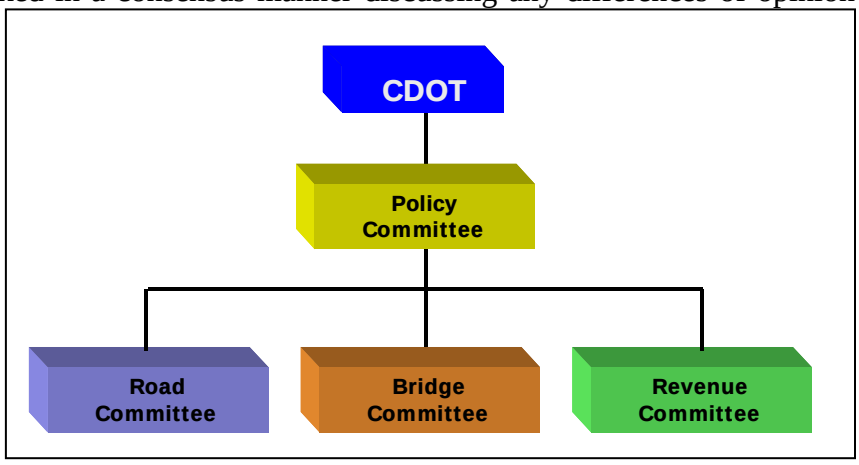
The Policy Committee also solicited interested local agencies to volunteer to serve on one or more of three technical committees that facilitated this project: the roadway, bridge, and revenue technical committees. When establishing the committee membership, care was taken to ensure that rural, urban, and geographic regions of the state were represented.

The Policy, Road, Bridge and Revenue committees met on a regular basis throughout the course of the project. CDOT and the consultant relied heavily on the guidance of these groups to

determine appropriate standards for the various types of facilities being assessed. Following are some examples of the types of assistance these committees provided:

- Established roadway condition standards and definitions (for instance, what constitutes an acceptable or deficient roadway)
- Established activity and frequency standards for maintenance of local roads (for instance, how often does a gravel road need to be graded, and what depth of paving is acceptable with an overlay?)
- Provided technical assistance in classifying minor bridges
- Assisted in completing a survey of minor bridges
- Assisted in reviewing revenue assumptions (Did we identify all reasonable funding sources? Were the methods of calculating projections sound?).

The advisory committees worked in a consensus manner discussing any differences of opinion among the group in order to reach agreement.



Future local agency commitment to this project will be critical to CDOT's ability to repeat the assessment over time. Continued commitment to providing accurate, timely and complete data sets will be necessary for this needs assessment to be successfully repeated.

III. DATA SOURCES

The following section summarizes major data sources accessed for this study for roadway, bridge, and revenue assessments. The section also notes limits imposed by the data and makes recommendations for future efforts.

Roadway Data Sources

Data on local streets and roadways were primarily derived from annual mileage reports that are completed by cities and counties statewide and submitted to CDOT on an annual basis. This data is housed in CDOT's HUTF Inventory Database and HPMS Database.

The HUTF database is used to generate statutorily-mandated annual reports of local road mileage by jurisdiction for the State Treasurer's Office to use in allocating the local share of HUTF funds. The HPMS database is used to produce the Federal Highways Administration (FHWA) required annual report of public roadways. This FHWA report includes summary information for minor local roads, a moderate level of information for major local roads, and a significant amount of information for a randomly selected subset of HPMS samples. These datasets include a variety of information that was used to inventory local roadways, describe their physical characteristics (e.g., surface condition, lane width, shoulders, etc.) and condition.

Existing CDOT data were corroborated through an extensive literature search of methods, standards, and associated costs used in other states, cities, and research projects. In addition, local government agencies (cities and counties) in Colorado were surveyed to determine common practices and costs. These surveys were useful in helping establish design standards, common maintenance and construction practices, and unit costs.

Bridge Data Sources

Data for major bridge structures were available from CDOT's Bridge Management System (BMS) – a database built off of the widely used Pontis management system. The BMS holds a thorough inventory of all major bridge structures in Colorado regardless of whether they are on or off of the State Highway System. Major structures are defined as those more than 20 feet in span length. CDOT's bridge unit updates the BMS data on a regular basis and reports to FHWA and the local entities. Also included in the BMS is an extensive dataset regarding physical characteristics of the bridges (deck area, length, surface type, etc.) and condition of the bridge (bridge sufficiency rating, etc.).

Data for minor bridge structures are not broadly available in a unified consistent source. A sample of minor structures data was obtained from the project participants. This sample data were extrapolated based on historic trends on the numbers, types and condition of similar facilities and then compared to actual data in sample Colorado jurisdictions to confirm its validity.

Revenue Data Sources

Information on how local entities have historically funded their local streets and roads projects was derived from annual revenue and expenditure reports prepared by all local agencies statewide. All Colorado cities and counties are required by CDOT to complete standard forms that identify the sources of funds used for local roadway improvements. These forms, formally known as FHWA-536, but more commonly referred to as "revenue and expenditure reports," are forwarded by CDOT to FHWA. FHWA uses the data from the revenue and expenditure reports to estimate local highway needs nationally. These reports are maintained and managed by CDOT's Office of Financial Management and Budget (OFMB).

Data Limitations

As noted above, the 2002 HUTF and HPMS database updates were the primary source of data on local streets and roads used in this assessment. It is worth noting for future needs assessments efforts that the current data available from that system has certain limitations.

Most significantly, CDOT found that only about 10 percent of the fields in the HUTF database were adequately populated with information. Of the 98 fields in the database, 38 were found to be relevant to the local needs assessment study. Of those, only 9 (listed below) were found to be sufficiently populated with data to be used in the Local Needs Assessment:

- Pavement serviceability index
- Primary surface
- Through lane quantity
- Terrain
- Primary surface width
- Through lane width
- Primary surface width
- Primary outside shoulder type
- Primary outside shoulder width

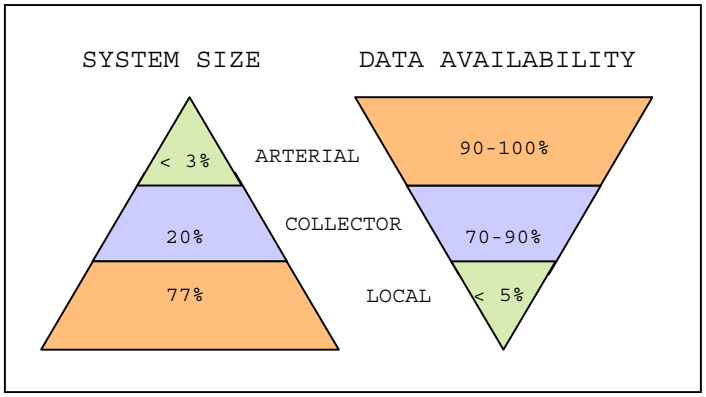
DATA LIMITATIONS

- Safety/Accident Information
- Right of Way Widths/Costs
- Congestion/Traffic Volumes
- Capacity Analysis/Volume to Capacity Ratio

Because the needs assessment of the local roadway system was primarily driven by the types of data available in the HUTF Inventory Data Base, the lack of data in relevant areas such as safety, traffic volumes, roadway capacity, and right-of-way resulted in a conservative estimate of "need."

It should be noted that more HUTF data are available on certain portions of the roadway system than on others. For example, more data is available for arterial roadways than for collectors or local roads. As illustrated in the chart below the amount of data provided in the mileage reports were inversely related to the number of roadway miles in each functional classification. In other words, considerably more data was available for arterials, which make up the smallest portion of local roadway miles (only 3% of total local roadway miles), as compared to local roadways that had very little data available but make up the large majority (77%) of the local roadway system miles.

Finally, even where data were reported, some concerns about the reliability of the data were raised. For example, pavement condition information reported in the HUTF system typically is gathered from visual/windshield surveys conducted by local public works employees. There is some question as to the reliability of the data produced, whether all jurisdictions update this information routinely as required by statute, and whether the conditions reported in one jurisdiction can be reliably compared to conditions reported in other jurisdictions.



Good quality and complete data were available from CDOT's Bridge Management System for all major bridge structures. Data on minor structures were incomplete. The decision was made to proceed with inventorying minor structures based on a surrogate estimate of a typical number of structures per roadway mile. Likewise, condition and costs for improving minor bridges and structures were extrapolated based on the proportion of local roadway project costs that typically could be attributed to bridge or structure work. The derived inventory, condition and cost data that were developed for the minor bridge system were then compared to sampled data from the system to substantiate reasonableness.

Data Recommendations

This needs assessment is innovative and by far more complete than any previous effort undertaken by CDOT and is based on the best available data. The results are responsible and reliable. However, CDOT should consider enhancing its system to collect data for future local needs assessments. While this data is not required for state and federal HUTF reporting, collecting it will improve the accuracy and completeness of future local needs assessments. The benefits of having more complete data, however, will need to be weighed against the cost of undertaking such an effort.

Additional data enhancements include:

- Traffic volumes
- Roadway capacity
- Right of way width
- Signal locations
- Accident/safety information
- Reliable surface condition reports

BENEFITS OF ENHANCED DATA COLLECTION

- Accuracy of system preservation needs assessment
- Improved future mobility needs assessment
- More complete cost assessments
- Better understanding of funding shortfall
- Well documented support for revenue enhancement

- Specific unit costs for system preservation and new construction
- Private funds contributions

CDOT intends to regularly repeat this local needs assessment process and will work with local jurisdictions to improve data availability and quality. To that end, CDOT will continue to reach out to local agencies to make sure that they understand the benefits of providing full data reports to CDOT through the required annual HUTF system updates. CDOT should specifically identify critical information needs and provide training and documentation to local jurisdictions on how to generate the data needed to effectively assist in this effort.

IV. COLORADO'S LOCAL STREET AND ROAD SYSTEM

The local roadway system represents over 88 percent – or 72,227 centerline miles – of the state's 81,369 centerline miles of public roadway that are eligible for state Highway Users Tax Fund (HUTF) revenues. The following table reflects the system stratified into its major components: System (City/County), Surface (Paved/Nonpaved), Terrain (Plains/Mountainous/Rolling), and Functional Classification (Arterial/Collector/Local) by miles of roadway.

System Overview

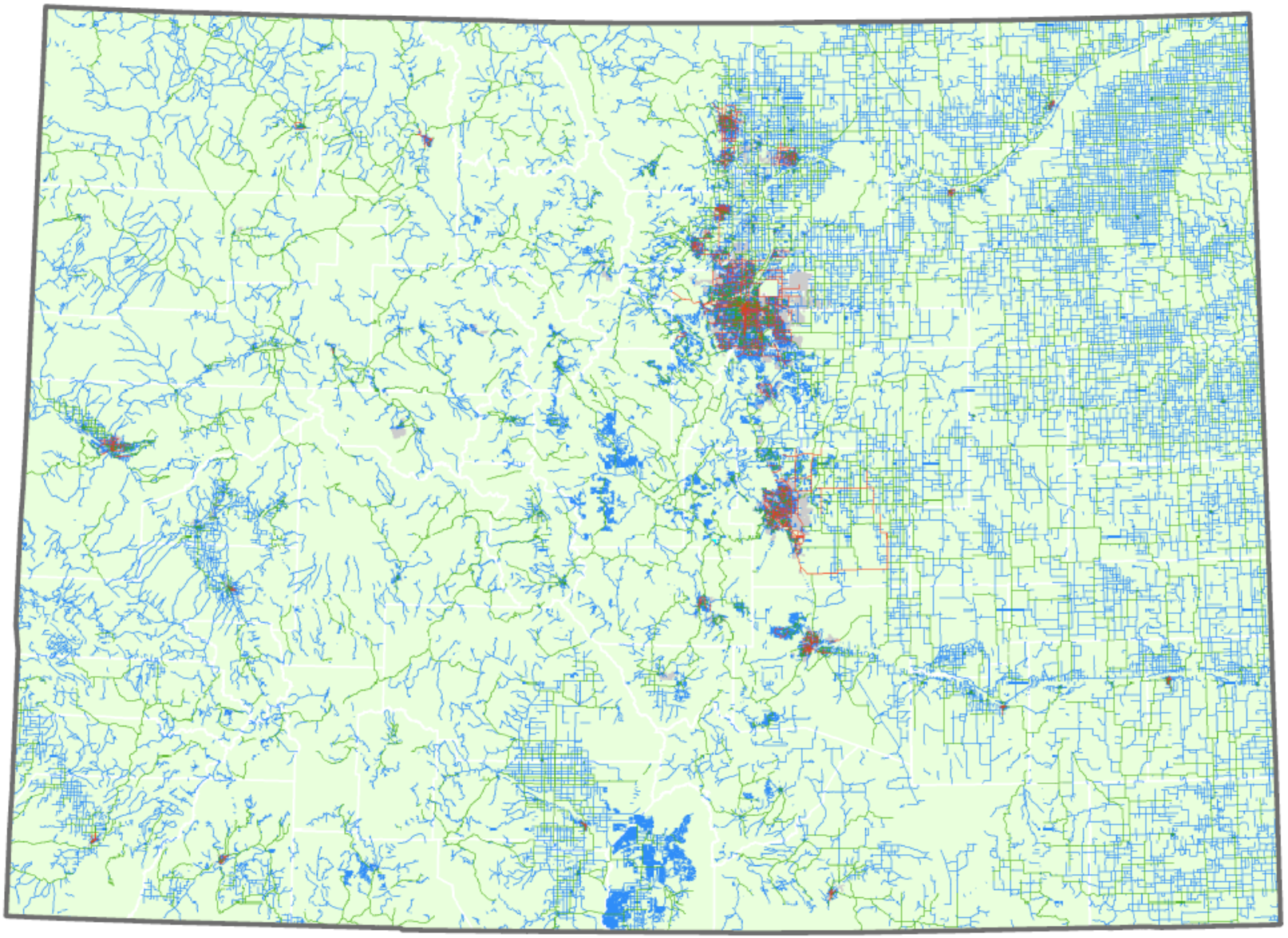
System	Surface	Terrain	Functional Classification			Total
			Arterial	Collector	Local	
City	Paved	Plains	1,295	1,388	9,402	12,085
		Rolling	86	58	504	647
		Mountainous	0	13	25	38
	Nonpaved	Plains	5	57	861	922
		Rolling	1	9	47	57
		Mountainous	0	2	7	8
County	Paved	Plains	74	748	491	1,314
		Rolling	336	2,573	3,944	6,853
		Mountainous	26	1,596	1,118	2,740
	Nonpaved	Plains	16	3,771	16,179	19,965
		Rolling	16	2,019	12,372	14,406
		Mountainous	0	2,575	10,616	13,191
Total			1,855	14,808	55,565	72,227

In similar fashion, roadway surface condition is identified as Good/Fair/Poor across the stratifications.

Road Condition

Mileage by System by Functional Classification by Surface Condition - HUTF 2002

System	Road Type	Centerline Miles			Total		% Total System Miles			Total
		Good	Fair	Poor			Good	Fair	Poor	
City	Arterial	898	370	120	1,387		1.2%	0.5%	0.2%	1.9%
	Collector	878	562	86	1,526		1.2%	0.8%	0.1%	2.1%
	Local	6,421	3,857	567	10,845		8.9%	5.3%	0.8%	15.0%
County	Arterial	302	119	47	468		0.4%	0.2%	0.1%	0.6%
	Collector	6,864	5,327	1,091	13,281		9.5%	7.4%	1.5%	18.4%
	Local	15,731	21,407	7,582	44,720		21.8%	29.6%	10.5%	61.9%
Total		31,094	31,641	9,493	72,227		43.1%	43.8%	13.1%	100%


LOCAL NEEDS ASSESSMENT
OFF-SYSTEM ROADWAYS
URS
ARTERIAL
COLLECTOR
LOCAL
N
0
12.5
25
50 Miles

A review of the existing system information leads to the following general observations:

- 85 percent of all centerline miles in Colorado, including the state highway system and non-HUTF eligible miles, are on the local roadway system
- 87 percent total surface condition is Good or Fair – 13 percent Poor
- 81 percent local roadway system is on County system – 19 percent on City system
- 78 percent of the local roadway system is located in Plains or Rolling Terrain; 22 percent Mountainous
- 77 percent of the local roadway system is functionally classified as Local
- 67 percent of the local roadway system is nonpaved; 33 percent is paved
- 61 percent of all roads are County/Local roads; 18 percent County/Collector; 15 percent City/Local
- 2 percent of all roads are County Arterials; <1 percent City Arterials

V. ROADWAY SYSTEM BACKLOG

Roadway system backlog was developed based on defined geometric design standards and a range of options to bring the surface condition to a defined state of good, fair, or poor.

Backlog

(Geometric Design Standards)

Designs standards for each functional classification were developed using a combination of American Association of State Highway and Transportation Officials (AASHTO) guidelines and local government input. Agreed upon standards are listed in the table to the right.

Design Width Standards	
Arterial	
Lane Width	12’
Shoulder Width (County)	4’
Shoulder Width (City)	6’
Collector	
Lane Width	11’
Shoulder Width	2’
Local	
Lane Width	9’
Shoulder Width	2’

Four approaches to address geometric deficiencies were proposed. Following is a brief description of each approach, including the calculated deficient mileage for each:

- **Approach A** - Allowed for no design width deficiencies for all functional classifications (Arterial, Collector, and Local) – 22,254 miles of deficient roadway
- **Approach B** - Allow design width deficiencies of “1 or 2 Feet” for all functional classifications (Arterial, Collector, and Local) – 10,762 miles of deficient roadway

- **Approach C** - Allow no design width deficiencies for Arterials; Collectors and Locals are exempt – 1,136 miles of deficient roadway
- **Approach D** - Allow no design width deficiencies for Arterials, and "1 or 2 Feet" for Collectors; Locals are exempt – 5,802 miles of deficient roadway

The Local Needs Assessment Committees chose **Approach C** to address geometric design deficiencies on 1,136 miles of Arterials. It is worth noting that the group chose the most conservative option for defining local roadway needs. While the committees acknowledged that this conservative approach may underestimate the actual needs on the system, this choice was a deliberate attempt to develop a "reasonable" needs estimate.

In the absence of consistent accident data, this study employs geometric deficiencies (lane and shoulder width) as a surrogate for creating safer roads. The literature indicates that geometric improvements on the arterial system, as selected under Approach C, provide significant immediate benefits with regard to safety issues.

Design Width - Approach C		
Meets Standard	Miles	Percent Total
No	1,136	2%
Yes	71,091	98%
Total	72,227	100%

Backlog (System Preservation)

Because this project is a needs assessment, the committees, after reviewing the pavement condition data, ultimately agreed that no surface condition performance goal should allow the system to deteriorate below the current level. Analysis of CDOT's database reflects approximately 87 percent of the local roadway system as being in good or fair condition and 13 percent (9,493 miles) in poor condition.

Current System Surface Condition - Approach C					
Good		Fair		Poor	
Miles	Percent	Miles	Percent	Miles	Percent
31,094	43%	31,641	44%	9,493	13%

Total Backlog Costs

Total backlog costs based on Approach C to rebuild 1,136 miles to standard and to bring up 9,493 miles of roadway from a Poor to a Good surface are tabulated below.

Backlog Costs - Approach C (2005 Dollars)	
Backlog Action 1: Rebuild Roads Not Meeting design Width Approach "C"	$0.624 B
Backlog Action 2: Improve Roads Not Meeting Surface Condition Goals	$0.180 B
Backlog Total	$0.805 B

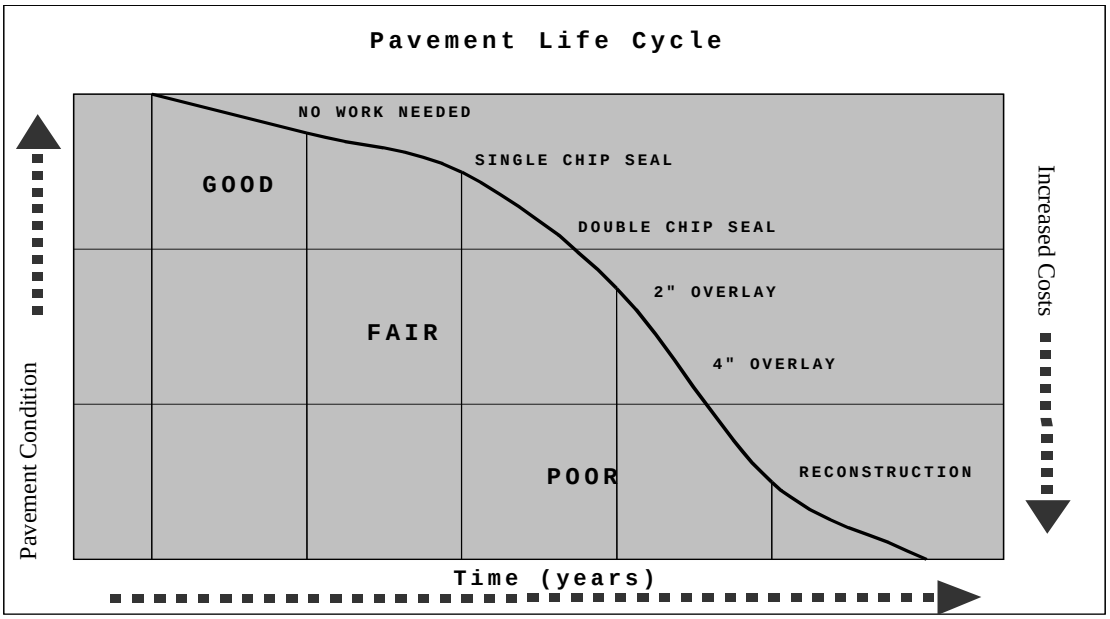
VI. SYSTEM PRESERVATION

Two options to address surface condition standards were proposed for the existing and future roadway network for 2005 through 2030:

- Option 1 - Surface condition 100 percent Good, 0 percent Fair or Poor
- Option 2 - Surface condition 100 percent Good or Fair, 0 percent Poor

The Local Needs Assessment Committees chose Option 2 as a Surface Performance Goal to preserve the system at a realistically optimum level, consistent with the study assumptions and goals. This Option recognizes that there is an expected degeneration of pavement to Fair condition before requiring treatment to return to Good condition.

The following chart illustrates a conceptual approach to develop an efficient surface treatment program. The chart demonstrates the points in time when specific maintenance activities are recommended in order to maximize the efficiency and life cycle of roadway surfaces. While requiring earlier and more frequent maintenance activities, overall life cycle costs are lower with this approach, resulting in the more conservative estimate of system preservation needs as is consistent with the intent of this study. It is recognized, however, that deferred maintenance in cash strapped local governments is more the rule than the exception.



To implement this goal, two Surface Improvement Program Cycles were developed – one for non-paved surfaces and another for paved surfaces (Bituminous). Each Cycle identified activities and intervals necessary to maintain the roadway system at the desired level.

The standard system preservation practices listed below (activities and frequencies for performing the designated system preservation activities) are based on well-accepted management systems for most efficiently maintaining streets and roadways. The principle behind pavement management is that by investing funds in ongoing maintenance of a roadway before it deteriorates too far, a jurisdiction can save money over the long term by extending the life of the roadway surface.

System Preservation – Surface Improvement Program Cycles – Nonpaved

Surface Type		Gravel			Unimproved, Graded & Drained		
Road Classification		Arterial	Collector	Local	Arterial	Collector	Local
Timeframe	Event	Program Level A	Program Level B	Program Level C	Program Level D	Program Level E	Program Level F
Year 2004	Backlog Elimination						
# Annual Occurrences	Blade	4	3	2	3	2	1
	Mag Chloride	3	2	1	0	0	0
# Total Occurrences 2005 - 2030	Blade	104	78	52	78	52	26
	Mag Chloride	78	52	26	0	0	0
Year(s) of Occurrence	Regravel	2014 & 2024 (Every 10 Years)	2017 & 2030 (Every 13 Years)	2020 (Every 16 Years)	-	-	-
# Total Occurrences 2005 - 2030	Regravel	2	2	1	0	0	0
Miles (under Approach C)		38	7,708	28,003	-	724	12,077

System:		City		County	
Surface Condition:		Good	Fair	Good	Fair
Year #	Year	Program Level A	Program Level B	Program Level A	Program Level B
0	2004	Backlog Elimination			
1	2005	Single Chip Seal	Single Chip Seal	Seal Coat	Single Chip Seal
2	2006	6 Years - No Activity	5 Years - No Activity	5 Years - No Activity	6 Years - No Activity
3	2007				
4	2008				
5	2009				
6	2010				
7	2011		Single Chip Seal	Single Chip Seal	
8	2012	Single Chip Seal	5 Years - No Activity	6 Years - No Activity	Single Chip Seal
9	2013	7 Years - No Activity			7 Years - No Activity
10	2014				
11	2015				
12	2016				
13	2017		2 Inch Asphalt Overlay		
14	2018		5 Years - No Activity	Single Chip Seal	
15	2019			6 Years - No Activity	
16	2020	Double Chip Seal			Double Chip Seal
17	2021	7 Years - No Activity			7 Years - No Activity
18	2022				
19	2023		Single Chip Seal		
20	2024		5 Years - No Activity		
21	2025			Double Chip Seal	
22	2026			6 Years - No Activity	
23	2027				
24	2028	2 Inch Asphalt Overlay			2 Inch Asphalt Overlay
25	2029	7 Years - No Activity	Single Chip Seal		7 Years - No Activity
26	2030		5 Years - No Activity		

System Preservation – Surface Improvement Program Cycles - Paved

Unit Costs

A range of unit costs was developed to reflect differential costs associated with the application of the specific activities on non-paved and paved surfaces, based on the literature search and survey of local governments. These unit costs were applied to the specific improvement actions noted below to develop total System Preservation costs.

System Preservation Activities and Unit Costs	
Improvement Action	Cost
4 Inch Regravel	$12,000 - $20,000
Reconstruct to Gravel	$90,000 - $120,000
Single Chip Seal	$12,000 - $20,000
Double Chip Seal	$20,000 - $35,000
2 Inch Asphalt Overlay	$60,000 - $90,000
4 Inch Asphalt Overlay	$120,000 - $180,000
Reconstruct to Asphalt (County)	$150,000 - $300,000
Reconstruct to Asphalt (City)	$297,000 - $447,000
Reconstruct to Concrete (County)	$303,000 - $491,000
Reconstruct to Concrete (City)	$451,000 - $639,000
Blade	$3,000 - $4,000
Magnesium Chloride	$2,000 - $4,000
Routine Maintenance & Minor Improvements	$2,300

Cost per Mile, 2-lane, 22 Foot Surface Width

Total System Preservation Costs

Total system preservation costs, in billions of dollars, to maintain the system at 100 percent Good/Fair from 2005 to 2030 are tabulated below.

System Preservation Costs (2005 Dollars)			
Nonpaved			
Existing	$14.174		
New*		$0.510	
Total Nonpaved			$14.684
Paved			
Existing	$3.033		
New*		$0.278	
Total Paved			$3.311
Total Existing	$17.207		
Total New*		$0.788	
Total System Preservation			$17.995

** New roadway miles added to System Preservation were estimated in Section VIII - Future Mobility Needs.*

VII. ROADWAY ROUTINE MAINTENANCE

A unit cost figure of $2,300 per centerline mile was developed as an average figure to determine routine maintenance costs. The unit cost figure was based on a review of literature and the survey of local government. These costs include snow and ice removal, street sweeping, mowing, culvert cleaning, sign replacement, etc. The unit cost was applied to the entire 72,227 mile system to develop total routine maintenance costs.

Routine Maintenance Costs (2005 Dollars)	
Routine Maintenance and Minor Improvement Activities 2002 - 2030	$5.931 B

VIII. FUTURE MOBILITY NEEDS

Future mobility needs include both new centerline miles of roadway and the addition of lanes to the existing system due to roadway widening from 2005-2030. To develop the future mobility needs, the average system growth rate between 1997 and 2002 was calculated and converted to an average annual percentage growth rate to project the 2030 local roadway system using 2002 as the base year.

MOBILITY – COMPONENTS OF CHANGE

- Increase in Total Centerline Mileage
  - Extension of existing roads
  - Construction of new roads
- Increase in Total Lane Mileage
  - Addition of lanes to existing roads
  - Construction of new roads

Between 1997 and 2002, the system has grown over 1000 miles from 71,107 centerline miles to 72,227 miles. On average, 400 centerline miles of streets and roads have been added to the local system each year – an annual growth rate of about 0.56 percent. Over the time frame of the assessment the centerline miles of new roadway were estimated to grow from 73,445 in 2005 to 84,432 in 2030 and additional lane miles were estimated to grow from 144,379 to 171,693, respectively, at the historical annual growth rate of 0.56 percent from 2005 to 2030. Centerline and lane miles were added to the system in five-year increments through 2030.

This method of estimating future mobility needs is based on historical system growth projected into the future. The absence of consistent and reliable traffic volume data, or at least of *reported* traffic volume data, prohibited a more traditional future mobility needs assessment based on volume to capacity ratios.

Mobility Projections 2005 - 2030		
Increase in Centerline and Lane Miles *		
Year	Total Centerline Miles	Total Lane Miles
2002 (Actual)	72,227	141,356
Additional Lane Miles From Existing Roads		516
New Centerline Miles	1,218	2,506
2005 (Projected)	73,445	144,379
Additional Lane Miles From Existing Roads		879
New Centerline Miles	2,076	4,270
2010 (Projected)	75,522	149,528
Additional Lane Miles From Existing Roads		910
New Centerline Miles	2,135	4,392
2015 (Projected)	77,657	154,830
Additional Lane Miles From Existing Roads		942
New Centerline Miles	2,196	4,516
2020 (Projected)	79,853	160,289
Additional Lane Miles From Existing Roads		976
New Centerline Miles	2,258	4,644
2025 (Projected)	82,110	165,908
Additional Lane Miles From Existing Roads		1,010
New Centerline Miles	2,322	4,775
2030 (Projected)	84,432	171,693

** Centerline growth projections based on historic 5-year Average Growth Rate (1997 – 2002) of 2.83%*

Future Mobility Needs Costs

Total future mobility costs were estimated by applying unit cost figures to new centerline and lane miles distributed to the 71 variable combinations of roadway, including system, functional classification, surface type and terrain. Because of the widely variable range of costs for constructing additional lane miles, the committee agreed to use these minimum values for this study. In the future, estimates will be developed that include right-of-way, traffic control, etc. Future Mobility Costs including new road construction, additional lane miles and surface upgrades to existing roads are tabulated below.

Future Mobility Costs (2005 Dollars)	
New Road Construction (includes centerline and lane miles)	$3.550 B
Surface Upgrades to Existing Roads	$1.105 B
Total Future Mobility	$4.655 B

IX. LOCAL BRIDGES AND STRUCTURES

Bridges are a significant component of the local roadway system. Bridges and structures in this study are classified as "major" – those in excess of 20 feet in span length – or "minor" -- those between 4 feet span length up to 20 feet span length. Currently there are approximately 4,541 major bridges on the local roadway network.

Locally maintained bridges account for roughly 57 percent of the major structures on the state's entire roadway system, including state highways. Information about minor bridge structures (4 feet span length up to 20 feet span length) is less readily available and is difficult to collect. Included in the minor bridge structure category are short span bridges, box culverts and pipe culverts.

Unless otherwise noted, all bridge data reported below was derived from CDOT's Bridge Management System. The Bridge Technical Committee defined and approved all standards. This section presents the best available information on the local bridge system, but efforts continue to improve upon the data and analysis.

Bridge System Inventory

Major bridges (20+ feet) – There are approximately 4,541 major structures on the local system as identified in CDOT's Bridge Management System.

Minor bridges (4 to 20 feet) – Data for minor bridges were sampled from project participants and derived from a database sample for this study. The estimate of approximately 7,200 local minor structures was based on an adjusted sample calculation of 0.1 minor structures per centerline mile of the local roadway system.

Number of Bridges on Local System		
Major	Minor	Total
4,541	7,200	11,741

While the "count" of structures is the most often discussed inventory characteristic, it is the deck area, especially of major structures, that is the principal measure for bridge resources. The local bridge system has approximately 15 million square feet of deck area, averaging 3,250 square feet. The local system averages one major bridge for every 16 centerline miles of roadway (or 0.06 bridges per centerline mile).

The occurrence rate for local minor structures, estimated at approximately 0.1 minor structures per centerline mile based on a sample of 10 percent of the local roadway miles, is higher than the occurrence rate for local major structures. Deck area for the minor structures, most of which are pipe culverts, has not yet been estimated from the sample data, but is expected to be about 10% of the major structures deck area.

Bridge System Standards

This assessment uses guidelines developed by CDOT and FHWA for cost estimating within the bridge management system. These guidelines are applied to local major bridges eligible for federal bridge funding. The target bridge condition distribution for this effort was to remove all local major bridges from the "select list" by rehabilitating or replacing local bridges according to the FHWA criteria.

Three measures are used to represent the suitability of a major bridge for service. These are Sufficiency Rating (SR), Structural Deficiency (SD), and Functional Obsolescence (FO). The SR is a numeric rating from 0 (poor) to 100 (excellent). It combines the structural deficiency and functional obsolescence of a bridge into one factor that represents the sufficiency of the structure to remain in service. (SD, which is either yes or no, focuses on the basic structural integrity of the bridge. FO, also either yes or no, represents the ability of a bridge to deal with its traffic conditions regarding number of lanes, clearances, geometry, etc).

Bridges are deemed to be a candidate for major rehabilitation if its SR is between 50 and 80 and they are either SD or FO. A bridge is deemed to be a candidate for full replacement if their SR is less than 50 and is either SD or FO. Meeting either set of criteria identifies the bridge on the "select list" for major bridges.

Bridge System Condition

The table below illustrates the distribution of the 4,541 local major roadway bridges in Colorado by SR and SD/FO. A total of 397 bridges are in the candidate rehabilitation category and 271 bridges are in the replacement category. This group of 668 bridges is about 15 percent of the local major bridges in the state. The deck area on the select list also represents approximately 15 percent of the total local major bridge deck area.

Local Major Bridge Sufficiency Rating (SR)					
Sufficiency Rating Range	NO – Not Obsolete	SD – Structurally Deficient	FO – Functionally Obsolete	SD or FO (Deficient)	Total
SR > 80	2,955	11	67	78	3,033
SR: 50-80	813	86	218	397	1,210
SR < 50	27	142	127	271	298
Total	3,795	239	412	746	4,541

The preliminary condition distribution for the local minor structures indicates that a "low" percentage of minor structures are in poor condition and thus in need of rehabilitation or replacement.

Bridge System Backlog

The backlog of needs for major structures on the local system were calculated to be $340 million in year 2005 dollars based on the inventory and condition information in the CDOT BMS and applying the standard to remove all local major bridges from the "select list." A total of 397 local bridges qualified for rehabilitation and 271 qualified for full replacement. The calculations were applied to the deck area of the specific local major bridges. The CDOT / FHWA guidelines for estimating major bridge rehabilitation and replacement costs were utilized for this estimate with an inflation factor to bring the estimate to year 2005 dollars.

For local minor structures, a preliminary estimate of $100 million is being used to represent backlog, preservation, and expansion. The $100 million value is a mid-point of several approaches used to estimate minor structures needs. The methods for dealing with minor structures are in the early stages nationally and lack the sophistication that 25 years of major bridge management systems development has provided for the major bridge efforts.

Bridge System Maintenance

Maintaining local bridges and structures statewide through the year 2030 is estimated to cost $110 million. This figure is based on CDOT's annual maintenance cost per square foot of major bridge which is approximately $0.25 per square foot in year 2005 dollars. This unit cost was applied to the local major bridge deck area year by year to 2030. This maintenance cost estimate accounts for deck area expansion due to future bridge modifications and roadway network expansion.

Bridge System Preservation – Existing System after Backlog

Preserving the existing local major bridge system after the backlog has been completed was estimated using a unit cost for rehabilitation of bridges applied to 2 percent of the deck area per year that approximates a nominal 50-year life. The total cost of this preservation effort is $600 million by year 2030 or $24 million per year for the years 2006 through 2030. The methodology and unit cost figures were drawn from the FHWA/CDOT guidelines cited earlier.

Bridge System Future Needs

Major Bridges

Future expansion of the local major bridge system was estimated both for lane mile additions to the existing local roadway network (results in bridge widening) and also for new centerline miles added to the existing local roadway network (results in new bridges). The additional lane miles were assumed to affect 0.5 existing centerline miles per added lane mile. The estimated existing major local bridge deck area for that number of centerline miles was assumed to grow by 50 percent for bridge widening for the new lane miles. The FHWA/CDOT cost guidelines for rehabilitation and widening were applied to obtain the total cost estimate.

An estimate for new centerline miles was made of the new deck area needed based on occurrence rates for bridges and average deck area per bridge. Again, the FHWA/CDOT cost estimating guidelines for new bridges was used to estimate the total cost. Preservation costs for those new bridges were also computed using the 2.0 percent deck area per year for rehabilitation. The net effect of these computations was to widen 820 existing local major bridges due to lane mile additions and to build 660 new major bridges due to the new centerline miles. The year 2030 major local bridge inventory grows to 5,201 under these scenarios.

Minor Bridges

Cost to rehabilitate, maintain, and construct new minor bridges were determined to be a small fraction of the overall bridge program. Costs to widen existing minor structures resulting from roadway lane widening for safety or capacity improvements resulting from projected volume increases or changes to functional classification are assumed to be included in widening costs for roadway construction. Likewise, maintenance costs are included as part of routine roadway maintenance costs. Future needs for minor structures were estimated at 2.0 percent of future roadway mobility needs

Summary of Bridge Costs

The following table summarizes the local bridge needs by year 2030 at $1.68 billion. This includes Backlog of needed rehabilitation or reconstruction, System Preservation for existing structures that do not currently fall into the Backlog category, New Bridges (including newly constructed deck area to accommodate roadway widening, System Preservation for new bridge and deck area expansions, and routine maintenance). Approximately 94 percent of costs are for major bridges; minor bridges, while numerous, are a small fraction of overall bridge costs.

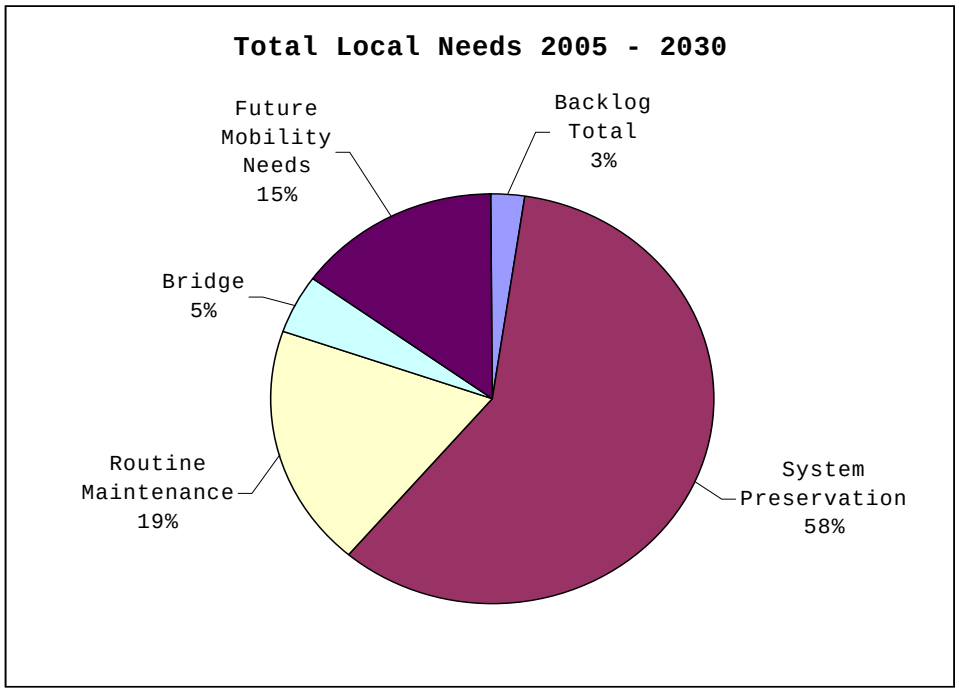
Bridge Costs (2005 Dollars)	
Major Bridges	
Backlog	$0.340 B
System Preservation (existing after backlog)	$0.600 B
New Bridges and New Deck Area	$0.470 B
System Preservation (new bridge/deck)	$0.600 B
Routine Maintenance	$0.110 B
Major Bridge Total	$1.580 B
Minor Structures	$0.100 B
Total – Major + Minor Structures	$1.680 B

X. SUMMARY TOTAL LOCAL NEEDS

Total Local Needs for each major section of the study -- Backlog, System Preservation, Routine Maintenance, Bridge, and Future Mobility Needs-- are tabulated below.

Local Needs Total Costs 2005 – 2030 (2005 Dollars)	
Backlog	$0.805 B
System Preservation Activities	$17.995 B
Routine Maintenance and Minor Improvement Activities	$5.931 B
Bridge 2002 –	$1.680 B
Future Mobility Needs	$4.655 B
Total Local Needs	$31.066 B

System Preservation is by far the largest component of all Local Needs at 58 percent of the total, followed by Routine Maintenance (19 percent).



XI. ANTICIPATED REVENUES

Local revenues spent on local roads, streets, and bridges come from a variety of funding sources. They fall into four major categories:

- Local Funds
- State Funds
- Federal Funds
- Private Sources

In 1987, approximately $0.470 billion was available for local road, street and bridge activities. A comparable figure in 2002 reflected approximately $1.1 Billion available for similar purposes.

The heavy reliance on non-mandated locally generated revenues that are subject to the discretion of locally elected officials makes it difficult to forecast future available revenues. An analysis of the annual revenues available for local road, street and bridge needs indicated, however, that the mandated state Highway Users Tax Fund share that is directed annually to local governments for local transportation improvements ranged from 22.5 percent - 28.2 percent in any one year. The average local HUTF over the 16-year period was 26.3 percent of the total revenue available to local governments for those purposes.

Revenue Forecast		
Comparison to Other HUTF Averages (1987 – 2002)		
Range	Total Local Revenue	HUTF % Total Local Revenue
High	$21.959 B	22.5%
Average	**$18.836 B**	**26.3%**
Low	$17.558 B	28.2%

Therefore, a revenue forecast of funds potentially available for local roads, bridges and streets was developed based on the average HUTF as a percent of total local revenue from 2005-2030 as shown above. CDOT developed HUTF projections through 2030 to which the 26.3 percent factor was applied to compute Total Local Revenue. The revenues were then discounted back by the CDOT construction index rate to reflect 2005 dollars for comparison with total local needs. In the current economic climate of escalating infrastructure and services needs, combined with generally insufficient resources, local governments may at any time alter the proportion of local revenues made available to road and bridge programs. This revenue forecast assumes the continuation of historical trends in revenue collections and expenditures.

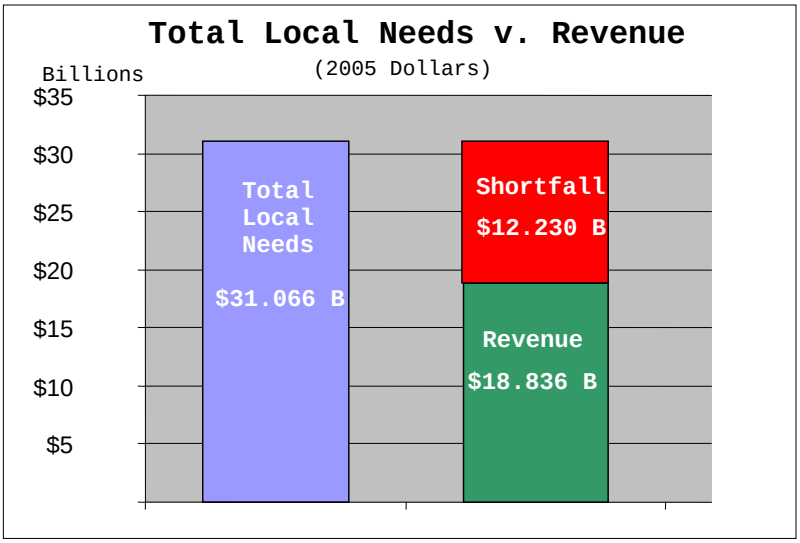
Revenue Forecast 2005 through 2030*			
Year	Highway User's Tax Fund _ Projections _ ($1,000s)	Total Local Revenue - City and County - ($1,000s)**	Total Local Revenue 2005 Dollars ($1,000s)
2005	$265,816	$1,011,488	$1,011,488
"	"	"	"
"	"	"	"
2015	$333,660	$1,269,650	$779,455
"	"	"	"
"	"	"	"
2030	$392,627	$1,494,032	$441,192
Total	$8,918,487	$33,936,810	
Total in 2005 Dollars			$18,836,401

** Based on 26.3% HUTF Average (1987 - 2002)*
*** Includes HUTF, Federal Miineral Leasing, FEMA, Forest Service, Pay in Lieu of Tax, & HUD*
Does not include Federal STP Metro or CMAQ Funds

Local Need Assessment Funding Shortfall

The following table and chart illustrate the total local needs, available revenue, and shortfall. Available revenue of $18.8 billion will serve to address approximately 60 percent of the identified total local roadway and bridge needs, leaving an approximate $12.2 billion shortfall.

Local Needs Shortfall 2005 – 2030 (2005 Dollars)	
Local Needs Total Costs	$31.066 B
Revenue Forecast	$18.836 B
Local Needs Shortfall	- $12.230 B



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