



Investment Level Performance Report

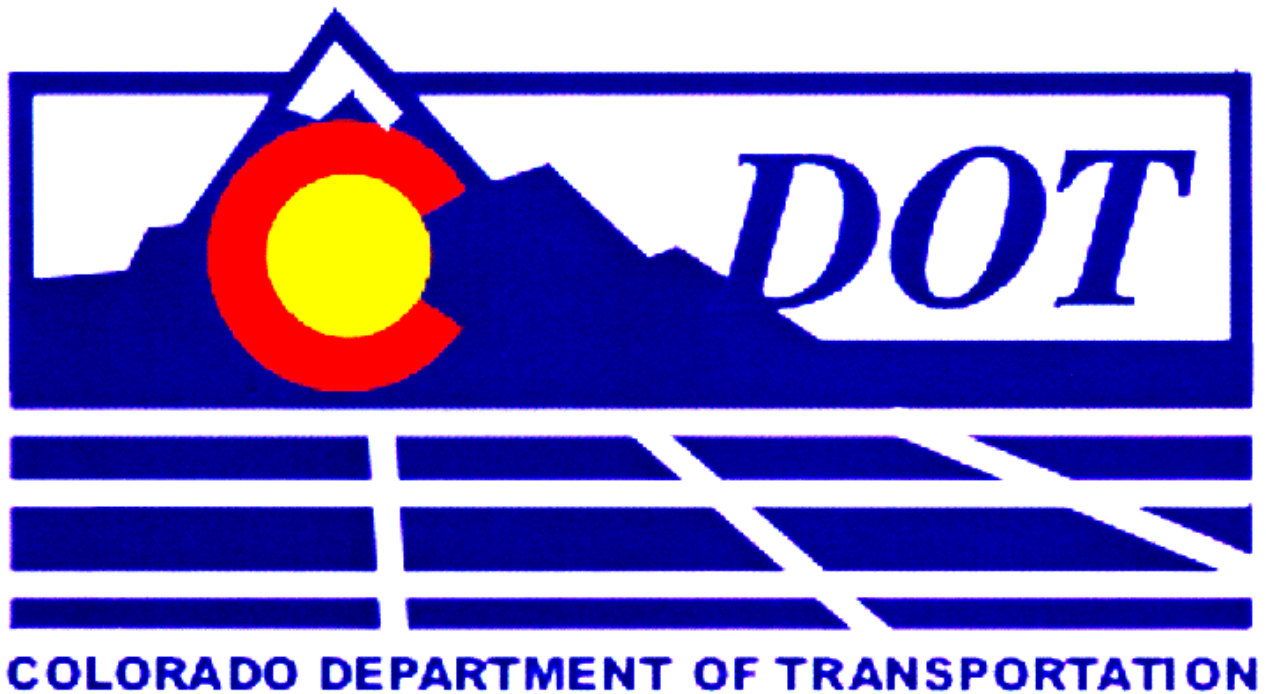


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- Executive Summary -

In our rapidly changing environment, success in governments depends upon its ability to quickly and intelligently mobilize resources in response to a range of complex problems and opportunities. This requires integrated, current, and accurate information and data about resources, program performance and customer needs. The achievement of this requires sound planning and investments and the determination to attain the desired results.

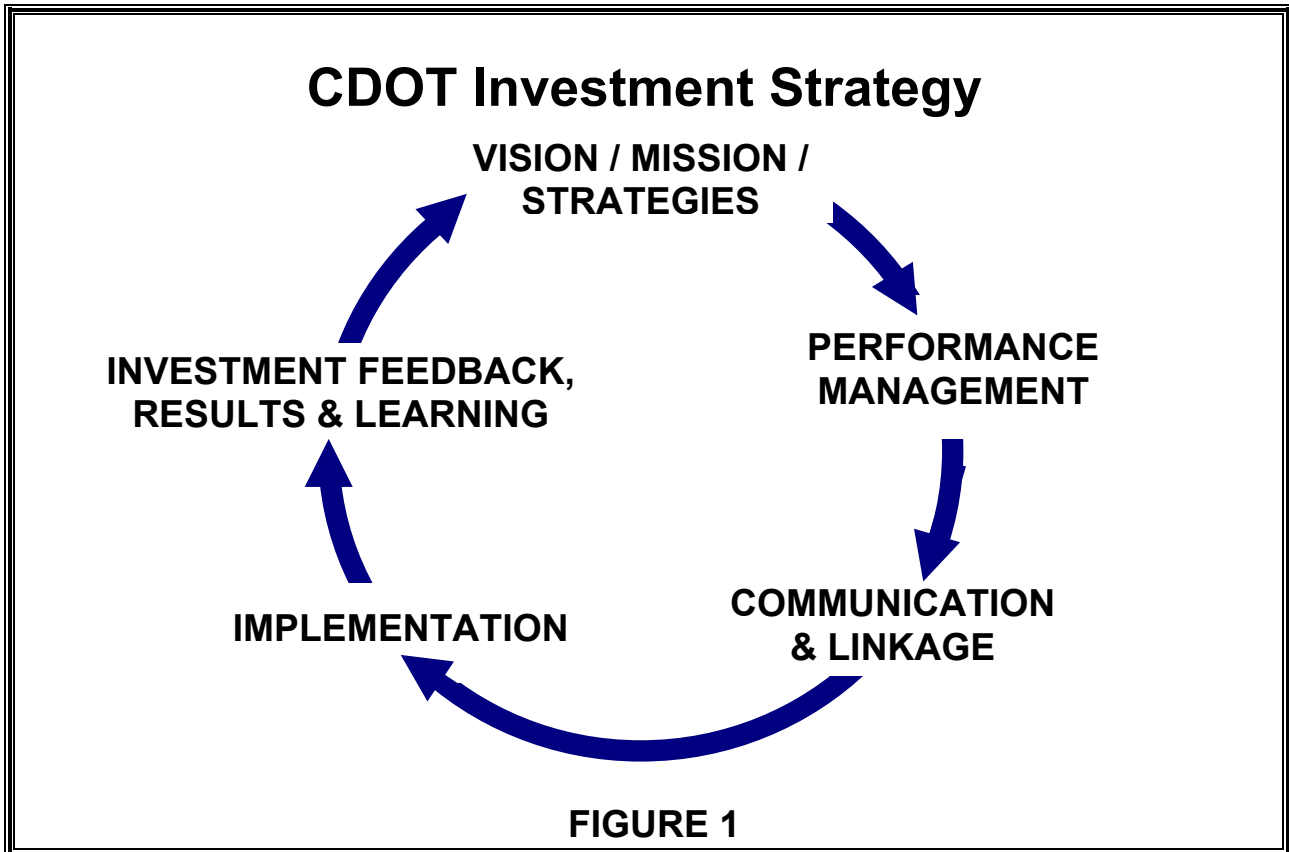
Since 1996, the transportation investment decisions process has been undergoing an evolution within the Colorado Department of Transportation (CDOT). This evolution is similar to other Transportation Departments throughout the country. The Transportation Commission and the department's Executive Management Team (EMT) determined that the traditional approach to transportation decisions was losing its effectiveness. The investments in transportation must gauge, on a current and continuing basis, transportation trends to anticipate and prepare to meet the challenges of Colorado's transportation future.

To accomplish this, through the forethought of the department's leadership, the focus is within five investment categories of business services. The categories are Safety, System Quality, Mobility, Strategic Projects and Program Delivery. These represent the concentrated areas of service of the department rather than the independent and individualized needs of programs and projects. The result is an aggressive integrated and interdependent investment strategy effort that establishes a framework for investment planning and monitoring to guide how resources can be managed and deployed to enable the department to effectively carry out its mission and ultimately the vision.

Because of this aggressive integrated and interdependent investment strategy, not all investment decisions will be perceived by customers to be wise on face value. An example of such a situation might appear around the maintenance of the state's roadways. Within the past three years, CDOT has begun transitioning pavement condition ratings from previous rideability condition rating to remaining service life. What this means to a customer is that on appearance, CDOT will appear to ignore poor condition roads with short service life and maintain fair or good condition roads with long service life. Traditional approach to this situation has been to equalize the roadways. Fix the "poor" and bring their condition up a little while deferring the "fair and good" roadways, allowing their condition to deteriorate. This shift in management decisions is to focus resources on preserving and maintaining the "fair and good" roadways as a priority before investing in maintaining "poor" roadways thereby, maximizing the return on investment.

The challenge is to effectively communicate with CDOT customers to raise their level of understanding, support and acceptance of the visionary transportation investment strategy decisions adopted by the leadership. During the past three years, CDOT's

Investment Strategy has evolved into a full cycle of strategic investment level and core service level planning encompassing key elements that will ensure successful implementation as well as the framework for the sustainability of an evolutionary process.



Whereas previous years investment strategy cycle was limited to alignment of CDOT's Mission, Performance and Investment, it has evolved to include components of communication and linkage, implementation, and lessons learned through feedback and results. These are the key elements that will ensure continuous improvement and sustainability. The key elements that help define each component of the cycle are as follows:

Vision/Mission/Strategies

- Evaluates stakeholder and customer expectations
- Assess the department's strengths and weaknesses
- Assess the department's internal and external opportunities and limitations
- Develop strategic objectives for actions by the department

Performance Management

- Assess current processes and structures for strategic implementation
- Formulate a performance model of the business and identify fundamental drivers of success

CDOT FY 2001 Performance Report

- Institute a performance model based on reasonable targets
- Develop key performance measures
- Establish process for review, feedback and revision

Communication and Linkage

- Articulate the new investment strategy and performance plan
- Operationalize investment strategy by establishing performance measurement and targets
- Cascade performance measures to all levels
- Link performance to accountability and gain department commitment and customer understanding

Implementation

- Provide success enablers: training, system support and leadership
- Monitor progress through measures and provide process for review, feedback and revision
- Where needed, apply behavioral and department change management
- Manage the implementation of goals, objectives and performance measures

Investment Feedback and Learning

- Review and summarize performance measures results versus expectations
- Continually assess the validity of the goals, objectives, investment categories, and performance measures and make necessary revisions
- Evaluate the areas of performance measures results not meeting expectations and identify root causes: internal or external influences, resource limitations, or inadequate agency capabilities
- Evaluate the areas of strengths to accentuate the program
- Document and summarize lessons learned and insights for strategic revisioning and refocusing

Following this cycle of the Investment Strategy, CDOT's Transportation Commission and the Executive Management Team has set the broad outline for the Investment Strategy by setting investment level goals: Investment level goals that lend guidance to a long-term organizational vision. It states what the organization wants to accomplish or become over the next decade or more. During 1999, 2000, and 2001, they have aggressively pursued completing this structure by identifying department level objectives for all of the investment categories. Objectives channel resources to the point of implementation and commit people to action. Objectives are the what and when that supports the Department's goals and show progress towards the mission. Performance Measures were developed to allow CDOT to measure and report progress to their employees, customers and stakeholders on the outcomes of their investments.

CDOT's Investment Strategy is supported by five categories. The categories may appear to operate independently but are designed to encompass all of CDOT's major activities that supplement and complement each other and that require interfacing

between the categories for effective decision making. Following are the five investment categories.

CDOT Investment Categories

SAFETY: Programs that reduce fatalities, injuries and property damage

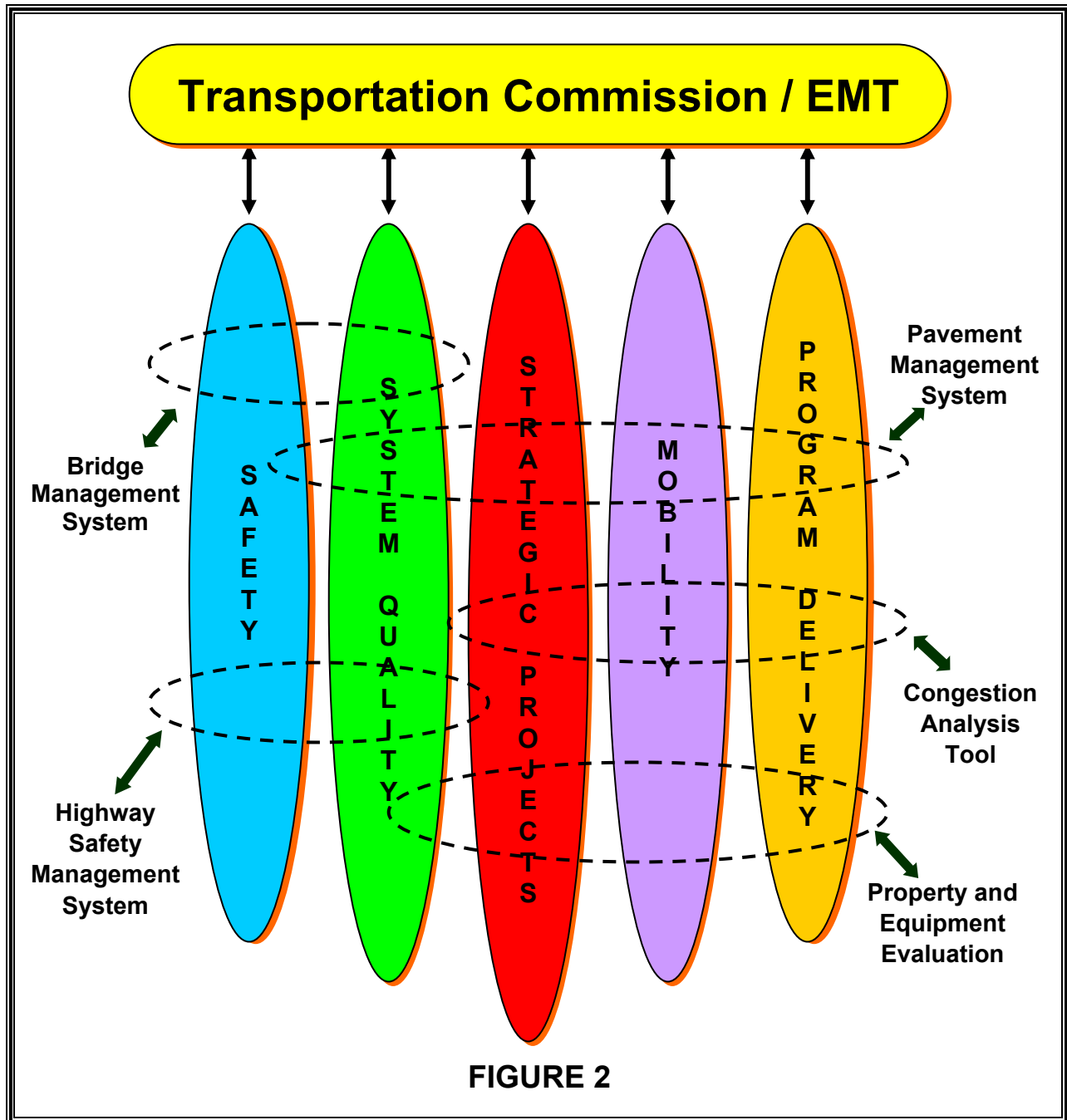
System Quality: Programs that maintain the existing infrastructure

Mobility: Programs that provide for the movement of people and goods

Strategic Projects: 28 high-priority statewide projects

Program Delivery: Support functions that enable the delivery of CDOT's programs

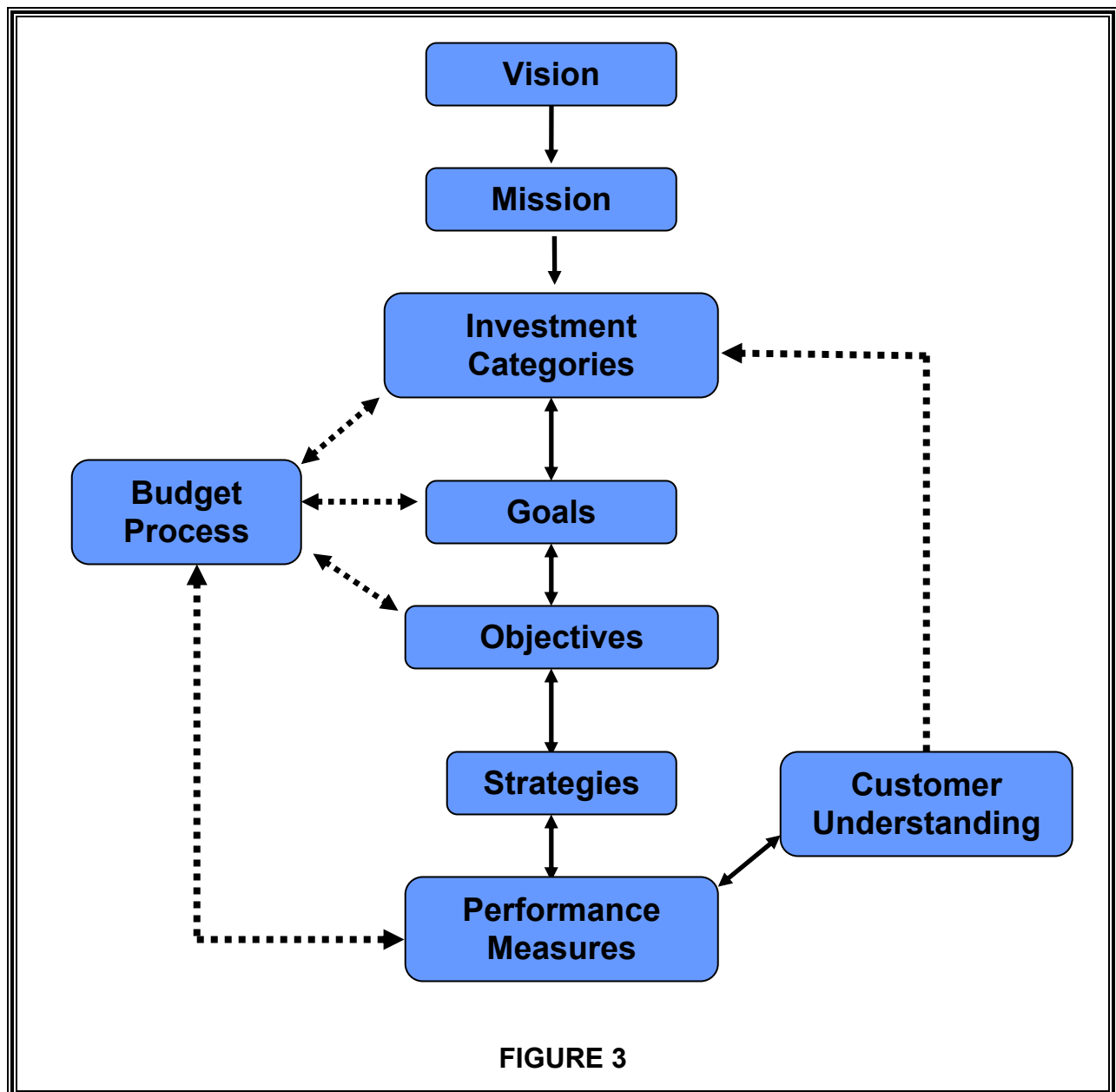
The investment categories are designed to focus on priority areas of transportation needs for Safety, Mobility, etc. However the management systems that exist within CDOT are designed to provide support across the investment categories. Figure 1, on the following page, gives an illustration of how each management system may impact and assist in multiple investment category decisions. For example, CDOT may decide to invest in a major pavement preservation project. In doing so, the decision may impact investment categories of System Quality and Program Delivery by meeting the goals of "Preserve the Transportation System" and "Deliver high quality products and services in a timely fashion". However, the initial desired outcome of this project investment decision is to meet the goal to "Improve Mobility" for the designated investment area. The value perceived by customers for this investment decision may be only realized after their understanding of how investment decisions are made. The challenge is to communicate with the customer short and long-term goals so the customer perception parallels the investment decision desired outcome or result.



The figure above demonstrates how each management system can support or impact multiple investment categories. As a result, investment decisions must be made in a collaborative environment creating strong inter-departmental relationships and communication. Customer perception will view a seamless service organization that is unified in its performance accountability. Employees will perceive leadership and advocacy for management decisions while building strong organizational alliance.

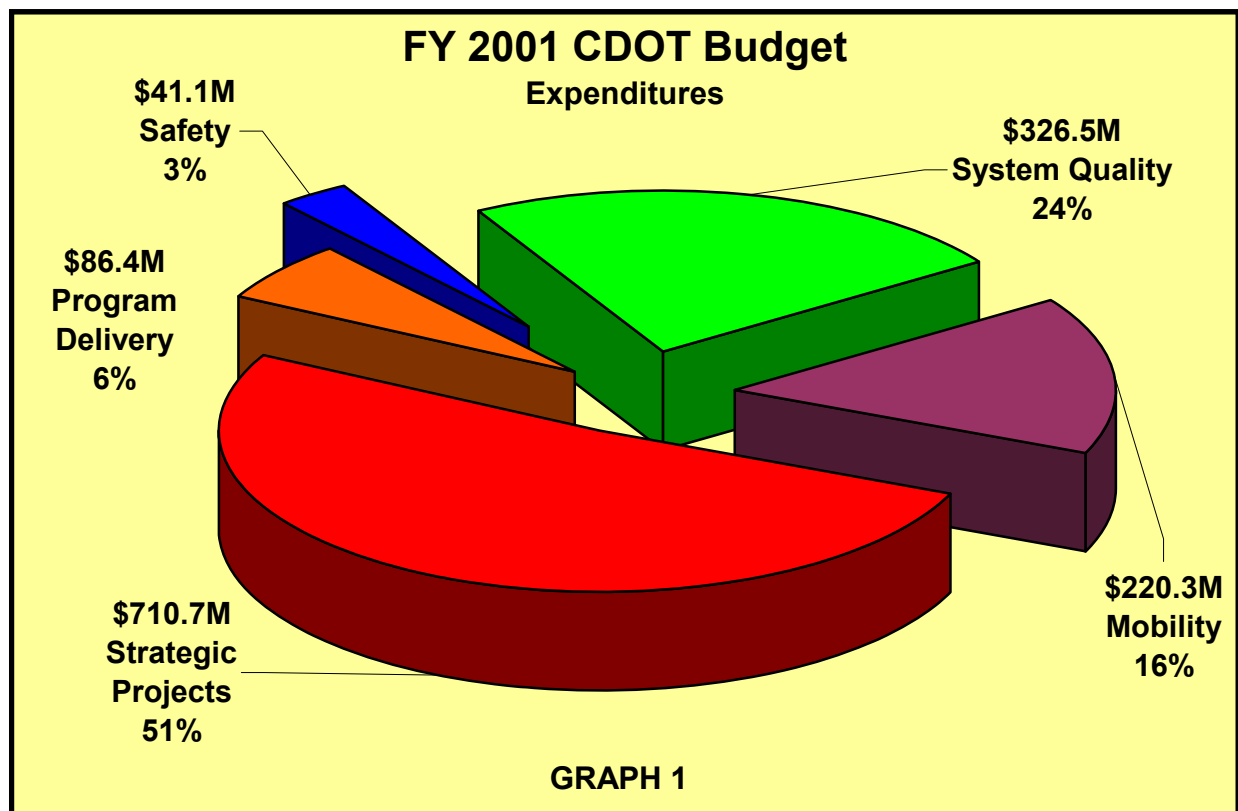
Investment Strategy Alignment Model

The figure below demonstrates the alignment relationship that the investment strategies have within the overall department and to other organizational processes. The design ensures support of the department's Vision and Mission while creating alignment of the department's Goals and Objectives. Performance Measures help determine the accomplishments within the resource parameters. Combined with the customer input, performance measures can provide the necessary data feedback that can help determine where management decisions need to focus and the resources necessary to support the desired investment outcome.

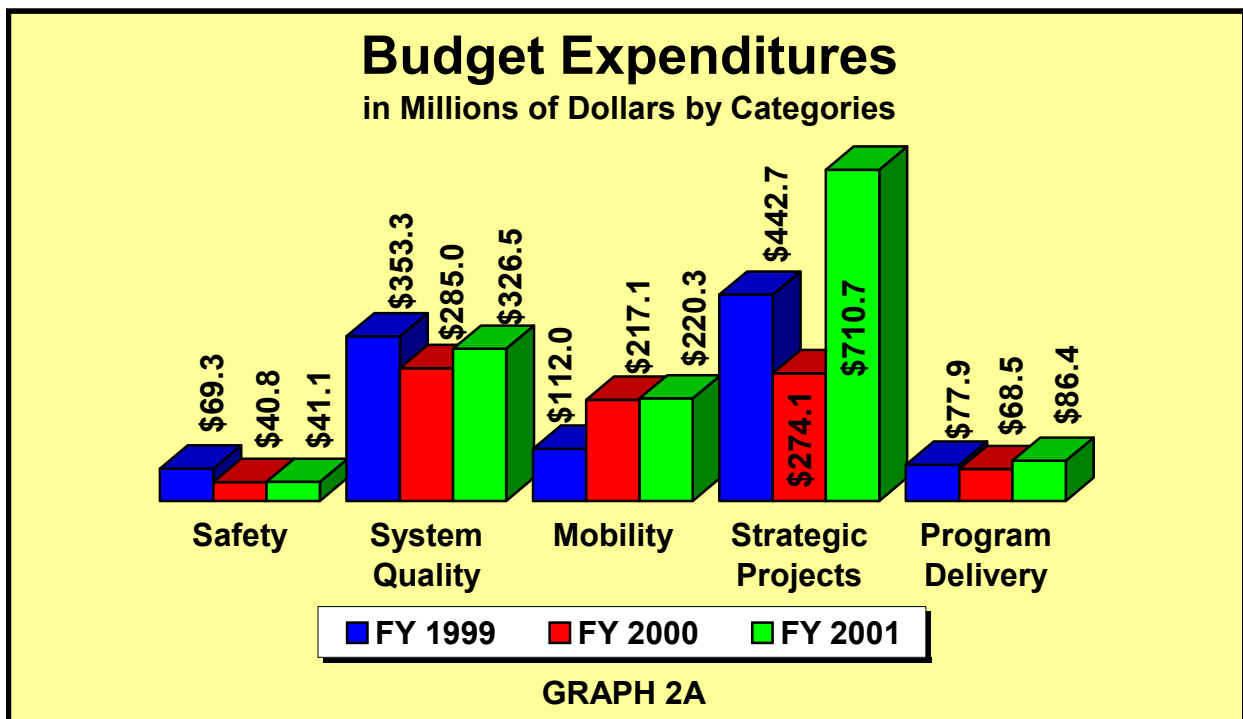
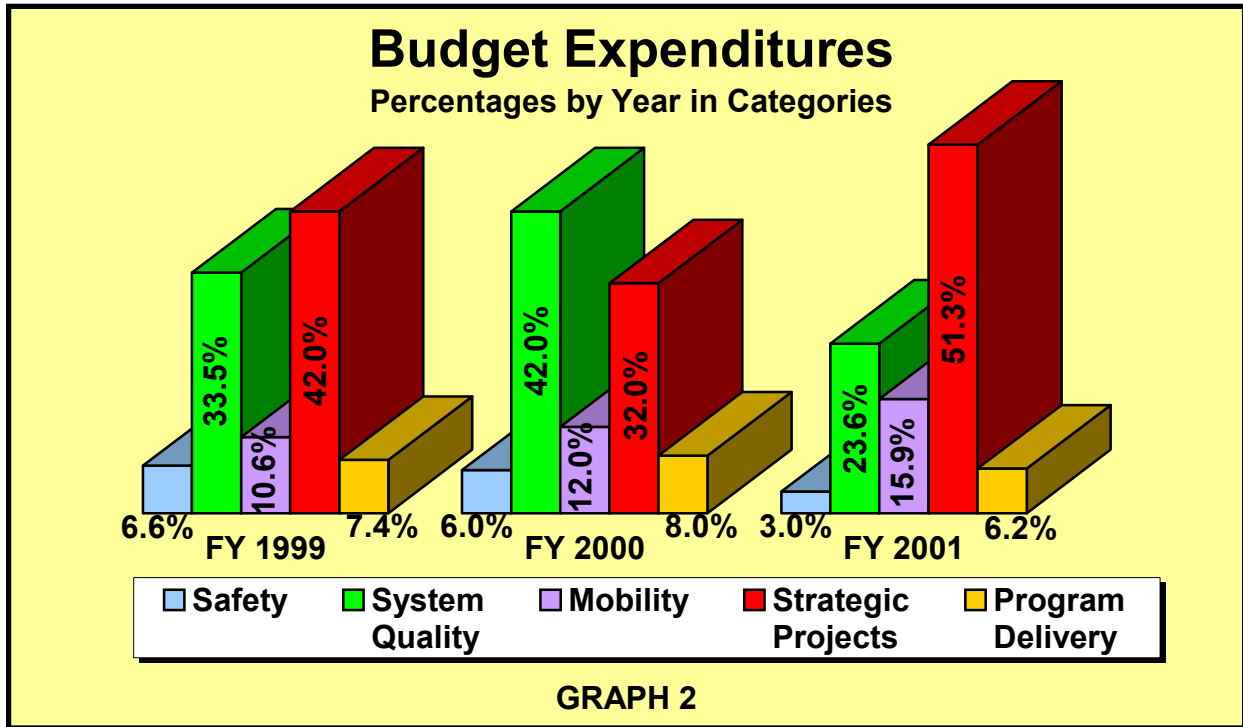


Budget

Based on CDOT's fiscal year 2001 Budget, funds by percentage have been programmed into the five Investment Categories as shown in Graph 1 below. The data from each of the investment categories will assist the Transportation Commission in resource allocation. Over the past four years, performance measures data at the investment level has been compiled to establish some baselines for comparing investments to results.



Analyzing the numerous performance indicators at the culmination of each fiscal year and the associated expenditure from year to year can give an indication of the state of the system. As indicated in Graph 2 and 2A on the next page, the expenditures have increased in Strategic Projects from FY2000 to FY2001. This demonstrates that the Department's desire to complete the high priority Strategic Projects is being accomplished as shown by the performance level. Conversely, the expenditure percentage in System Quality decreased from FY2000 to FY2001. However, care must be taken not to conclude that there was less of an emphasis in any of the categories based only on the percentages. An analysis must be completed on the dollars spent (illustrated in Graph 2A), the need in each category, and the previous years expenditures to form an entire picture of investments in the transportation system.



Throughout this report, the performance measures data and the associated text will give an indication to the reader of the current expenditures and state of the system within each of the five investment categories.

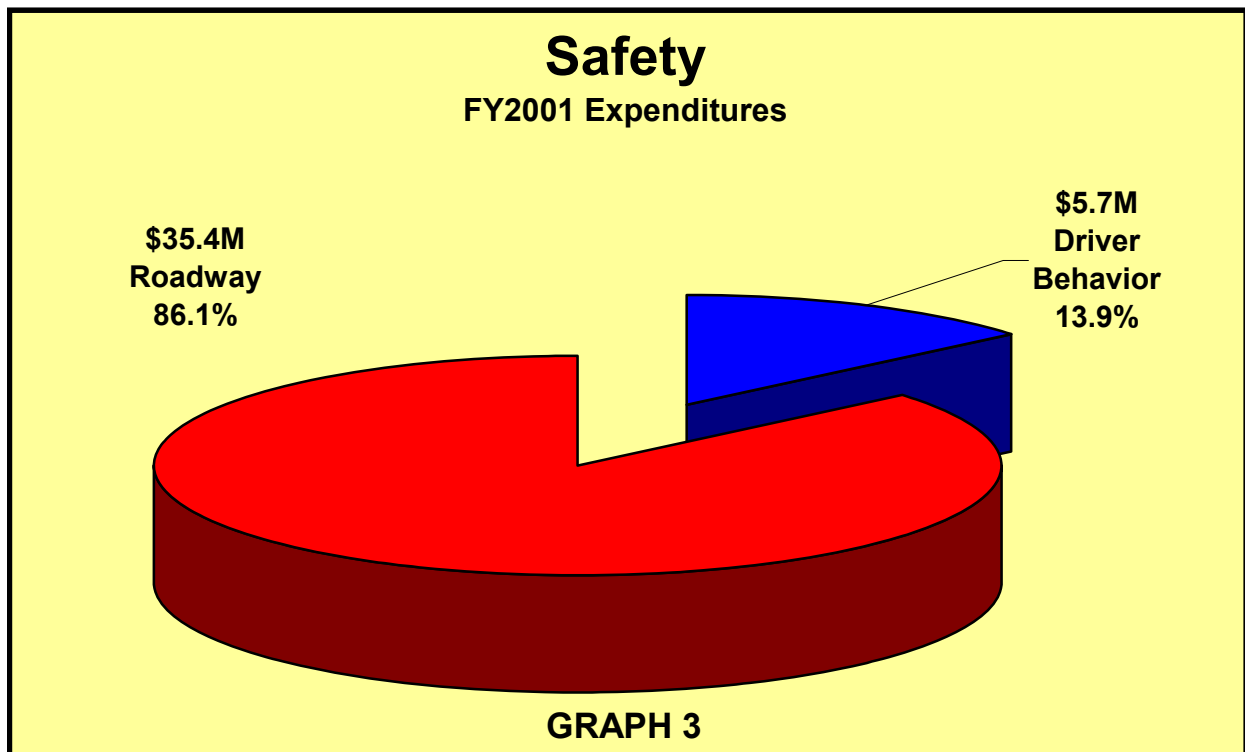
Safety Investment Category

“Services, programs and projects that reduce fatalities, injuries and property damage for all users of the system.”

The objectives within the Safety Investment Category associated with safety incidents in areas of Crashes by Type, Fatality Rates, and the differentiation between Safety Driving Behavior and Roadway Safety Characteristics have remained constant. What is new is the introduction of objectives around Customer Education and Awareness and Safety Investments Concentrated to Growth Areas. These last two objectives being relatively new, data has yet to be solidified enough to assess the impact of the department’s performance. However, the *Colorado Integrated Safety Plan 2000* contains elements that would gauge performance around safety “Before & After” treatments as well as “Evaluation of Cost Effectiveness of Safety Improvement Strategies.”

CDOT’s Investment in Safety

Based on the fiscal year 2001 Budget, CDOT allocated approximately \$41.1 million to Safety programs and projects. The investment is divided between two key Program Areas: Safe Driving Behavior and Roadway Characteristics.



Safe Driving Behavior Programs include enforcement, media and school campaigns targeting drinking and driving as well as aggressive driver behavior. Roadway Safety

Programs include physical safety improvements for intersection and traffic control, bridge structures, roadways, roadside and railroad-highway crossings.

SAFETY GOAL

- Reduce transportation-related crashes, injuries and fatalities and the associated loss to society

OBJECTIVE:

- Reduce the rate and severity of transportation related incidents

Performance Measure

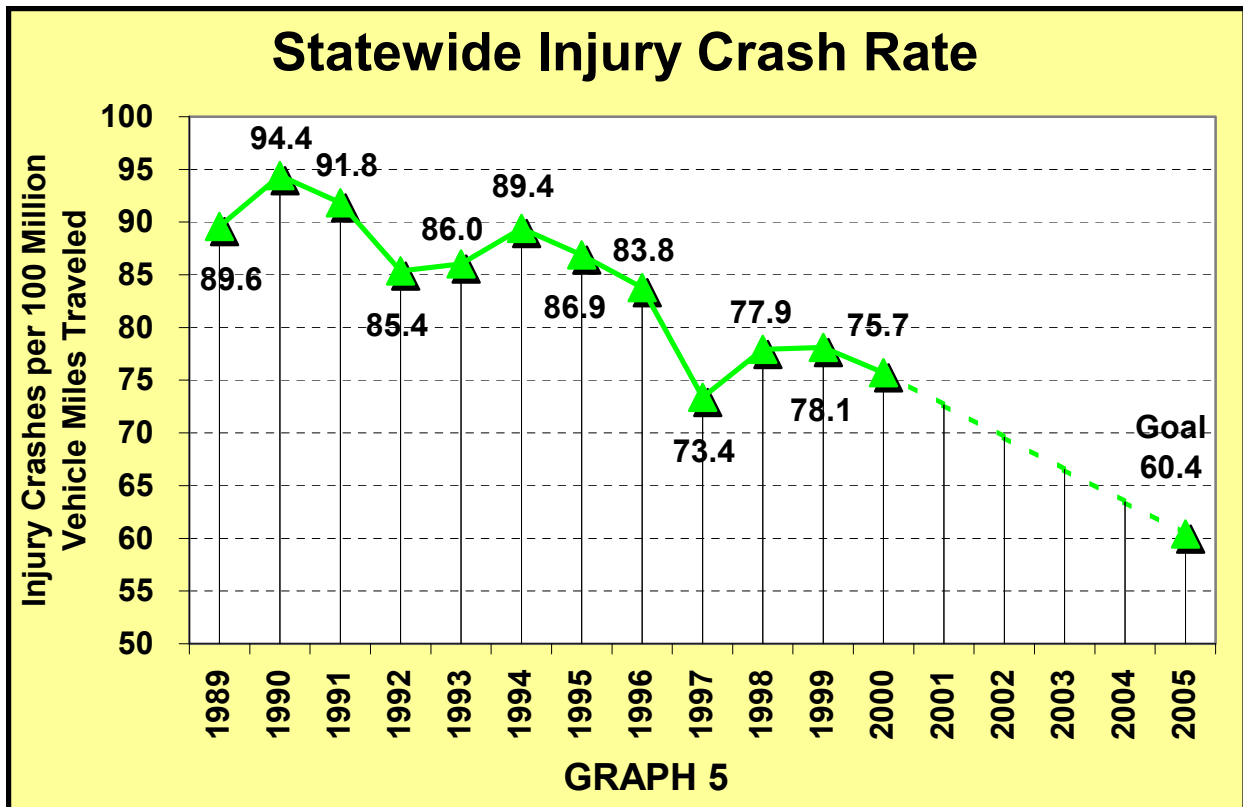
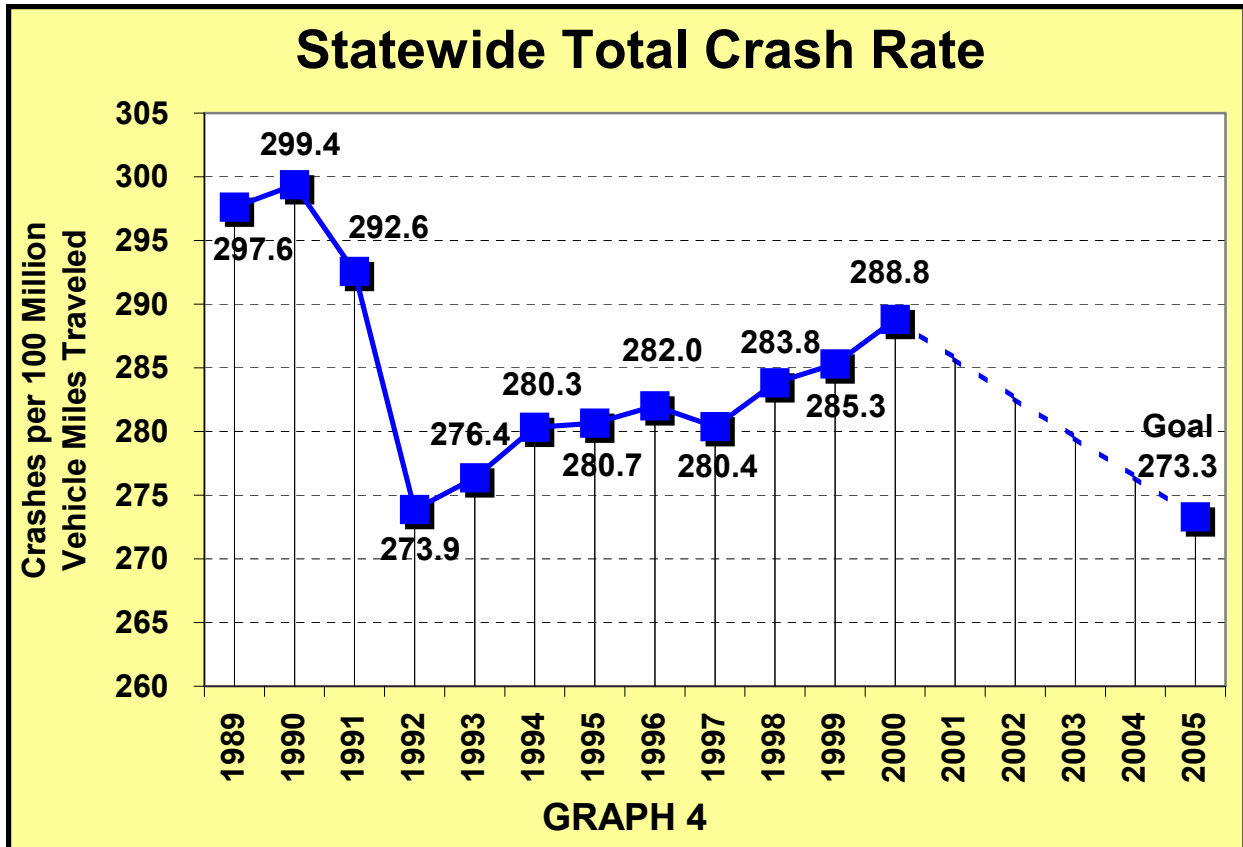
- Statewide safety incident rate including fatal and injury rate

Purpose

Graphs 4, 5, and 6 show the frequency of crashes, injuries and fatalities by year. This information enables CDOT to indirectly determine if their safety investments are having an impact in reducing frequency and severity of crashes. The goal of the Department is to control or reduce losses to Colorado citizens caused by motor vehicle crashes.

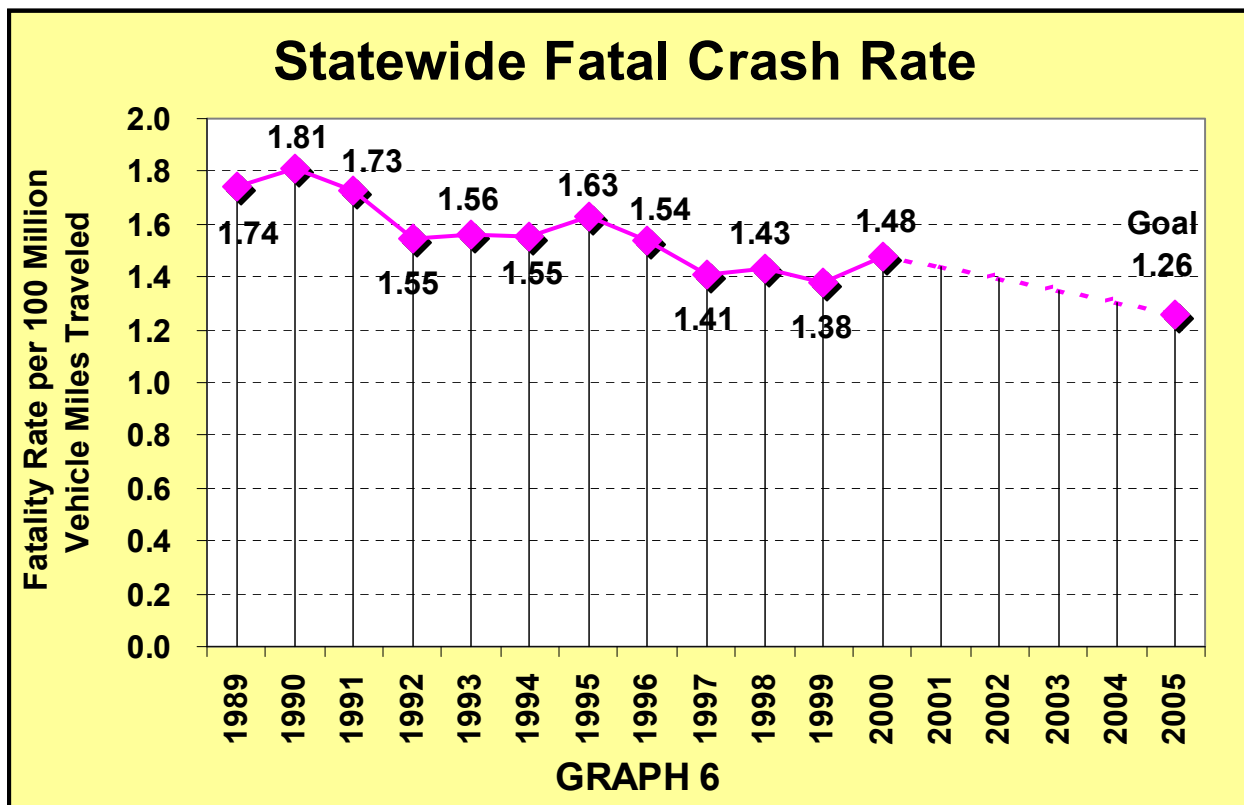
Current Condition

After a significant decrease in the total crash rate from 1990 to 1992, the rate has been slowly but steadily rising (Graph 4) for the past eight years with 1997 being an exception. The objective of monitoring total crash rates is to determine how Colorado is progressing in meeting the year 2005 target of “reduce crashes” goal to 270 per one hundred million vehicle miles of travel. This goal was reassessed in a FY2001 report titled “Colorado Integrated Safety Plan 2002-2004”. The non-linear (logarithmic) trend analysis conclusions surrounding the total crash rate recommended the target change from 270 to 273.3 for 2005. This is an assessment determined by the increase in vehicle miles traveled, number vehicles per household, average trip miles, population projections, and other factors.



The injury crash rate (Graph 5) has been oscillating from 1992 through the present. The increase was very slight from 1998 to 1999 and the material decrease from 1999 to 2000 gives an indication that the Department is again on the trend to meet its target goal of 60.4 injuries per 100 million vehicle miles traveled for 2005. This target was also revised, previously the 2005 target was 70, as a result of the analysis accomplished and reported in the “Colorado Integrated Safety Plan 2002-2004”.

In addition, the number of fatal crashes per 100 million vehicle miles traveled has been on an abiding decline from a high in 1990 of 1.81 to 1.38 in 1999 with one aberration in 1995 and a slight increase again in 2000. The trend analysis has statistically supported the downward change of the target for 2005 from 1.35 to 1.26 in 2005.



Safety is the perfect example of “no performance measure stands alone” when using data to make decisions. The steady rise in total crash rate possibly indicates that the investments are not sufficient to have an impact on Safety. However, the declining injury crash rate and fatal crash rate must be taken into consideration along with the total crash rate before making a final assessment on investments.

OBJECTIVE:

- Promote the education and awareness of safe driving behavior

Performance Measure

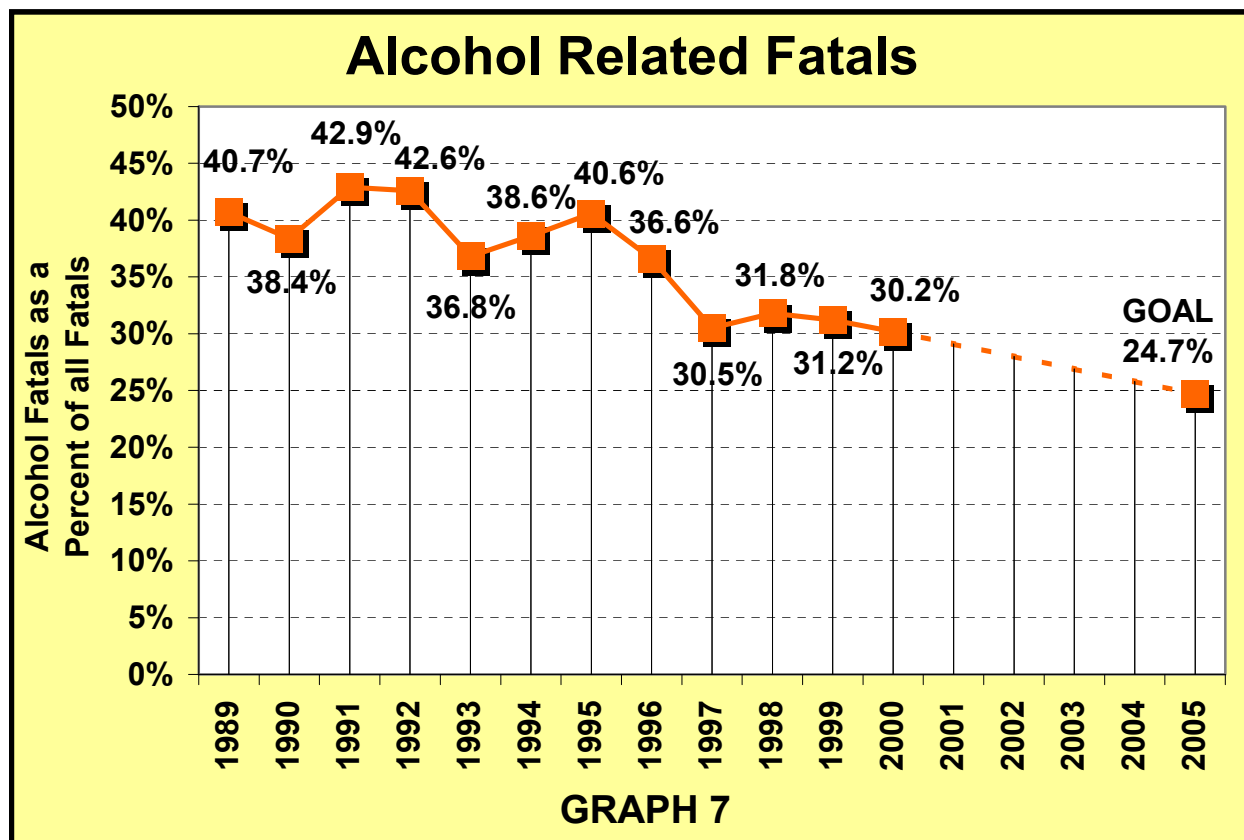
- Alcohol related incidents compared to statewide incident rate

Purpose

This measure determines the rate of fatal crashes resulting from driving behavior associated with driving under the influence of alcohol. It can also help determine if more emphasis needs to be focused on driver behavior specifically related to driving while impaired.

Current Condition

While monitoring total crashes helps determine the magnitude of problems in the safety category, differentiating the types of crashes between those that are alcohol related fatal, lack of seat belt usage or roadway environment can help determine the specific problem area. The Department’s investment focus can be than determined. The monitoring and investments in these programs are aimed at decreasing the number of these crashes with the ultimate goal to minimize the economic and social impacts. Graphs 7 and 8 report the current year results.



Since 1995, the number of alcohol related fatal crashes have improved from 40.6 percent to 30.2 percent of total fatalities. However the downward trend has shown a very slight change from 1997 to 2000. If the long-term trend re-emerges, the proportion of alcohol related fatal crashes should reach the target of 24.7 by 2005.

Performance Measure

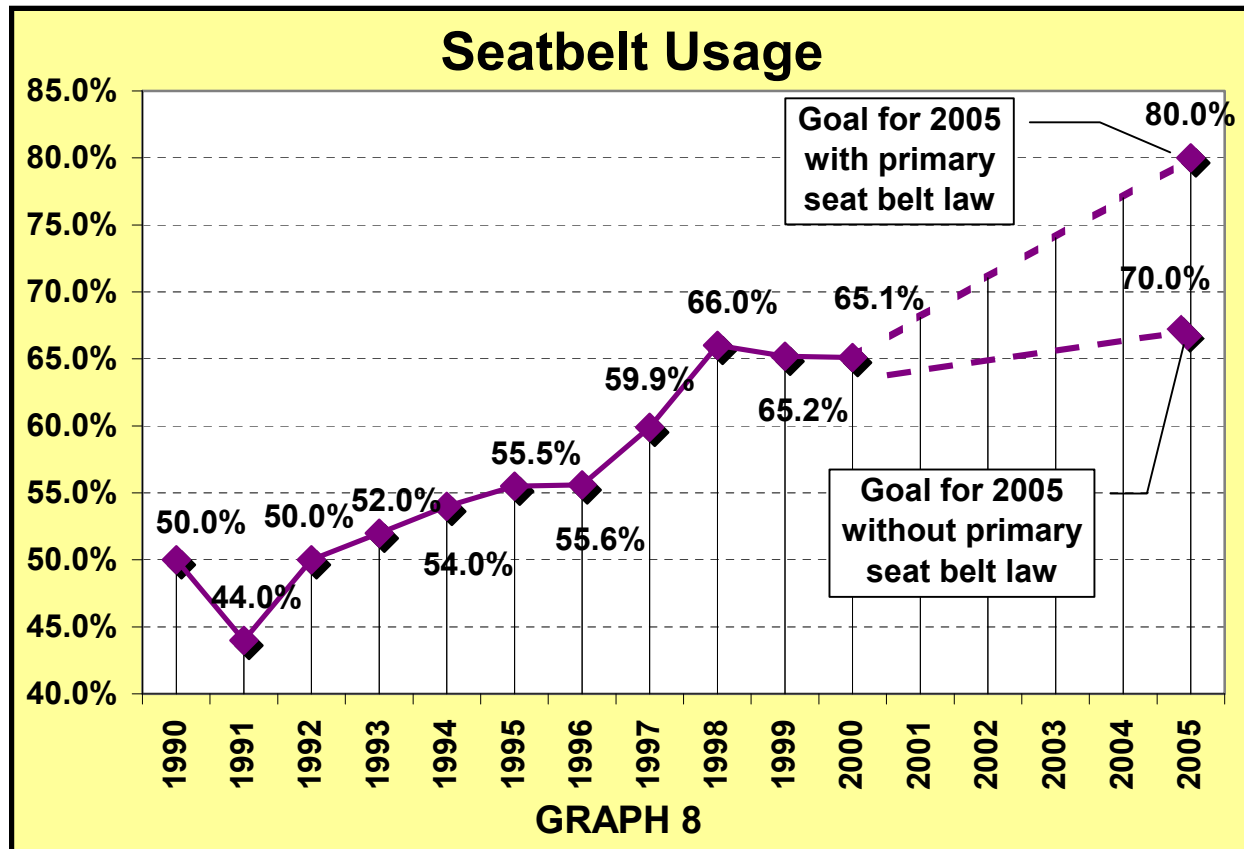
- Incidents involving seatbelt usage compared to statewide incident rate

Purpose

This measure determines what percentage of the general population is adhering to safe driving behavior by wearing their safety belt. Seat belts “are the most effective means of reducing fatalities and serious injuries when traffic crashes occur and are estimated to save 9,500 lives in America each year. Research has found that lap/shoulder belts, when used properly, reduce the risk of fatal injury to front seat passenger car occupants by 45 percent and the risk of moderate-to-critical injury by 50 percent. For light truck occupants, seat belts reduce the risk of fatal injury by 60 percent and moderate-to-critical injury by 65 percent.”

Current Condition

As illustrated in Graph 8, seat belt usage in Colorado has increased from 44 percent to 65 percent from 1991 to 2000 respectively. The use of seat belts is not uniform by area of the state, vehicle type, or age groups. Nevertheless the goal is to increase overall seat belt usage to 80 percent in the year 2005 with a primary seat belt law, and 70 percent without a primary law. The use of seat belts in Colorado has not kept pace with many other western states. Seat belt use has risen in all states slowly and some states have struggled to maintain seat belt use at current levels. In 2000, the average seat belt use nationwide was 71 percent, and ranged across the states from a high of 88.9 percent in California with a primary seat belt law, to a low of 47.7 percent in North Dakota with a secondary seat belt law. National statistics substantiate that “Primary” seat belt laws prove to be effective.



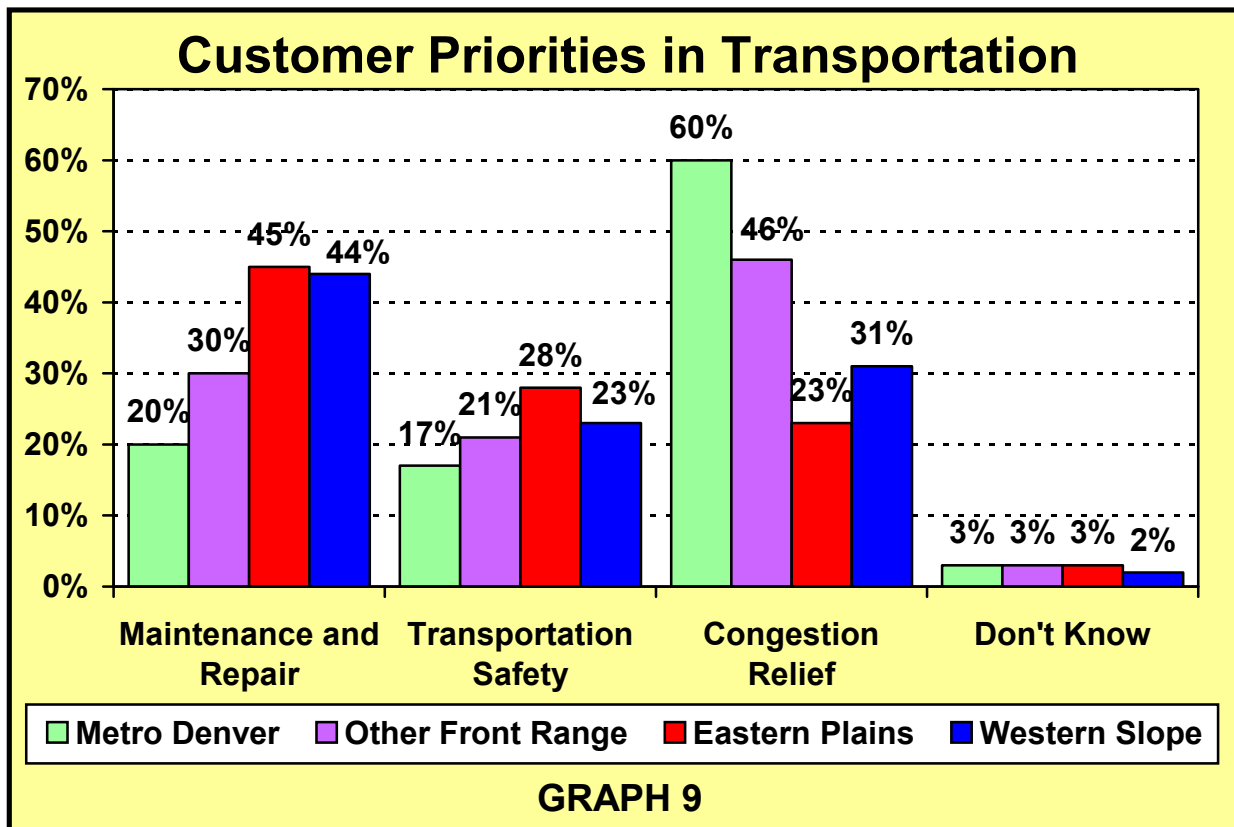
The challenge for CDOT within the Safety category is to determine if the driver behavior programs and roadway characteristics programs had the expected causal influence in this decrease or increase. Also, a continuing analysis of the data is essential as to the incremental effects resources that the Department invests in the programs have on the outcome.

Customer Perception of Safety

Vitally important to CDOT is the continued input from their customers and the desire and commitment to meet their needs. One instrument to obtain input is the *Statewide Resident Survey-Opinion Survey on Transportation Issues in Colorado*. The first survey was conducted in 1994 with a follow-up survey in 2000. The Department’s objective is to conduct a statewide survey every four years to obtain valuable customer perception data to guide transportation investments.

When compared with “providing travel options and relief from congestion” and “maintenance and repair of the transportation system”, safety, in the minds of the transportation user, is the lowest priority (except for the Eastern Plains) according to the results of the survey.

Safety Program Customer Survey 2000



Performance Measure

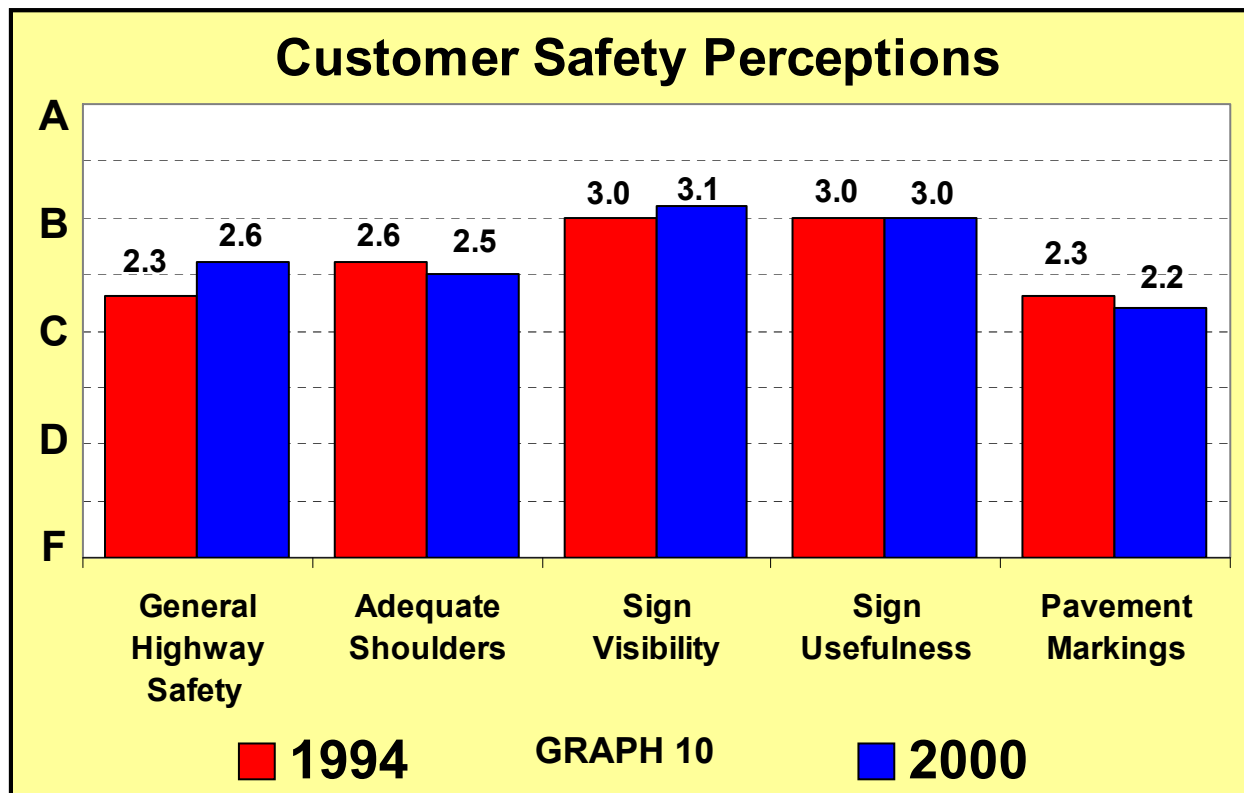
- Customer perception rating of system safety and driver behavior programs

Purpose

The purpose of this performance measure is to gauge overall customer perception on what they perceive to be safe or not safe. This measure will help CDOT determine if the safety improvement projects are perceived as having a positive impact on their customers. Gauging customer perception will be one of the techniques used to validate Safety investment decisions.

Current Condition

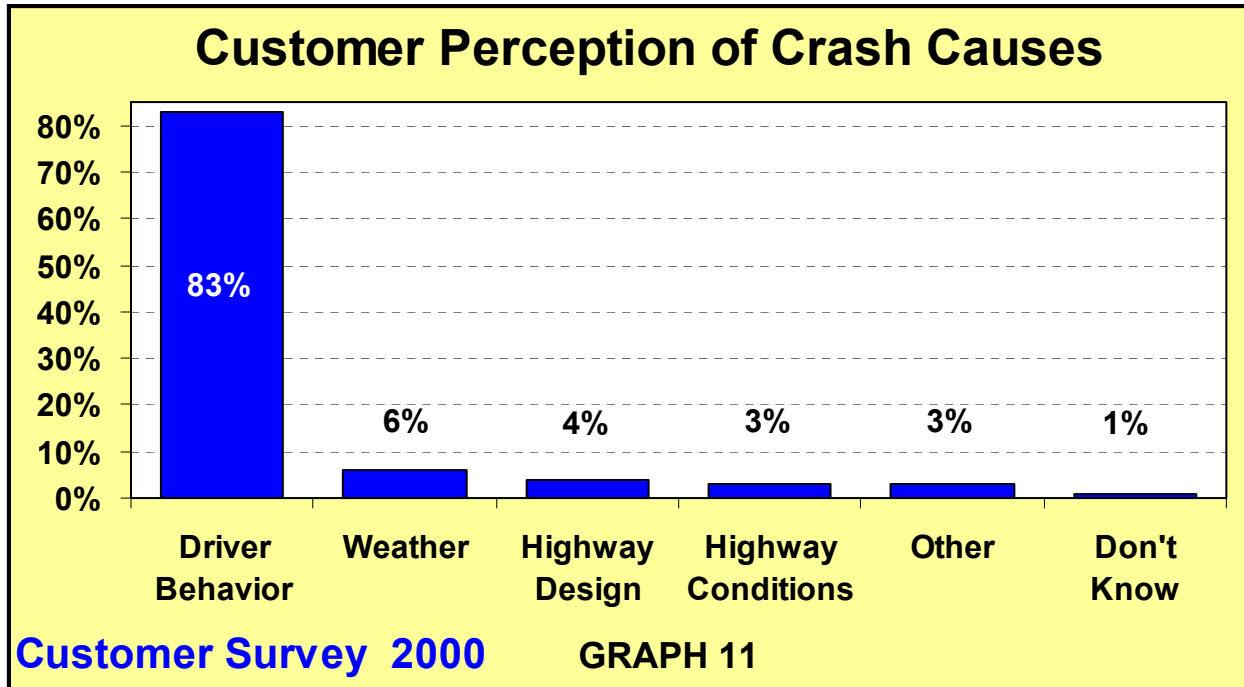
Customers rated transportation safety an overall grade of 2.6 or a C+ on a scale of A (4) through F (0). As shown in graph 10, there weren't any specific safety areas that demonstrated a significant high or low in customer perception grade. However, the customer survey results did convey a better than average performance in the related to signage which should be acknowledged.



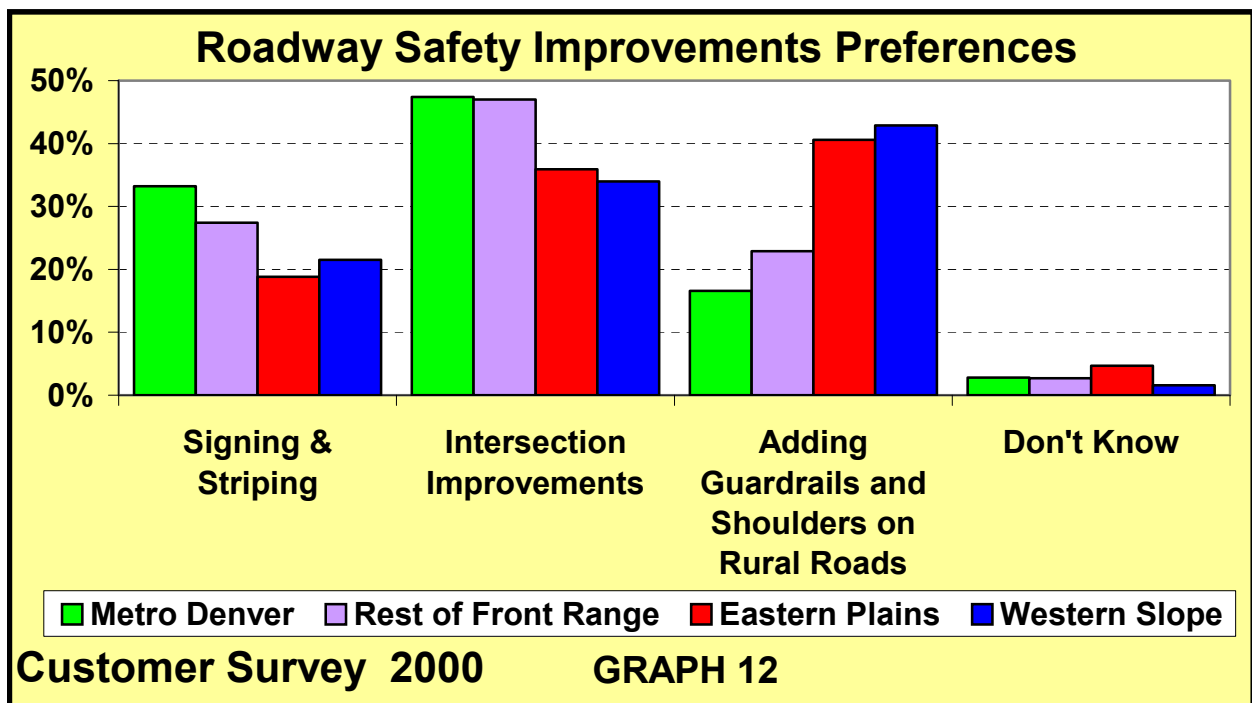
Letter Grades		A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
Numerical Grades	To	4.00	3.99	3.66	3.33	2.99	2.66	2.33	1.99	1.66	1.33	0.99	0.66
	From		3.66	3.34	3.00	2.67	2.34	2.00	1.67	1.34	1.00	0.67	0.00

TABLE 1

When asked what they perceived to be the most common cause of traffic crashes in Colorado, 83 percent (Graph 11) of the respondents chose “driver behavior”. However, expenditure of resources for improving traffic safety to improve the roadways was given a higher priority than were public safety campaigns (driver behavior program) by the respondents. This may be understandable given that sixty one percent of the participants indicated that “driver behavior” campaigns have no affect on their driving behavior, thus giving tacit disapproval to investments in this area.



Tradeoffs in the highway characteristics program area were posed to respondents. The Front Range respondent's safety highest priority was "intersection safety improvements" followed by "signing and striping. Whereas the Eastern Plains and the Western Slope respondents preferred "guardrails and shoulders on rural roads" followed by "intersection safety improvements".



OBJECTIVE:

- Emphasize applicable safety features consistent with the population growth

Performance Measures

- Return on investment for designated improvement sites
- Corridor safety assessment

Purpose

This measure is in the developmental stages. It will help determine if safety investment projects are achieving a positive return on investment.

Current Condition

Because this measure is relatively new, data isn't available in this format. However, the *Colorado Integrated Safety Plan 2000* is pursuing a concept of gauging safety improvements "Before & After" treatment. When the format is adopted to collect this data, it will be necessary to track over several years to allow the adequate baseline data availability for analysis.

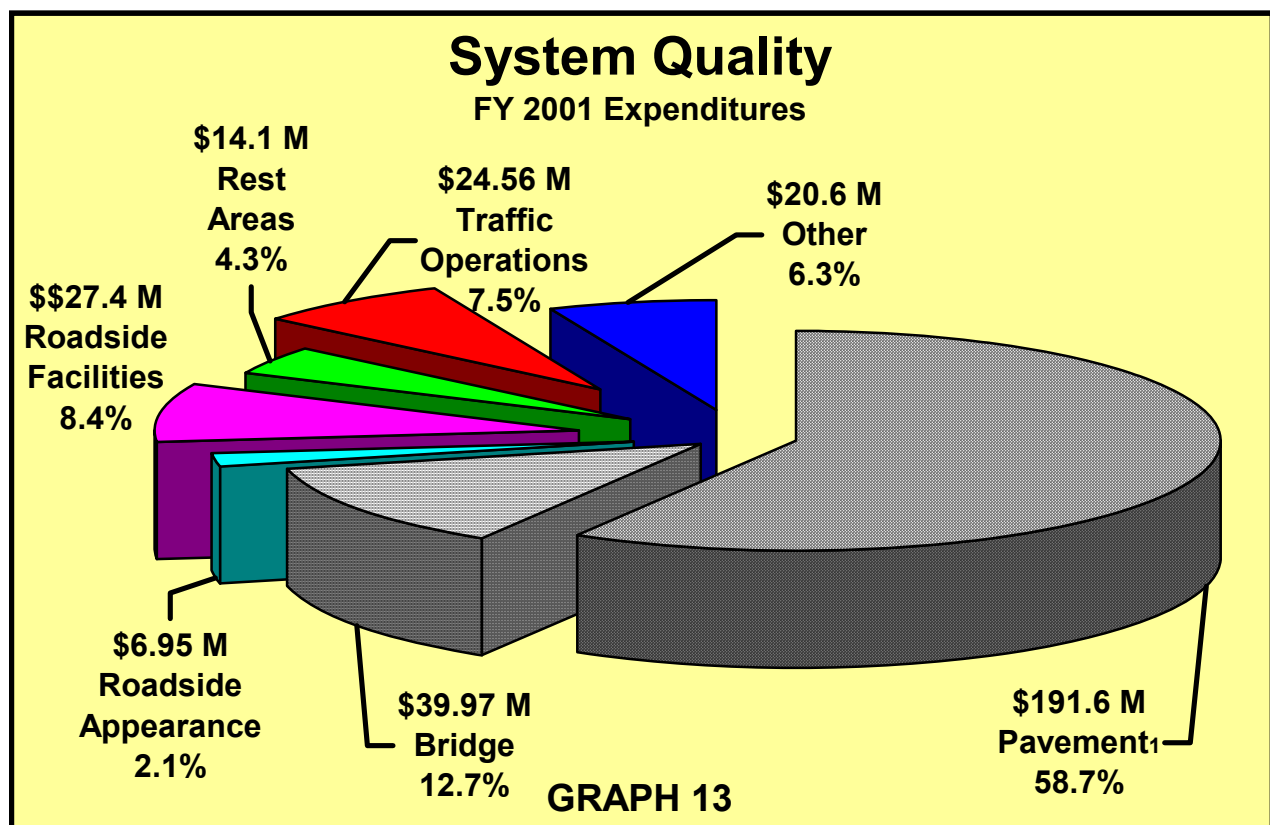
System Quality Investment Category

“Activities, programs and projects that maintain the function and aesthetics of the existing transportation infrastructure.”

The significance of this investment category is that it is responsible for the quality of the transportation infrastructure. Investment decisions in this category can impact the surface quality and remaining service life of roadways and structures. The investment Program Areas are: Pavement, Bridge, Roadside Facilities, Traffic Operations, Rest Areas, Roadside Appearance and Other Modes.

CDOT’s Investment in System Quality

Based on the fiscal year 2001 Budget Allocations, CDOT allocates approximately \$326.5 million, which is 23.6 % of the total budget, to System Quality programs, services and projects.



¹ Includes Maintenance, CE, PE and other ancillary costs above and beyond the costs associated with improving “pavement condition”.

SYSTEM QUALITY GOALS

- Preserve the Transportation System
- Keep the system available and safe for travel

OBJECTIVES:

- Enhance and maintain the transportation system to ensure maximum useful life
- Preserve & maintain the existing system at an acceptable level of service/condition state

Performance Measures

- Percent surface condition rating of fair or better
- Percent bridge sufficiency rating of fair or better

Purpose

These measures will gauge the foundational strength and condition of the transportation infrastructure. The transportation investments in system quality category will directly impact the performance of other investment categories such as the level of safety and mobility performance as well as customer perception of these.

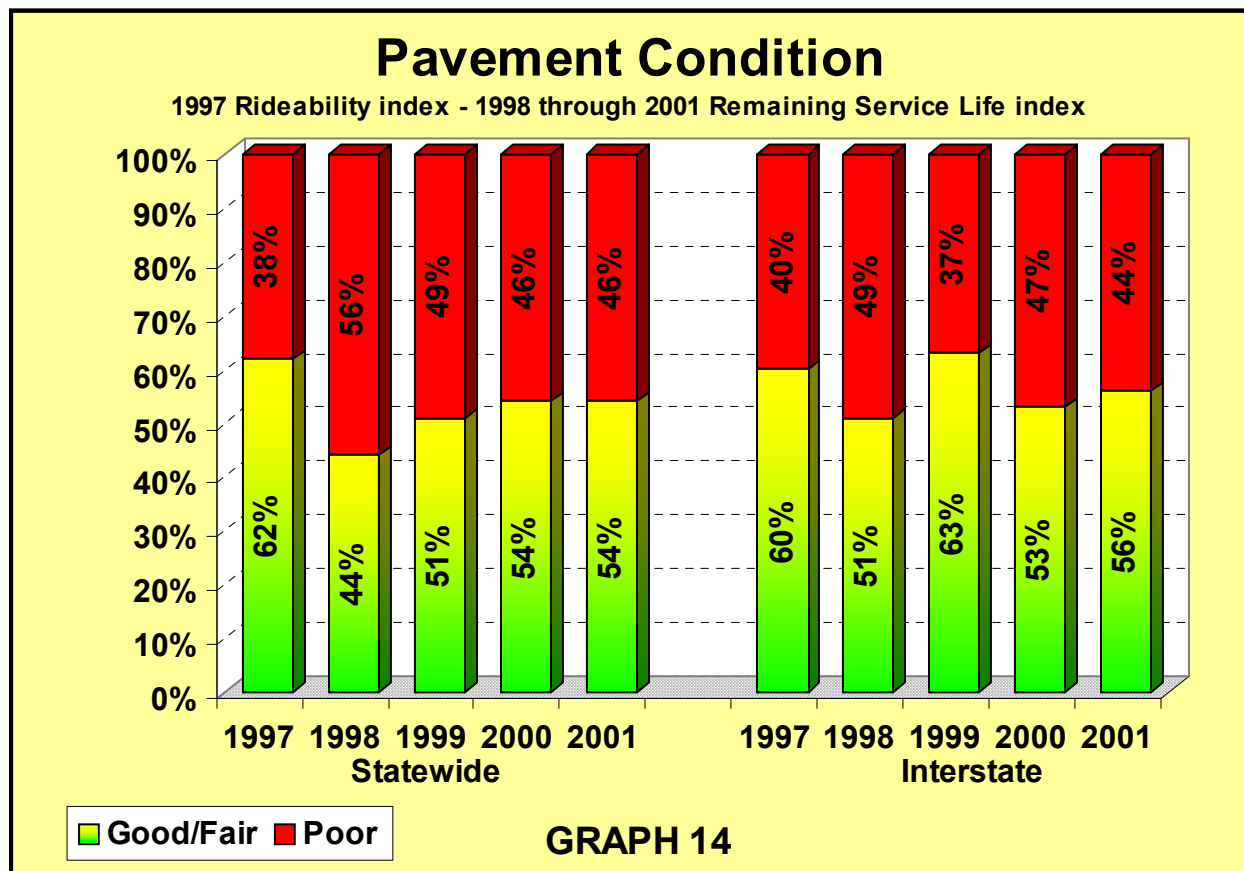
Current Condition

Consistent with the Department's investment strategy direction, the output of the Pavement Management System is focused on Remaining Service Life (RSL). Prior to 1998, the Department used Ride-ability conditions as an indicator of System Quality for pavement, thus any comparison of data prior to or subsequent should be compared with that in mind.

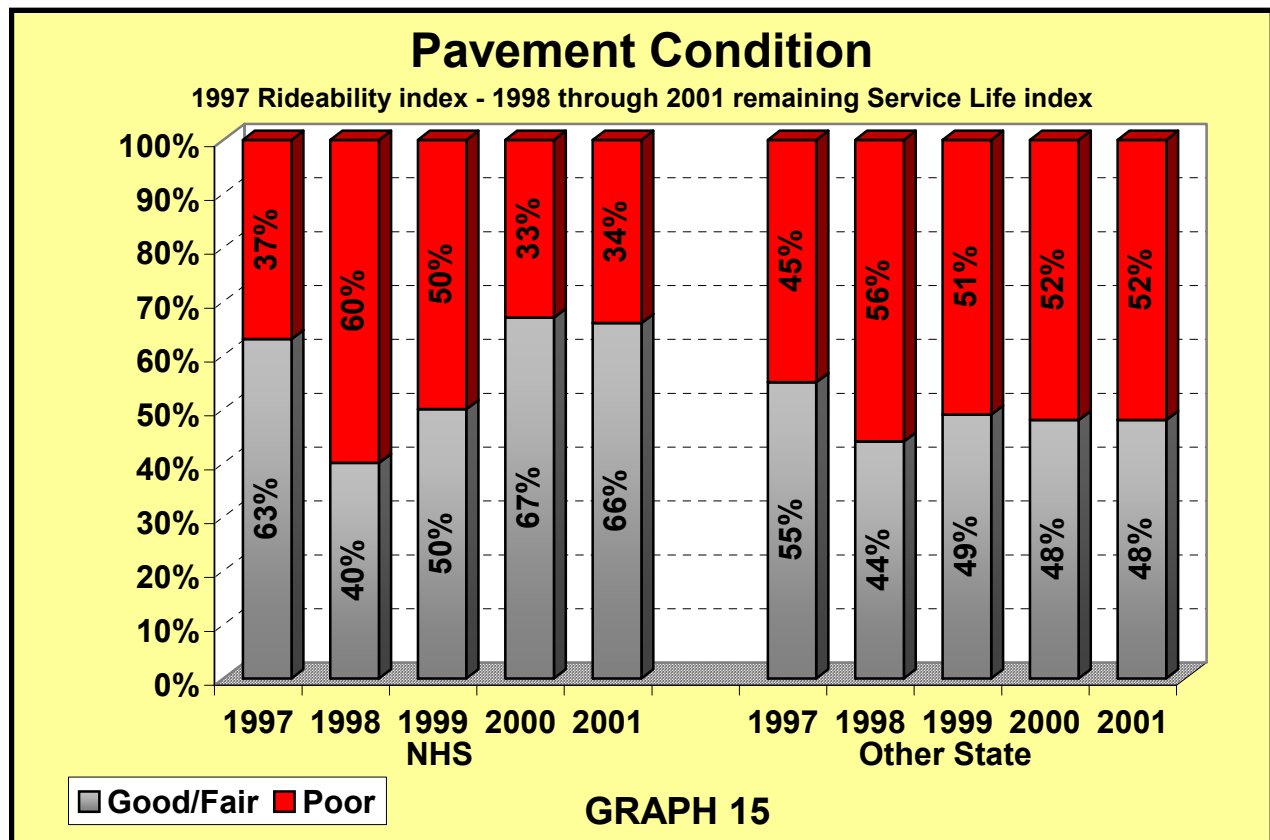
The following are the adopted RSL targets and miles of the state roadway system

	Remaining Service Life	Roadway Miles
Total System	60% in Good or Fair Condition	9145 Miles
Interstate System	85% in Good or Fair Condition	976 Miles
National Highway System	70% in Good or Fair Condition	2264 Miles
Other State Highways	55% in Good or Fair Condition	5905 Miles
TABLE 2		

Colorado's state roadways pavement condition rating is reflected in Graph 14 and Graph 15. The graphs illustrate a substantial change in pavement condition between years 1997 and 1998, which is due to the different methodology to measure pavement condition at the juncture of these years. Instead of a rideability index pavement condition rating based on elements of surface smoothness and aesthetics, the pavement condition is rated for the length of remaining service life condition. Thus the data for 1997 and prior years are not comparable to 1998 and subsequent years. This change of evaluation redistributes the investment away from the obvious visible needs of the surface and more towards sustaining and maintaining the remaining value of the roadway, which may not be as obvious or visible.



The pavement condition objective is to attain a 60 percent Good/Fair remaining service life on highways statewide overall. This objective is further separated into three categories: interstates, NHS (non-interstate), and other state highways. The targets for these are 85 percent on interstate highways, 70 percent on NHS highways, and 55 percent on all other state highways.

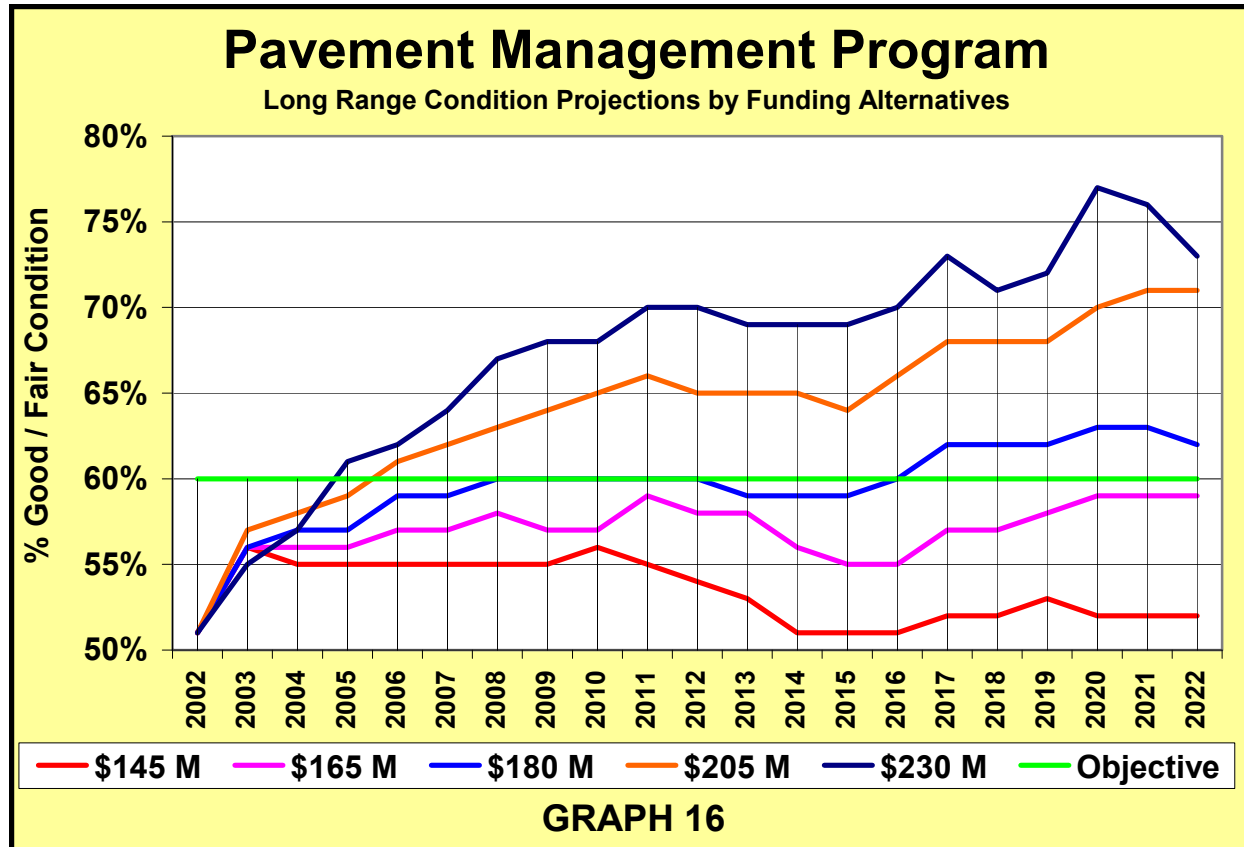


As shown by Graphs 14 and 15, the pavement condition has improved slightly in all categories of state highways from 1998 through 2001. However, Graph 16 indicates that with 145 or 165 million dollars annual investment², the overall statewide Good/Fair pavement condition never reaches the objective established by the department. In the 145 million dollars scenario the pavement condition decreases and remains less than 55 percent after 2010. Likewise with the 165 million dollar scenario, the projection is that the pavement condition never reaches the 60 percent target of the department.

² Assumes 6.0% inflation in costs and 3.5% increase in budget per year.

Does not include all ancillary project associated costs or non-surface improvement costs such as safety and bridge enhancements.

Includes a transfer of \$21 million to the maintenance level of service (MLOS).



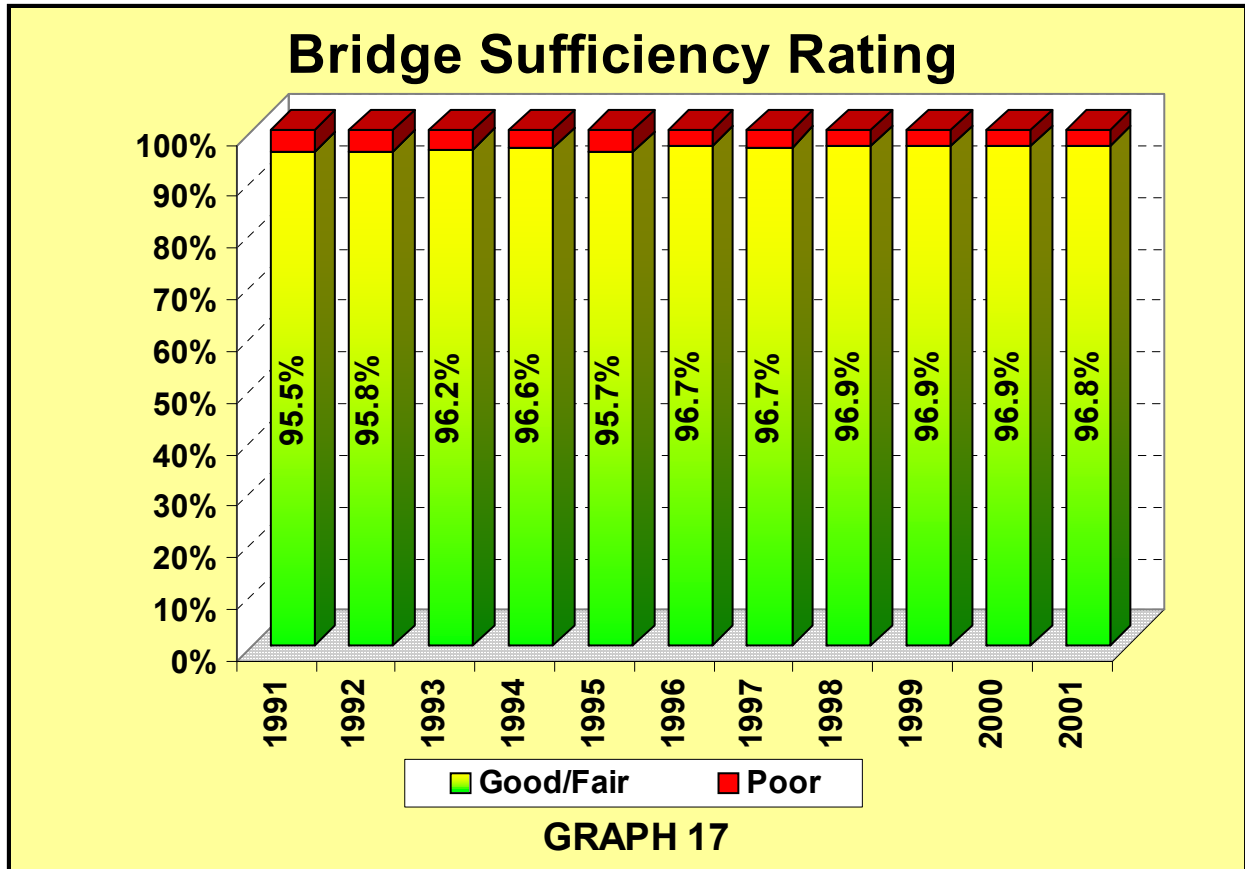
Current condition – Bridges

The bridge sufficiency rating for 2001 indicates a .5% decrease in the Good rated bridges, a 3% increase in Fair rated bridges and a very slight increase in the Poor rated bridges sustaining the overall percent of bridges at good or fair condition rating at 96.8%. The bridges in the poor category typically indicate a need for replacement versus preservation.

Number of Bridges – Rating and Total											
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Good	3,226	3,242	3,249	3,277	3,060	3,098	3,082	3,149	3,134	3,126	3,110
Fair	242	261	284	285	477	497	496	454	452	465	479
Poor	162	153	138	127	158	123	114	117	113	115	118
Total	3,630	3,656	3,671	3,689	3,695	3,718	3,718	3,720	3,699	3,706	3,707

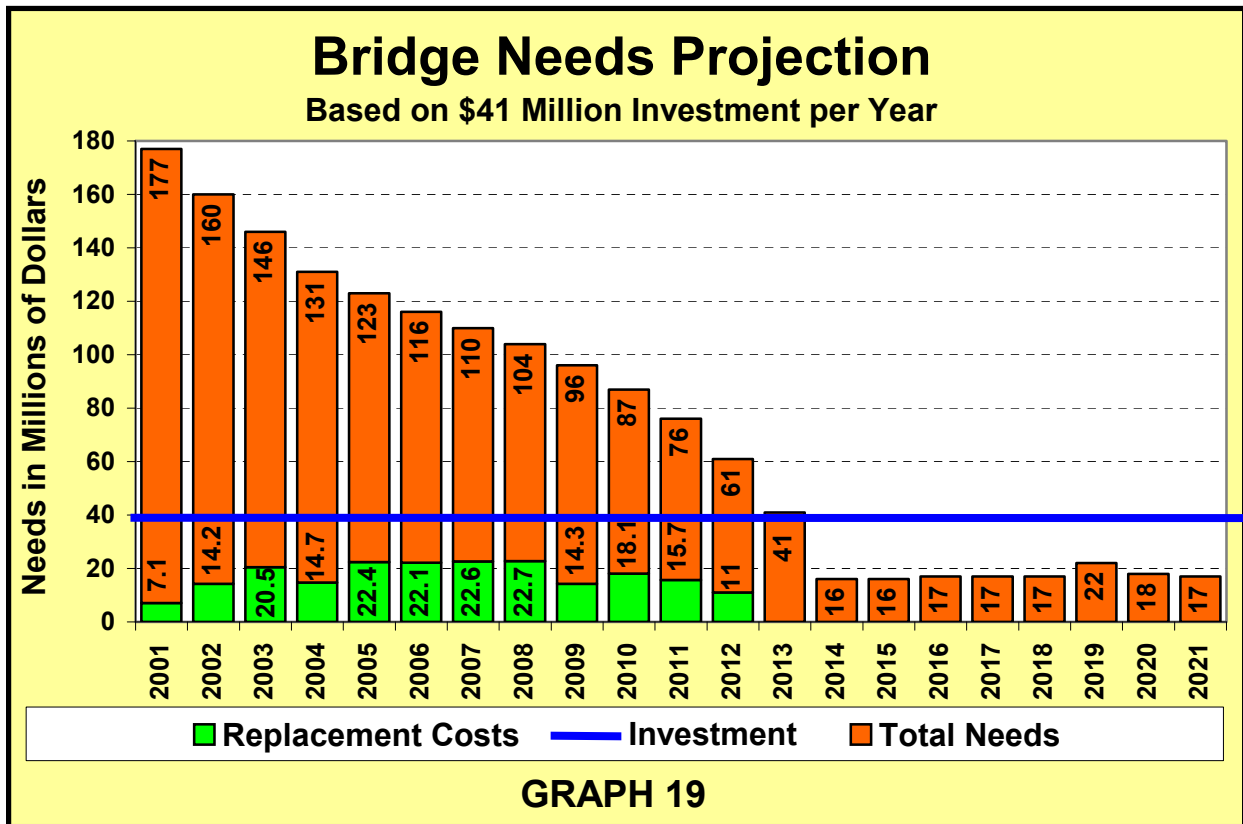
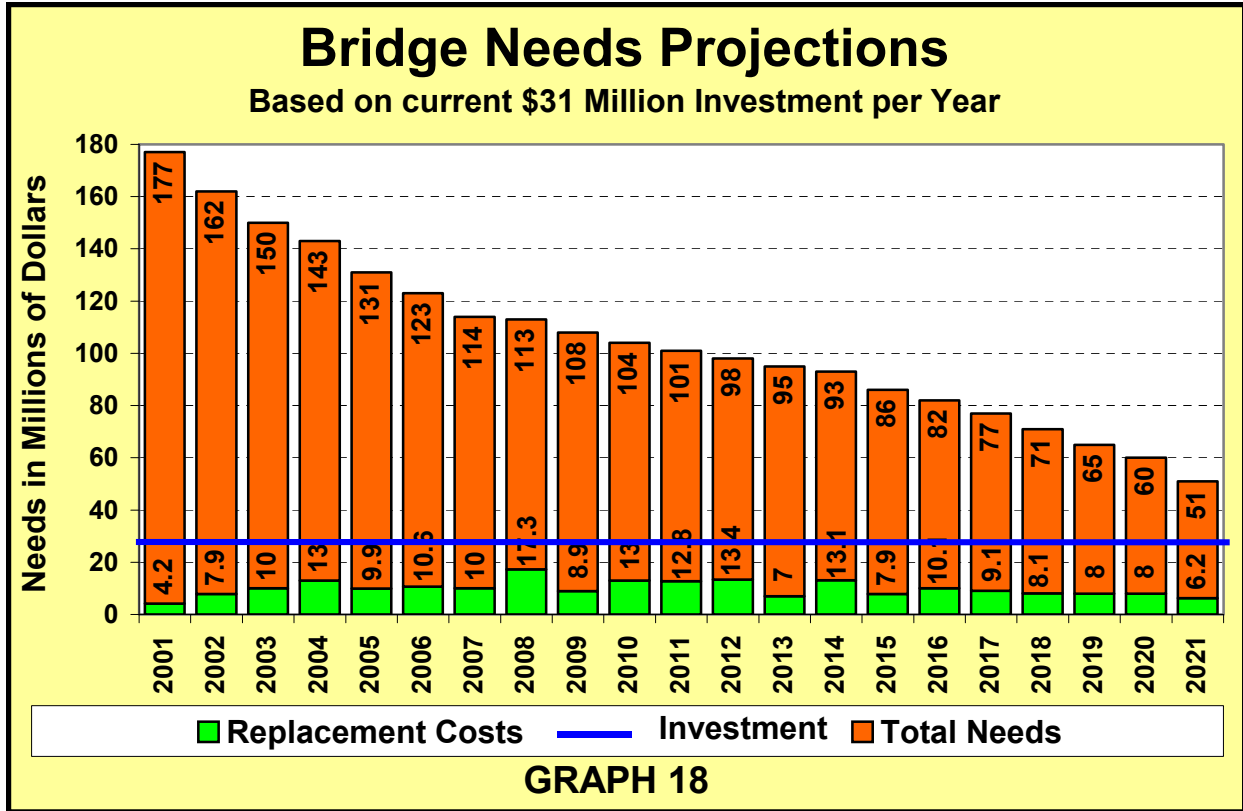
TABLE 3

Good = Structural Sufficiency Rating ≥ 80 or not SD or FO
 Fair = Structural Sufficiency Rating ≥ 50 but < 80 and SD or FO
 Poor = Structural Sufficiency Rating < 50 and SD or FO
 SD = Structurally Deficient FO = Functionally Obsolete



The following two graphs are the current Pontis calculation³ of bridge condition needs over the next twenty year period based on funding levels of \$31 million per year and \$41 million per year. The graphs also demonstrate the current Pontis investment focus from improvement to preservation based on a level of investment. The goal is to retain consistent funding against the bridge needs in order to preserve the bridge infrastructure and minimize cost impacts due to deferred improvement work. The funding scenarios demonstrate that with the current \$31 million dollar investment the department steadily progresses towards meeting the needs over the twenty-year period. In the \$41 million dollar investment scenario, the funding exceeds needs by 2014.

³ The estimates are preliminary and subject to change as the 2001 version of Pontis software is implemented



Maintenance Levels of Service

Within the Colorado DOT, there are three tiers of performance accountability ranging from the investment level, to core service level and finally at the tools & service level. The activities encompassing the Maintenance Levels of Service (MLOS) represent performance accountability at the tools & service level that are rolled up to the investment level within the maintenance program. These performance measures and levels of service have been incorporated within a process of annual maintenance program development based upon performance-budgeting principles. The delivery of maintenance services encompasses about 70 individual activities organized within nine Maintenance Program Areas (MPAs). They are as follows: Planning & Training; Roadway Surfacing; Roadside Facilities; Roadside Appearance; Traffic Services; Structures; Snow & Ice Control; Buildings, Grounds, & Equipment; and Tunnels. Each of the nine program areas is assessed for the service level achieved against their expenditures. Each assessment is then converted into a grading scale of A through F.

OBJECTIVE:

- Preserve & maintain the system at an acceptable level of service/condition state

Performance Measure

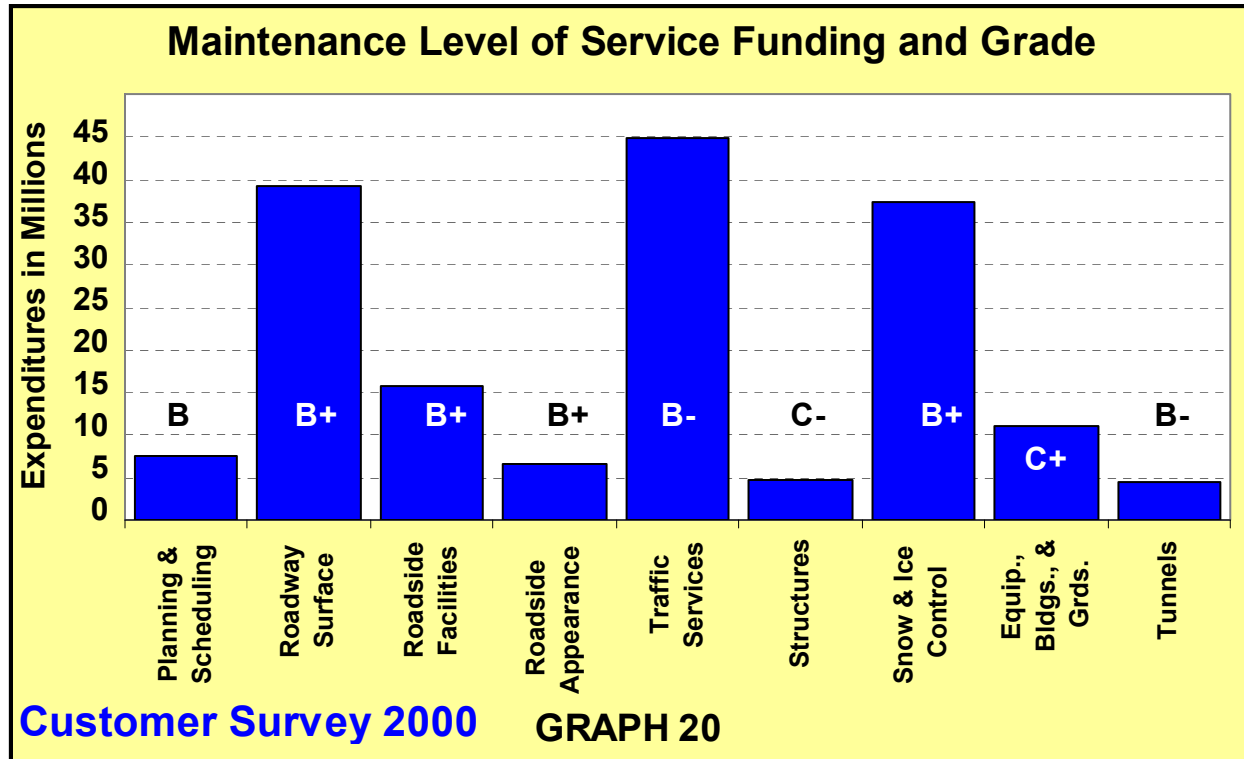
- Maintenance condition survey

Purpose

This measure demonstrates the optimization of the maintenance budget and the service results achieved.

Current Condition

The concept of gauging performance within the MLOS has been in operation for only a couple of years. As a result, it's not surprising that the current service levels remain relatively constant from the 1999 to 2001 because significant changes in service levels weren't projected. Graph 19 illustrates slight changes in Structures from a D+ grade in 1999 and 2000 to a C- in 2001 and Tunnels from C in 2000 to a B- in 2001 with the overall state grade remaining consistent over the three years of tracking.



The following Table 4 gives an actual and target expenditures and associated grades representation of the MLOS by maintenance program areas statewide.

FY2001 Roll-up by Maintenance Program Area (MPA)				
Maintenance Program Areas (MPA)	Actual Level of Service	Actual Expenditures	Target Level of Service	Target Expenditures
Planning & Scheduling	B	\$7,494,115	B	\$6,315,587
Roadway Surface	B+	\$39,130,070	B	\$44,847,381
Roadside Facilities	B+	\$15,687,245	B	\$15,644,658
Roadside Appearance	B+	\$6,466,304	B	\$6,746,757
Traffic Services	B-	\$44,759,681	A	\$46,549,425
Structures	C-	\$4,700,172	C	\$6,154,963
Snow & Ice Control	B+	\$37,299,477	B+	\$35,993,077
Equip., Bldgs., & Grds.	C+	\$10,934,943	B-	\$10,484,114
Tunnels	B-	\$4,418,749	B	\$4,800,540
Engineering	N/A	\$2,550,918	N/A	\$4,263,171
Statewide Total	B	\$173,441,674	B+	\$181,799,673

TABLE 4

Customer Perception of the Transportation System

OBJECTIVE:

- Develop a "travel friendly" transportation system that incorporates reasonable customer desires
- Ensure that investments into the transportation system preserves quality of life through aesthetics and environmental concerns

Performance Measure

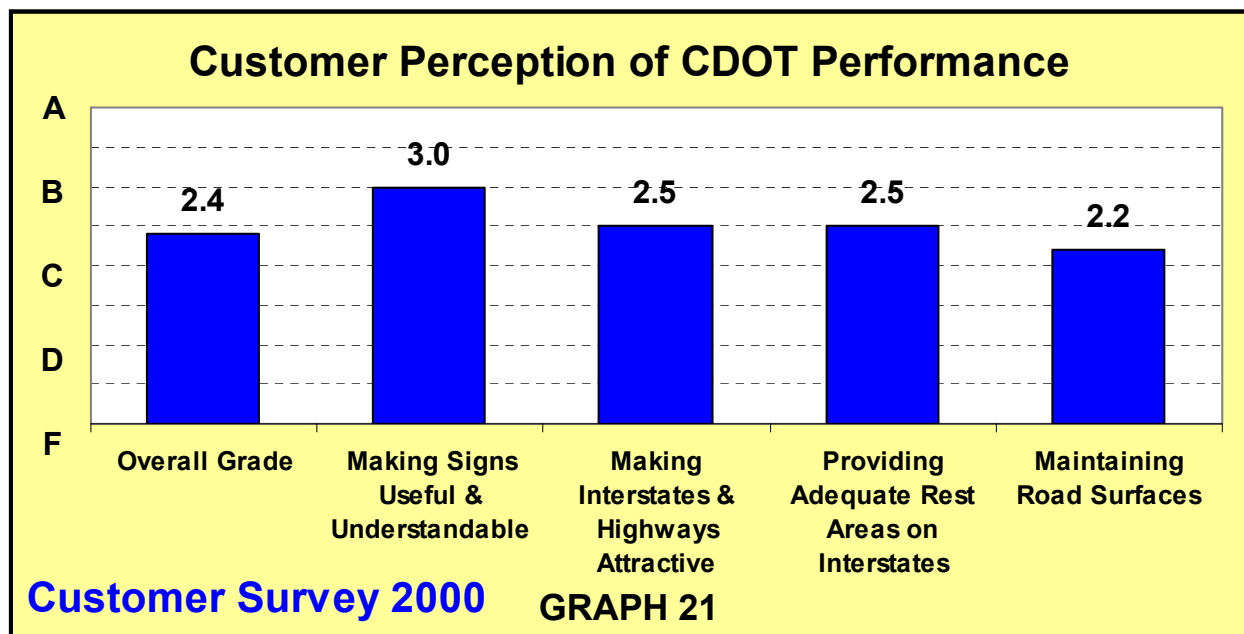
- Perception or resource agency of return on investment for quality of life

Purpose

The measure over time will help CDOT understand if their investments are providing value and benefit in meeting the department's goals as well as meeting customer expectations.

Current Condition

The Customer Perception of CDOT Performance is quantified in a report of the statewide survey conducted in early 2000. The state was divided into four different demographic areas to correlate with the 1994 survey. The results from the 2000 Statewide Resident Survey scored CDOT's overall performance at "C+". This is a slight increase from "C" in the 1994 survey. The "C+" overall rating is comprised of 5% at A, 42% at B, 42% at C and the remaining respondents in the D, F or don't know portion of the scale. Average ratings (Graph 21) of specific aspects of services provided by CDOT ranged from the mid to high "B" level related to 'signage' down to the "C" level related to 'maintaining road surfaces'. The resident's feedback highlights areas of concern and focus for CDOT.



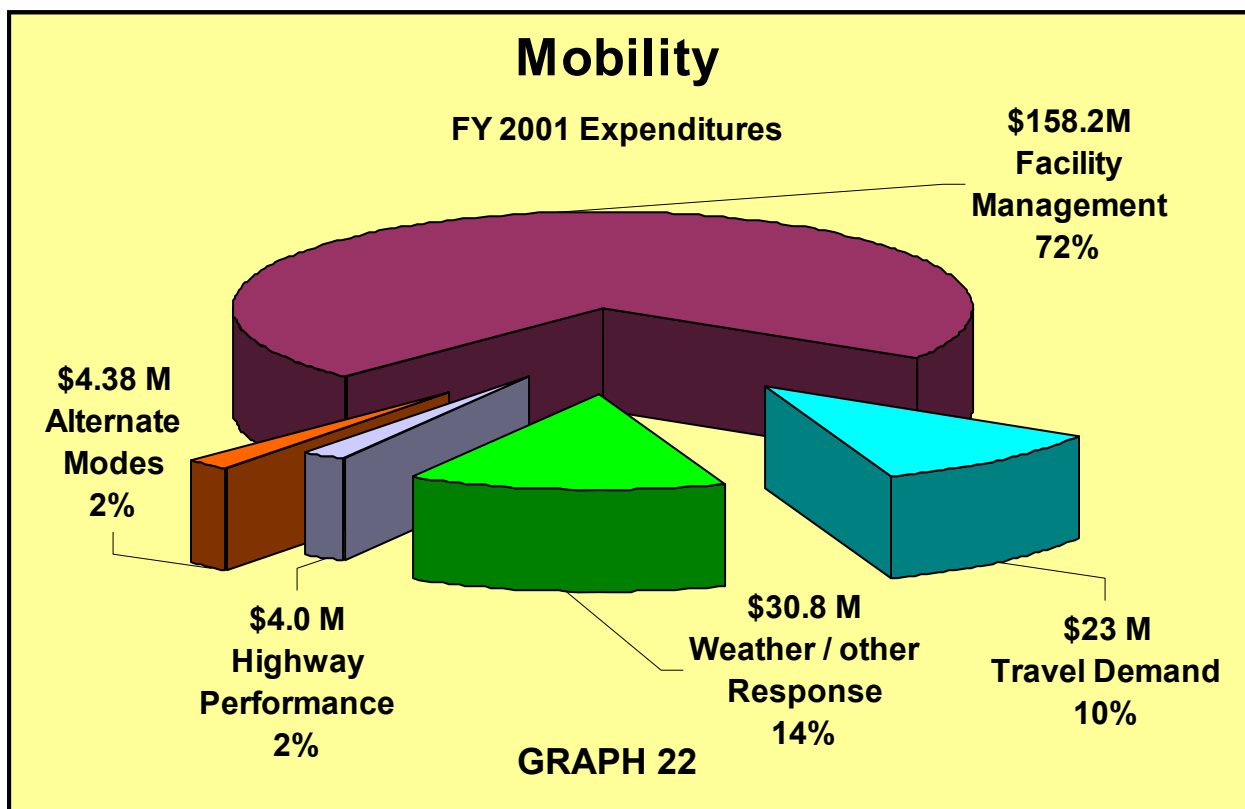
Mobility Investment Category

“Programs, services and projects that provide for the movement of people, goods and information.”

The Mobility Investment Category is a comprehensive category that relates to other investment categories. The Mobility Investment Category Strategy encompasses investments made in accessibility to the transportation system, transportation options, environmental impacts, connectivity, travel time variability and overall infrastructure management.

CDOT’s Investment in Mobility

CDOT allocated for Fiscal Year 2001 over \$220 million, which is 15.9 % of the total budget, to Mobility related areas including: Highway Performance, Weather/Other Response, Travel Demand, Facility Management and Alternate Modes.



MOBILITY GOALS

- Improve mobility
- Increase travel reliability

OBJECTIVES:

- Seek external customer feedback to improve functional and regional delivery of services
- Preserve transportation choices as a part of an integrated statewide transportation planning process
- Maximize efficiency of the existing infrastructure prior to adding new capacity
- Ensure environmental stewardship of the transportation system
- Implement transportation improvements that enhance the quality of life and promote community values
- Preserve options to anticipate Colorado's future transportation needs in major mobility corridors

Performance Measures:

- Travel Rate Index
- Congested Person Miles Traveled
- Congested Freight Ton Miles Traveled
- Customer Perception Rating of Travel Reliability and Ability to Travel
- Percent of Travel Needs Met
- Rate of Growth in Annual Vehicle Miles of Travel

Purpose:

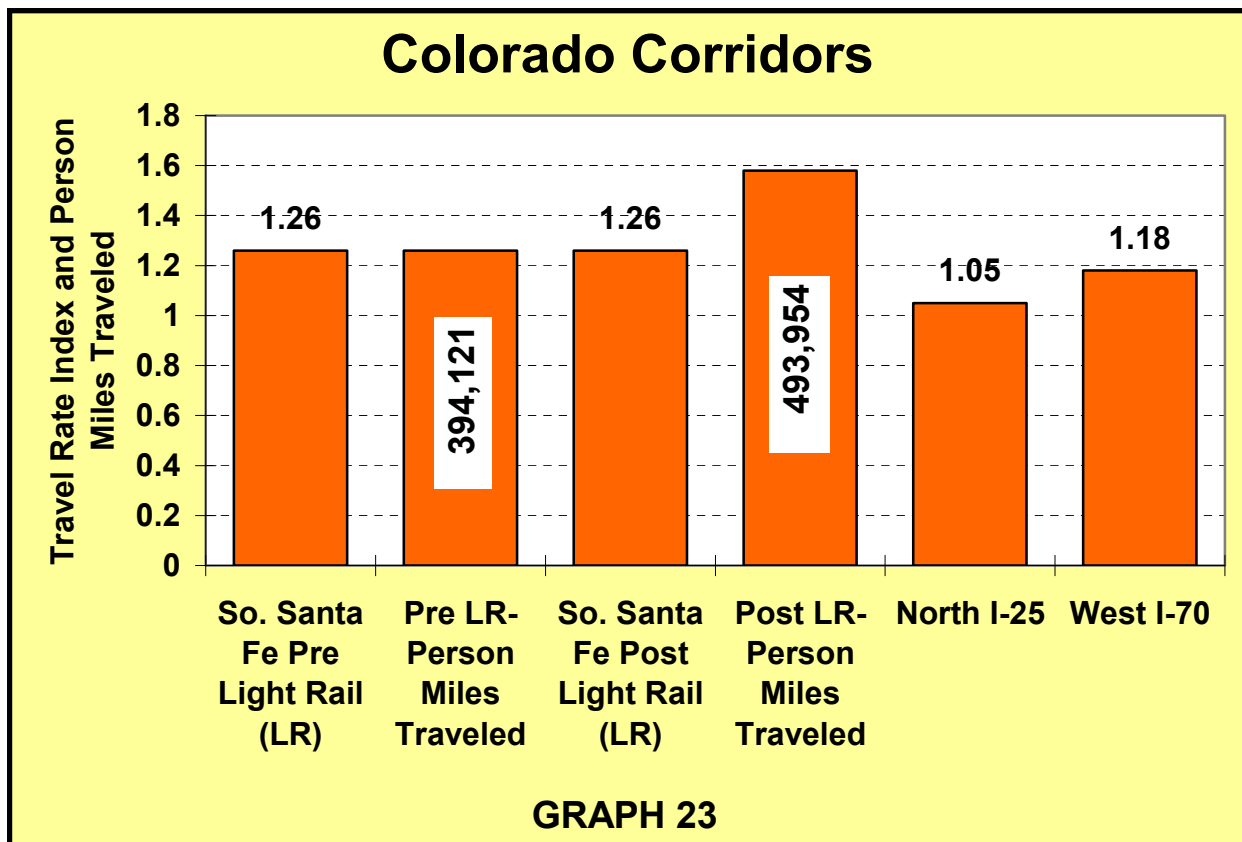
The collective Mobility measures will be able to assess the reliability as well as the accessibility of the transportation system to provide consistent travel, connectivity of the system, the ability to choose alternative modes of travel and the economic and environmental impact to the communities.

Current Condition

In the 1999 and 2000 CDOT's Performance Reports, a significant portion of the mobility data was provided from the Texas Transportation Institute (TTI) Urban Mobility Study. Because the data was focused on the major metropolitan areas and not on the entire state highway system, the Texas Transportation Institute Urban Mobility Study Colorado data is included separately in appendix A in this report.

Recently CDOT has accomplished Travel Rate Index (TRI) analysis in three local corridors. The TRI for these three corridors in the Denver metropolitan area, as shown in Graph 23, were developed to track changes to congested travel versus

free flow travel over a period of time. The comparison may eventually give an indication of the effect investment strategies in mobility have on the control of the growth in congestion on these roadways. The travel time during congested times versus free flow periods varied from 26 percent longer on South Santa Fe to 5 percent longer on North I-25 respectively. The person miles traveled data for the South Santa Fe Drive corridor are included in the same graph to demonstrate the substantial increase in the movement of people through the corridor even though there was virtually no change in the TRI. The more than 25 percent increase in the person miles traveled through the corridor is a significant positive change. Again this is a validation that “no one performance measure stands alone”.



A method to improve mobility is through Travel Demand Management. One program that CDOT supports and administers is the Commuter Check program. For fiscal year 2001, the program has eliminated an average of approximately ten thousand commute miles a month from the roadway system by CDOT employees.

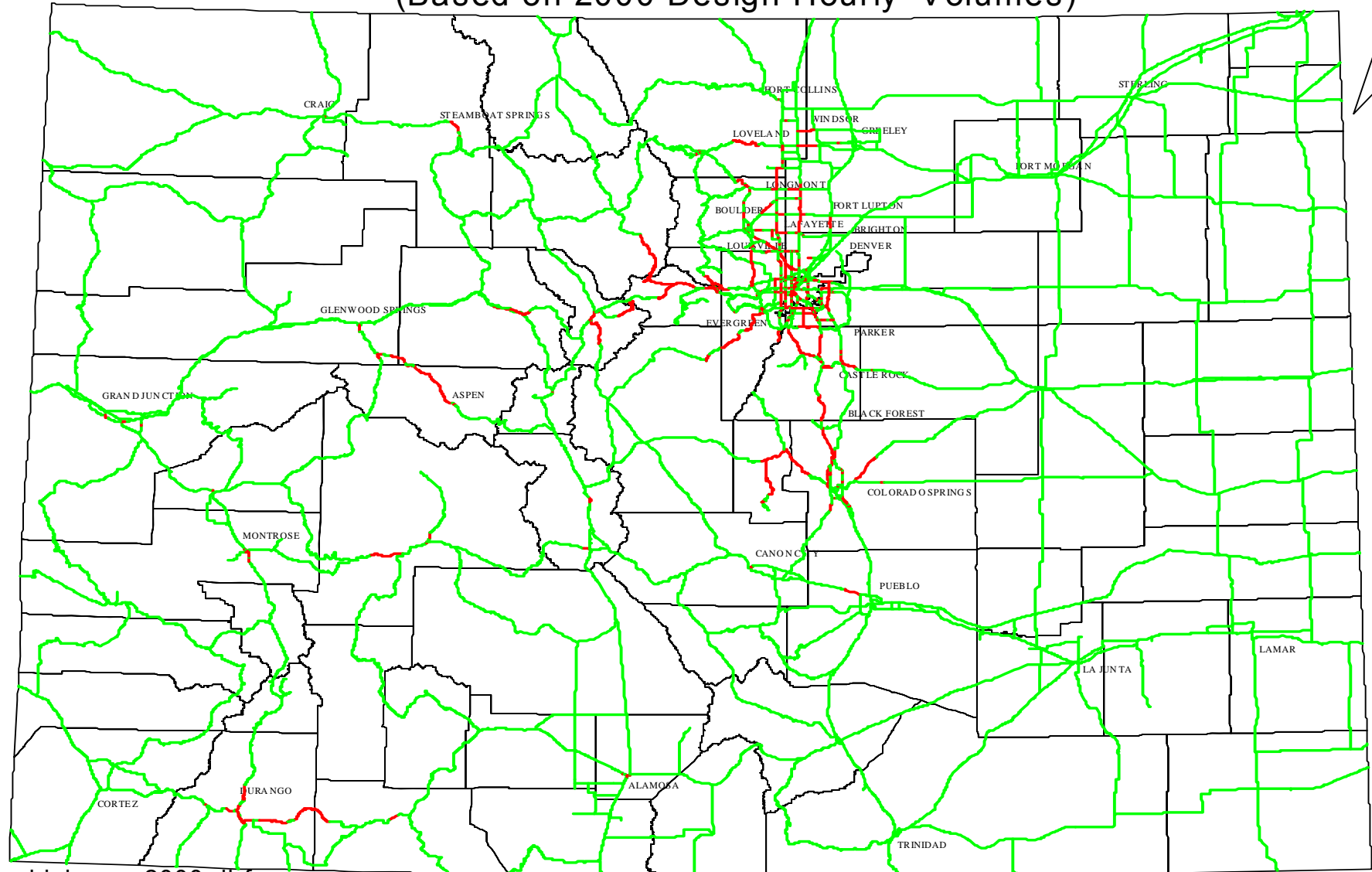
CDOT conducts annual analysis of highways to determine congested segments of volume-to-capacity (V/C) ratio of greater than .85 and will continue to track these changes over time. These congested segments are identified in red on the statewide map on page 34. The volume to capacity changes on the highway system gives valuable data for trend line projections on possible future growth or mitigation of congestion.

The following table illustrates the miles with V/C ratio of greater than 85% for the years 1996, 1997, 1999 and 2000. The methodology use for calculation purposes has changed from year to year, however the resultant percentage change gives a general indicator of congestion trends in Colorado. The methodology to calculate congestion numbers consistently in future years will allow for better comparison analysis.

YEAR	MILES > .85	Percent of Road Miles
1996	582	6.4%
1997	635	7.0%
1998	N/A	N/A
1999	860	9.4%
2000	867	9.5%
TABLE 5		

N/A = Not Available

Mobility Conditions on Colorado State Highways (Based on 2000 Design Hourly Volumes)



highways2000.dbf

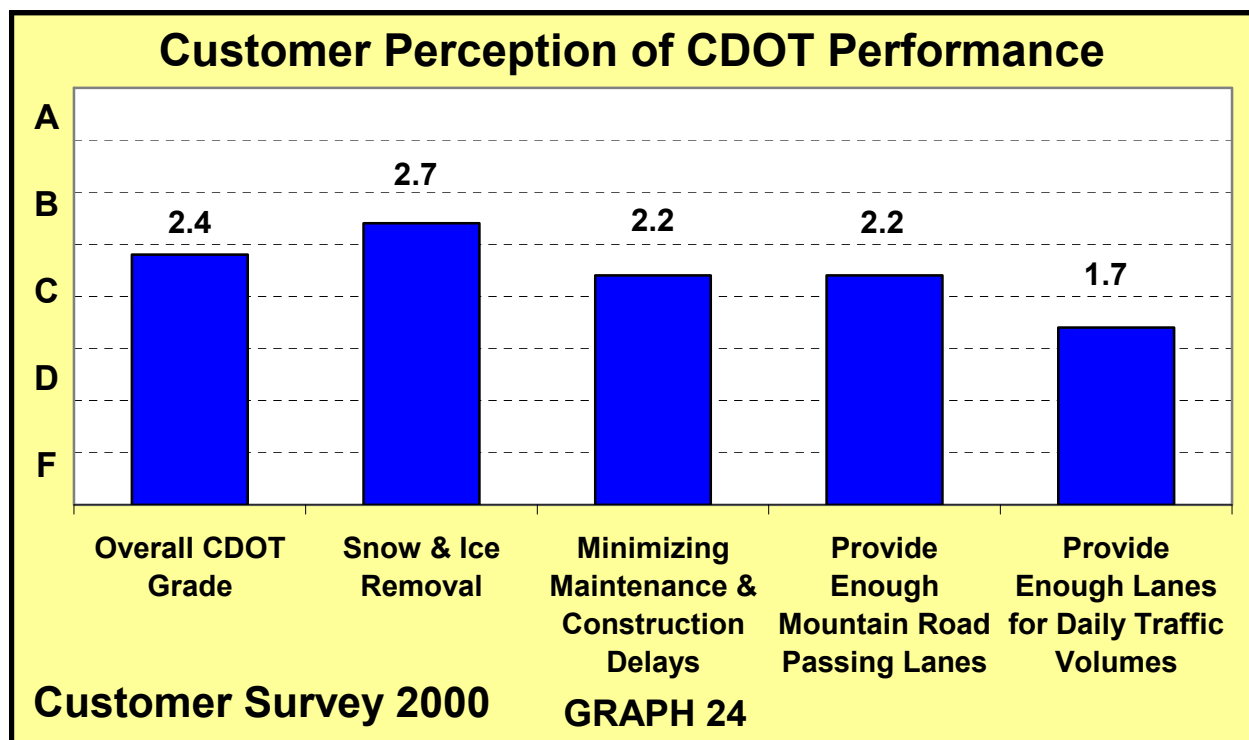
- Uncongested -- $0.00 < V/C < 0.85$
- Some Congestion -- $0.85 < V/C < 1.2$

V/C = volume-to-capacity ratio
Design volume = the 30th highest hourly volume

CUSTOMER PERCEPTION

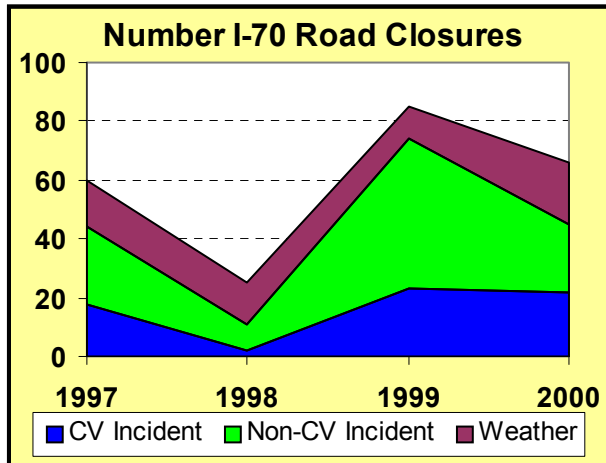
According to the 2000 Statewide Resident Survey, congestion continues to remain the top priority transportation related problem in each of the surveyed regions within the state.

This high concern is also reflected in the mobility areas, as shown in graph 23, rated by the traveler in Colorado. The lowest grade of 1.7 is in "providing enough lanes". Of significance, is that there was more than half percentage point difference between the geographical areas surveyed. The Denver metropolitan area gave a 1.6 rating to a 2.2 for the west slope.

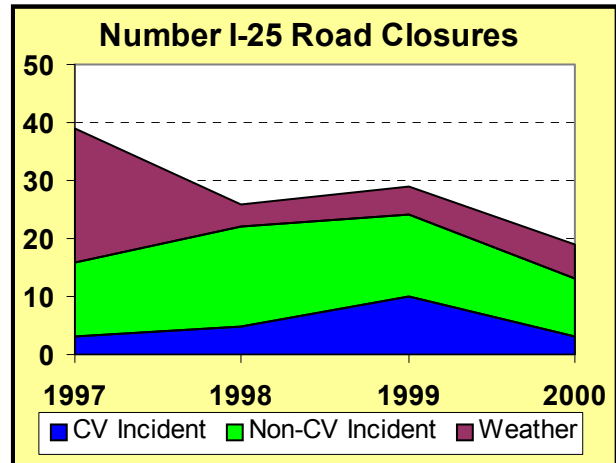


Number of Road Closures by Closure Type

Road closures hamper travel and increase motorist frustrations and may lead to road rage. The difficulty is managing road closures around a volatile environment where incidents and weather have unmanageable factors. The graphs 27a and 27b show the number of road closures on two of the busiest interstates in the state, I-70 and I-25, for years 1997 through 2000. The data on I-70 and I-25 reveal that a majority of the road closures are caused by incidents. Non-Commercial Vehicle (Non-CV) incidents contributed to the significant change on I-70 in 1999. However, the contribution weather impacts, directly or indirectly, the number of incident closures must be kept in mind. The statistically lower weather related road closures but the rise in total road closures may be indicative of the ever increasing problems of driver behavior and road rage experienced not just in this state but nationwide. This is consistent with CDOT's 2000 Customer Survey where 83% of road crashes were perceived as the result of driver behavior.



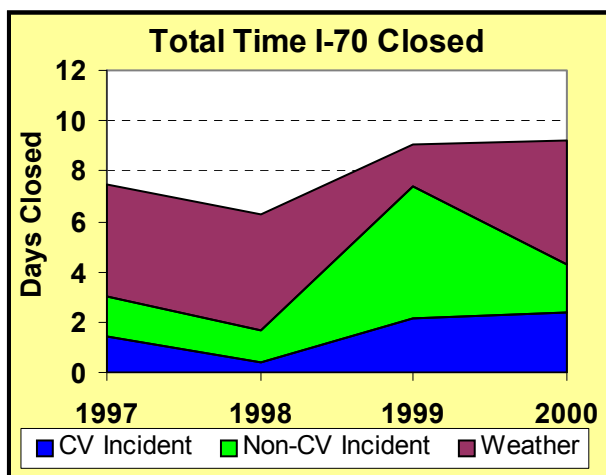
GRAPH 25a



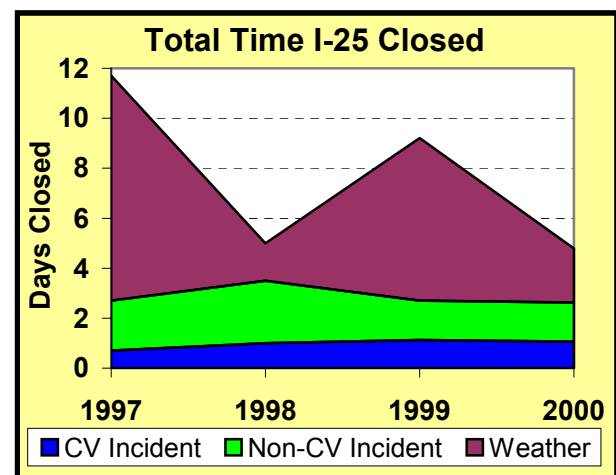
GRAPH 25b

Duration of Road Closures

While the number of road closures connotes the frequency of I-70 and I-25 road closures, duration of the closure measure connotes the severity of these closures. On I-70, the total duration of closures have ranged between a total of 6.3 days in 1998 to 9.1 days in 1999 and remaining stable for 2000. For I-25 the duration of the closures variance has been significant, from a low of 4.8 days in 2000 to a high of 11.7 days in 1997. Again, non-commercial vehicle incidents contributed significantly to the increase between 1998 and 1999 on I-70. Weather related closures are the major contributor on I-70 and overwhelmingly in 1997 and 1999 on I-25. Relying solely on the data, it may appear that CDOT is more efficient in responding to weather incidents on I-25 from one year to another. What aren't clear are the differences of handling weather incidents in rural areas versus metropolitan areas and how severe or frequent the winter storms are while contending with traffic, roadways, structures and safety precautions. In theory, the safest road during inclement weather is a closed road. The duration of closed roads may have been a result of unsafe weather conditions rather than CDOT performance



GRAPH 26a



GRAPH 26b

issues.

Strategic Projects Investment Category

“The 28 high-priority state-wide projects that have been committed for accelerated funding.”

The Strategic Projects Investment Category was established to accelerate the funding and development of high priority transportation projects throughout the state. A base of 28 specific projects is maintained within this investment category. The elements that qualify a project for high priority status is based on the overall visibility and cost of the project and their return on investment in addressing on-going needs of safety, mobility and reconstruction.

CDOT’s Investment in Strategic Projects

As adopted by the transportation Commission, the total original cost to build the 28 strategic projects was \$4.65 billion dollars. The current cumulative programmed cost is \$2.382 billion dollars. For fiscal year 2001, CDOT allocated approximately \$704.8 million to continue towards the completion of these Projects.

STRATEGIC PROJECTS GOALS

- Accelerate the completion of the projects
- Increase investment in the program

OBJECTIVES:

- Promote partnerships with all governments to enhance working relationships
- Accelerate Strategic Project delivery while minimizing the impact to all other objectives
- Maintain eligibility of CDOT’s bonding program to ensure non-default and ability to bond in the future

Performance Measures:

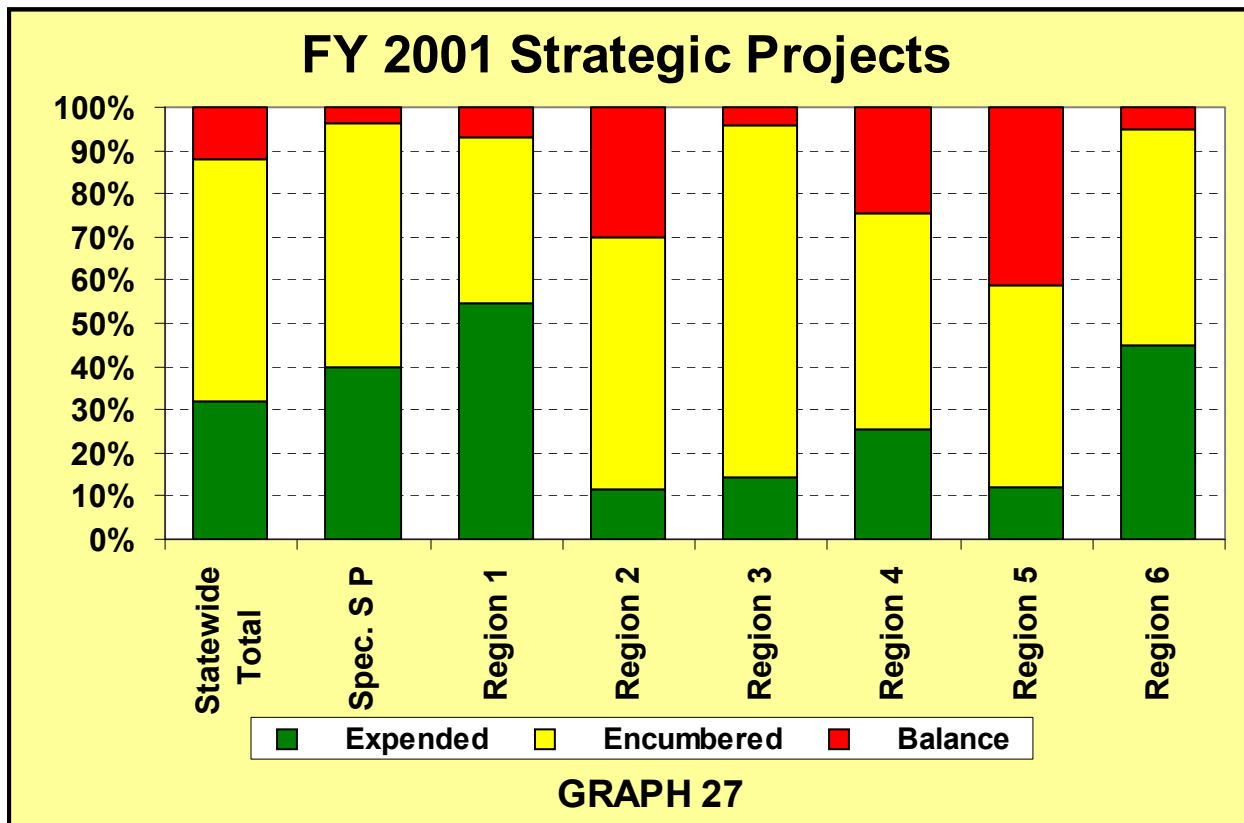
- Actual Funds Encumbered Versus Total Encumbrance Planned by Program
- Actual Funds Expended Versus Planned reported on a quarterly and yearly basis
- Percent Ad Dates Met Prior, On-Time, Within 30 Days, 60 days, or beyond 60 days
- Days to Complete Payment Processing and Billing Compared to Indenture and Continuing Disclosure

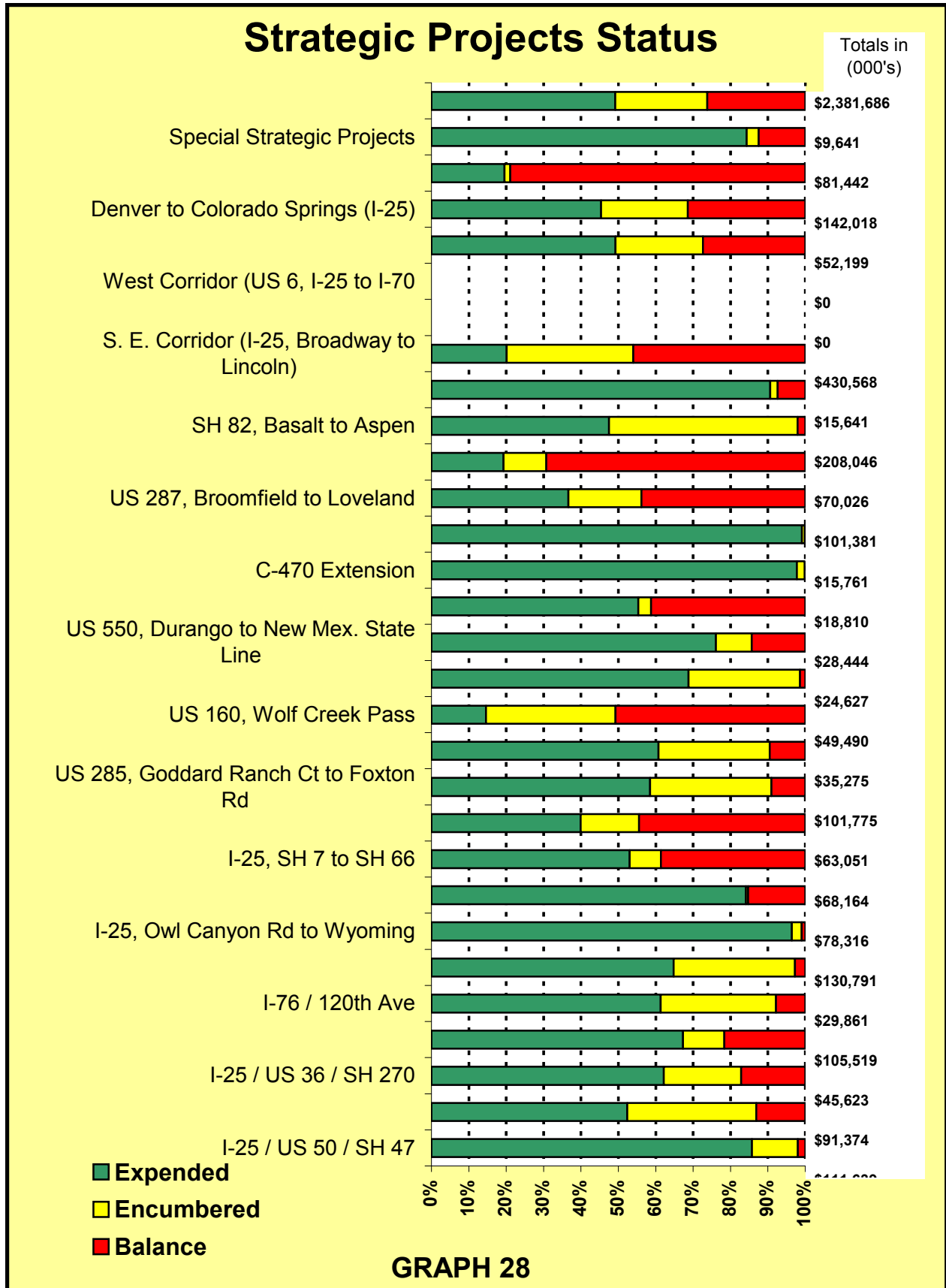
Purpose:

The combined efforts of the Strategic Projects (S P) measures will provide the fiscal accountability to managers necessary to plan and prepare for project implementation and delivery. These measures will provide quantifiable data to management to assist in determining project shortfalls or overages that impact project delivery timelines and high priority project investments.

Current Condition:

Of the 28 strategic projects, 88% (which is an increase of thirteen percent from last year) of the projects have expended and encumbered the project dollars for fiscal year 2001 to expedite the delivery of the project. The continued challenge is to obtain 100% encumbrance of funds. The target goal is to spend or encumber 100% of funds within a specified timeframe on projects planned. The difficulty of this measure is the environment in which projects are managed. Project delays can and do occur outside of the direct control of CDOT project managers. Despite this somewhat difficult situation and challenge, CDOT's pursuit of this measure, combined with other performance data, should ultimately provide the necessary information to improve the encumbrance and expenditure of funds that will effectuate project completions.





The graph on page 40 illustrates the Strategic Projects status in budgeted to date terms. The Department's current status indicates that 73.8 percent of the \$2.382 billion budgeted dollars have been expended or encumbered since the adoption of the Strategic Projects program. The following projects I-25/US50/SH47 Interchange, I-25 (Owl Canyon Rd. to Wyo.), C-470 Extension, US40 (I-25 to US 85), Santa Fe Dr. corridor, I-76/120th Interchange, I-70/I-25 Interchange, US285 (Goddard Ranch Ct. to Foxtan Rd.), and SH82 (Basalt to Aspen) are complete or nearing completion.

Another key performance measure for this investment category is Percent Ad Dates Met On-Time, Within 30 Days, 60 days, or beyond 60 days. This measure is shared with the Program Delivery investment category at the Program Support Level. While funds encumbered monitors how strategic projects utilize funds, ad dates monitor support service in meeting advertisement dates. Accordingly, this measure is reported under Program Delivery investment category.

Program Delivery Investment Category

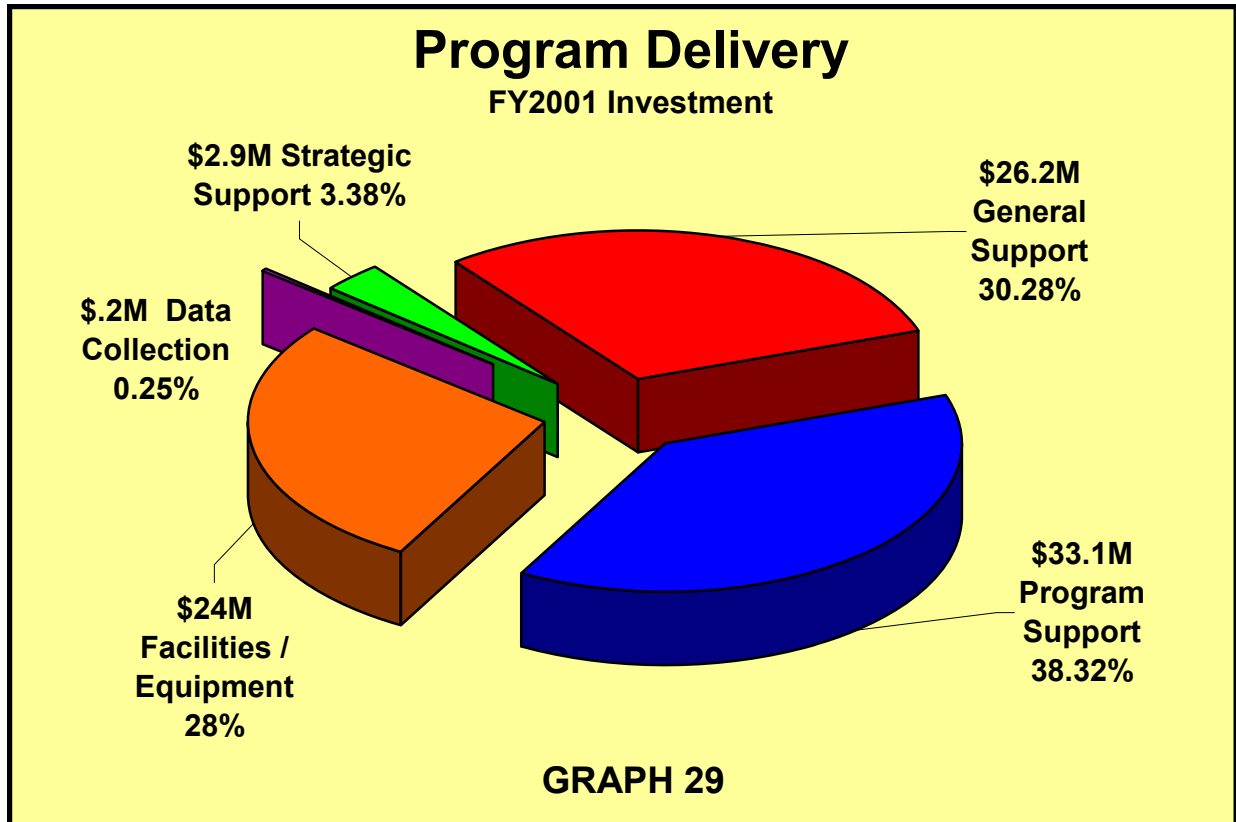
“Support functions that enable the delivery of CDOT’s programs and services.”

The Program Delivery Investment Category contains the organizational support that enable the delivery of CDOT’s programs and services.

- Strategic Support is responsible for the policy and communication functions.
- General Support is responsible for those functions that assist in the day-to-day operational support such as Finance Management and Budget, Administrative Services, Human Services, Procurement and Project Development.
- Program Support includes functions that are unique to CDOT, which would not normally be found in most governmental agencies. Since CDOT's mission supports the movement of people, goods, and information, specific programs are used including Right-of-Way Services, the Office of Environmental Review and Analysis, Aeronautics, Staff Construction and Materials, Staff Design, and Staff Maintenance.
- Facilities and Equipment is responsible for the maintenance and management of CDOT facilities, vehicles and equipment.
- Data Collection is responsible for all of CDOT’s data collection programs.

CDOT’s Investment in Program Delivery

For fiscal year 2001, CDOT allocated approximately \$86.4 million, 6.2% of the budget, to disburse in the above five program areas and illustrated in Graph 29. This area of investment is somewhat limited in significant change from year to year because of the legislative cap on the number of personnel within CDOT. However, because there is an overriding concern by the public to ensure efficiency in government and the recognition by the transportation commission and management team of this fact, the department has been tracking performance measures at the tools and service level for several years and including the data within the budget.



PROGRAM DELIVERY GOALS

- Deliver high quality products and services in a timely fashion
- Attract and retain an effective and qualified workforce
- Foster an environment that respects workforce diversity

OBJECTIVES:

- Maintain fiscal integrity to CDOT through timely encumbrance of funds and project delivery
- Create a funding environment that preserves the base while pursuing new sources
- Ensure timely product and service delivery
- Create public confidence in department accountability
- Incorporate education in project development & implementation
- Develop planning processes that enhance future project development
- Design projects that foster alternative modes in partnership with local entities

- Maintain a viable service industry to create a competitive environment
- Create an environment that fosters high employee productivity

The following performance measures are at the core service level. Investment level performance measures are to be developed as the Transportation Investment Strategies evolve.

Strategic Support Level Performance Measures:

- Customer Assessment Survey Rating (General Public)
- Productivity Rates per FTE
- Indirect Cost Rates
- Percent of Projects Accelerated With Additional Funds
- Percent of Projects Ahead of Schedule
- Percent of Projects That Incorporate a Wide View (includes multi-modal elements) of Transportation
- Post Project Quality Assurance Rating (includes project elements such as conformance to standards, rules & regulations, policies, design)

General Support Level Performance Measures:

- Employee Satisfaction Survey Rating Regarding Management Support, Tools, Resources & Training
- Average Employee Turnover Rate Per Year Per Critical Job Class
- Average Employee Replacement Cost Per Job Class
- Average Contract Development Days From Project Scope to Contract Implementation
- Average Number of Days Past Scheduled Deadline for Billings, Contracting
- Percent Technology Needs Implemented Versus Technology Requirements
- Operational Cost Vs. Average Age of Facility or Equipment
- Percent Actual Facility, Property, and Equipment Budget Vs. Total Budget

Program Support Level Performance Measures:

- Percent Funds Encumbered Within Reporting Period
- Percent of Projects Completed Within the Fiscal Year Scheduled
- Percent of Projects Completed on Time From Notification to Work Completed
- Percent of Projects That Incorporate a Wide View (includes multi-modal elements) of Transportation
- Percent Ad Dates Met Prior, On-Time, Within 30 Days, 60 days, or beyond 60 days
- Actual Project Funds Expended Versus Planned reported on a quarterly and yearly basis

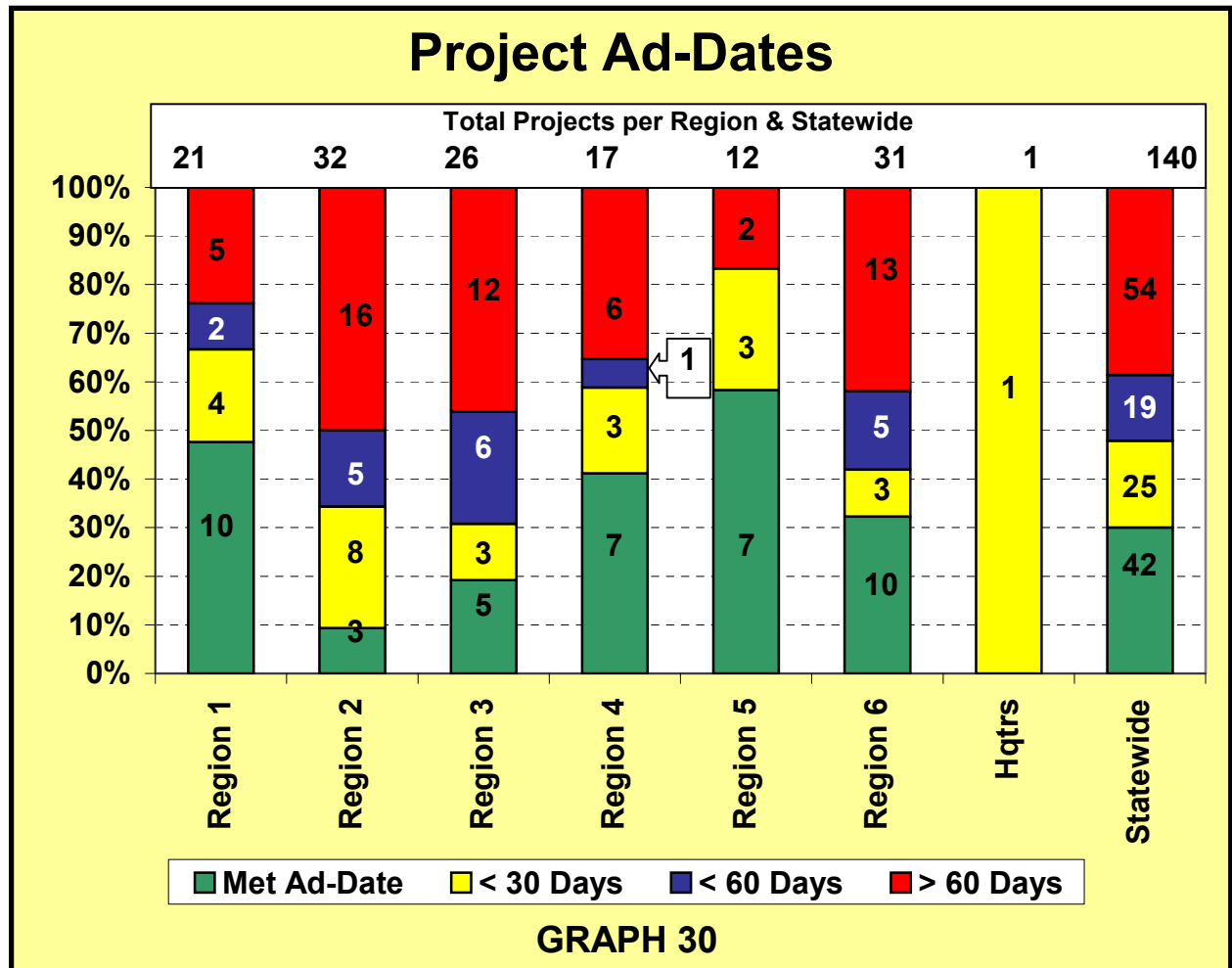
- Percent of Projects Accelerated Resulting From Improved Environmental Assessments
- Average Length of Time for Environmental, ROW, and Utilities Clearance
- Percent of Budget Spent on Contractor Work vs. Total Budget

Purpose:

The measures will provide quantifiable data that will help determine to what extent funding is spent and encumbered and the contribution to the delivery of projects and programs within planned timeframes. The measures balance the need to fiscally manage the resources while ensuring high caliber product delivery and customer service. The Program Delivery performance measures included in this report are in the evolutionary process and may change from year to year as the Investment Strategies are implemented, especially at the Core Service level.

Current Condition:

A key driver in meeting both the Strategic Projects and Program Delivery Investment Category goals is gauging how well project advertisement dates (Ad dates) are being met (Graph 30). The department is meeting 48% of the projected Ad dates within 30 days of the scheduled date. However, almost 38% of project Ad dates are more than 60 days beyond projected Ad dates. For each delayed day, not only are the project timelines impacted but also the ability to manage project resources effectively is impacted. More importantly, fiscal accountability becomes difficult to manage. The ability for the department to begin projects on time has tremendous impacts on the department's credibility with customers and stakeholders, as well as, bonding firms. The reality is that there are external barriers preventing this complete achievement. Monitoring this performance will assist in understanding the magnitude of the problem, impacts and reasons for the change to improve.



CDOT Employee Turnover Rate

OBJECTIVE:

- Identify innovative human resource solutions that maximize existing resources to meet business needs.

Performance Measures:

- Average employee turnover rate per year per critical job class
- Employee satisfaction survey rating

Purpose:

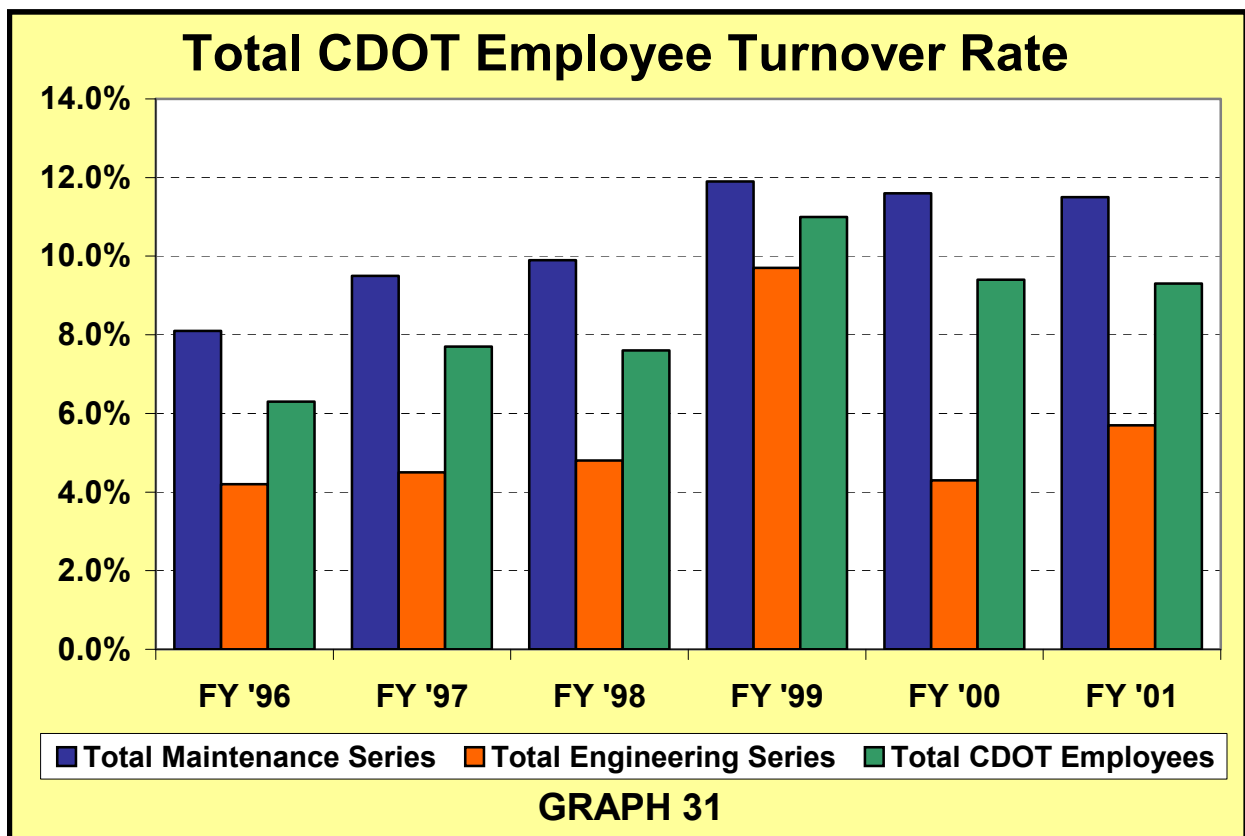
Annual turnover rate contributes to the optimization of the department’s capability in retaining a qualified workforce. Level of employee satisfaction contributes to whether employees remain with the department.

Current Condition:

CDOT's Center for Human Resource Management (CHRM) has collected and analyzed CDOT's annual employee turnover rate for several years. CHRM completed CDOT's initial annual employee survey in 2001.

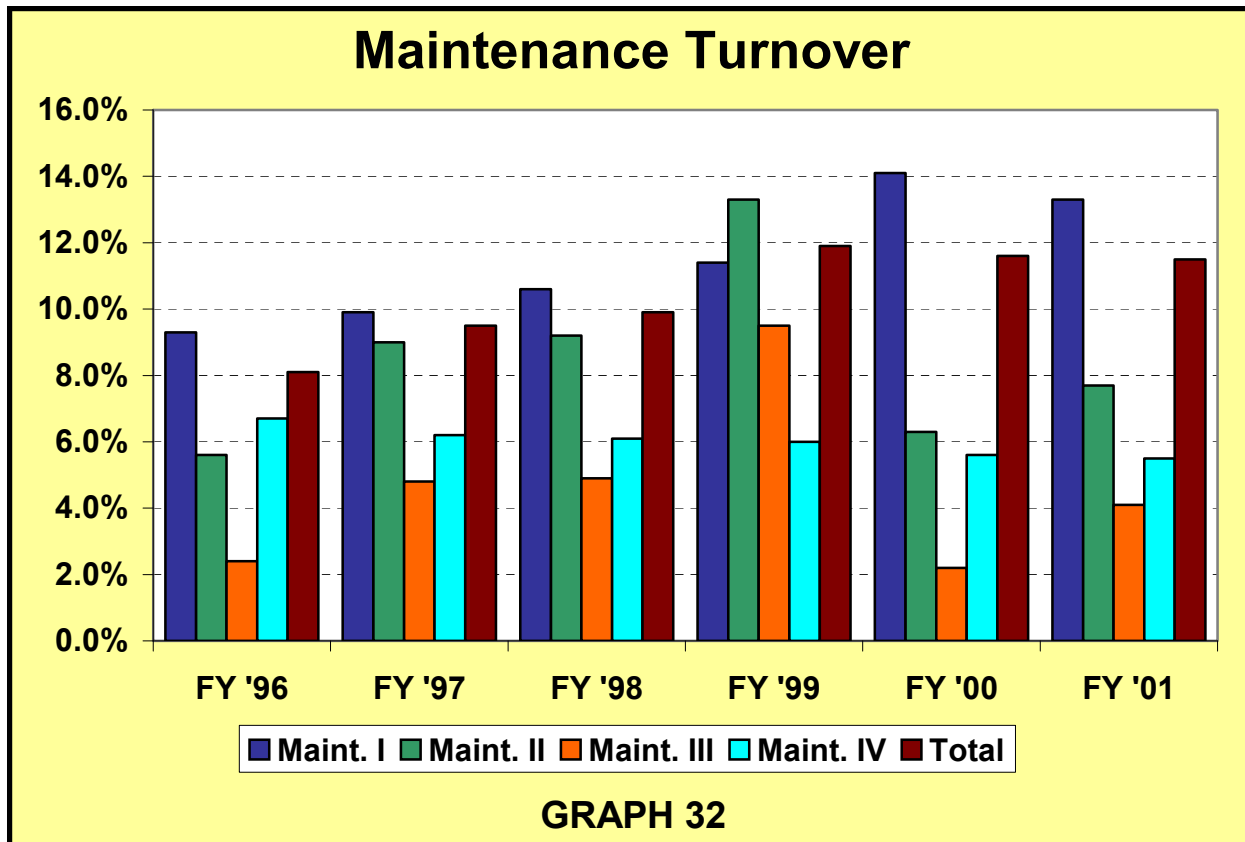
Employee Turnover

CDOT's annual turnover rate has begun to stabilize at around 9%. This indicates that nine out of every 100 CDOT employees terminate employment with CDOT on an annual basis. Employees terminate employment voluntarily through retirement or for job opportunities outside the department. Additionally, employees separate involuntarily, such as through being fired. The turnover rate for fiscal year 2001 is lower than the recent historical high of 11% in fiscal year 1999 but is higher than the 6-7% turnover rate experienced during the prior three fiscal years.



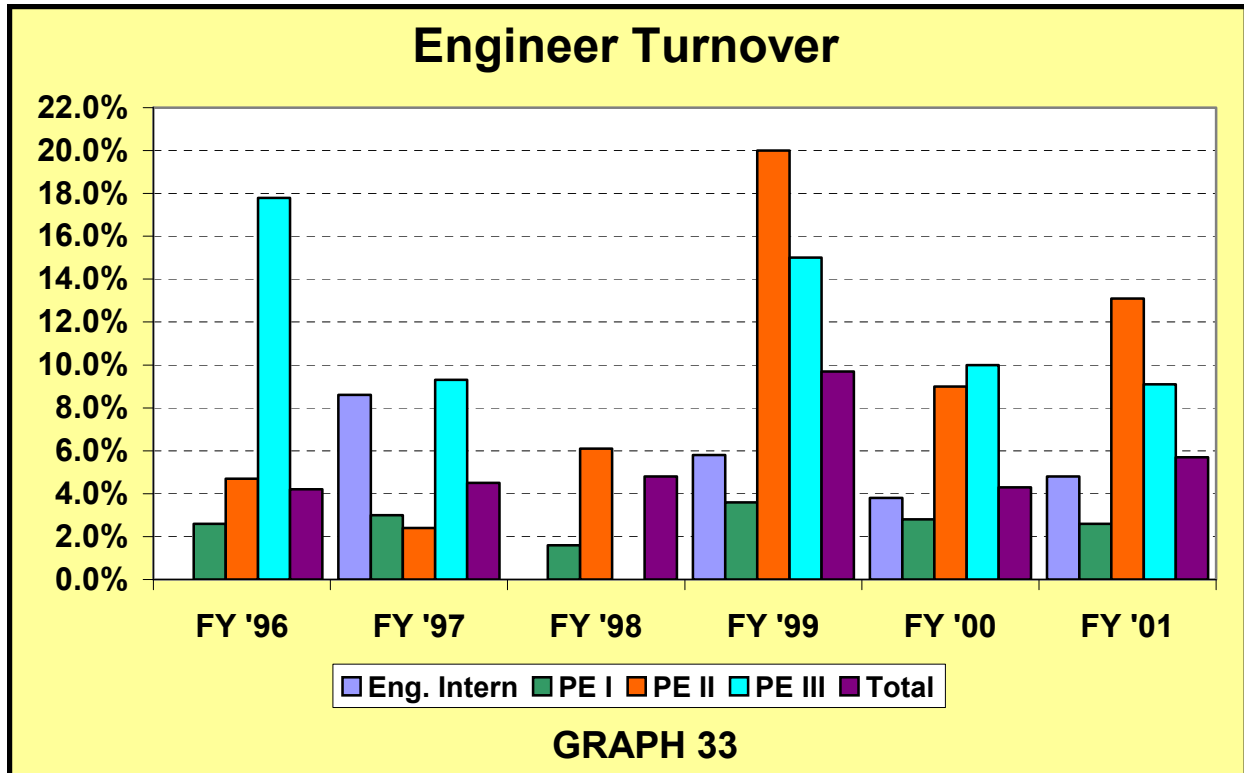
NOTE: In Graphs 31, 32, and 33 - Annual employee turnover rate (turnover rate is the ratio of total permanent FTE separations for the fiscal year to the average number of permanent filled FTEs for the current and prior fiscal years)

The rate of transportation maintenance turnover over the past six years has been generally higher (approximately 9-11%) than the rate of engineering turnover (approximately 4-5%). The annual turnover rate of entry-level maintenance employees (Transportation Maintenance I) continues to be high (13.3%).



Similarly, the annual turnover rate of Professional Engineer II's has experienced an increase over the last several years up to 13.1% during fiscal year 2001.

Turnover can also be examined specifically for short-term employees. Probationary employees are those CDOT employees within their first year of state employment. The annual turnover rate of probationary employees for fiscal year 2001 (22.9%) continues to be more than double the turnover rate for CDOT as a whole (9.3%). This suggests that a more effective job at selecting, orienting and retaining new employees may be a useful strategy. High turnover of new employees results in increased costs for CDOT in the area of selection, new employee training and reduced productivity. Because the probationary period is the final step of the selection process, it is anticipated that the turnover rate would be higher during this period of time.



While the loss of probationary employees occurs at a higher rate than with tenured employees, this loss may not have as much impact to the department as the loss of long-term employees. Long-term employee turnover can be of great costs to the department because it involves the loss of training, skills, experiences, productivity, and cohesiveness between coworkers. However, as previously stated, turnover of new employees also increases the costs for the department in the areas of selection, training and productivity. Therefore, it is in CDOT's interest to minimize the rate of avoidable turnover wherever possible.

Data on employees' reasons for separation from CDOT over the past five years indicate that of the total number of separations from CDOT, approximately 48% was attributed to voluntary resignation, and approximately 37% was attributed to retirement. Employee separation attributed to retirement is something that will consistently contribute to annual employee turnover rates, and should therefore be monitored for succession planning purposes.

CDOT can expect to lose approximately 10% of its workforce over the next five years due to full retirement. This number does not take into account employees who will take early retirement with reduced benefits or those employees who have purchased retirement service credit. As expected, anticipated retirement projections increase at the higher classifications within a job series. The more tenure an employee has, the more likely they are to be in supervisory / management-level positions and the closer to retirement.

Over the next five years, more than half of CDOT's senior highway maintenance supervisors (Transportation Maintenance IV) and a third of the engineering managers (Professional Engineer III) are eligible for full retirement benefits. Smaller projected retirement rates for classifications lower in both class series suggest that adequate numbers of employees should be in the applicant pool to promote into these supervisory-level positions as they become vacant.

Reasons for voluntary resignation over the past five years indicate that accepting a career outside of CDOT accounted for 18.8% of all separations, personal reasons accounted for 15.6% of all separations, and dissatisfaction with pay or working conditions accounted for 5.8% of all separations.

Data from CDOT's first annual employee survey highlight several important elements that are strongly related to employees' intentions to stay employed with CDOT. Satisfaction with CDOT as an employer, satisfaction with pay, job satisfaction, satisfaction with leadership, and level of job stress are all important contributors to an employee's intent to remain employed with CDOT.

Employee Satisfaction:

CDOT's employee satisfaction survey conducted in 2001 measured employee attitudes toward 29 aspects of CDOT. CDOT employees were most satisfied with their job, adherence to civil norms within the organization (freedom from workplace violence, harassment, etc.), job security, freedom from substance abuse within the organization, and with CDOT as an employer. Employees expressed the least satisfaction with issues involving pay, benefits and CDOT leadership. CDOT's Executive Management Team is working on strategies to build upon the strengths and deal effectively with the areas of concern by employees.

Next Steps Within the Investment Strategy Cycle

Strategy:

- Assess opportunities to provide improved service
- Evaluate customer segment needs and behavioral changes
- Analyze program/service use and cost
- Evaluate resource allocations

Performance Management:

- Plan data collection strategy, design data collection process and identify required technology
- Identify current performance level, deploy measures, compare and link to departmental objectives
- Identify sources of core competencies and alternative strategies to deliver customer service
- Identify leverage points and key learning's from the investment strategy
- Compare investment strengths and weaknesses to customer needs

Communication & Linkage:

- Communicate the investment strategy to the department, to customers and to stakeholders
- Check and validate support with necessary levels of management
- Continue the development of performance measures throughout the department

Implementation:

- Continue to provide performance measurement training and reemphasize linkages to investment strategy and departmental objectives
- Facilitate the use of performance measurement to evaluate performance and proactively manage results
- Implement data collection technology for performance measurement
- Monitor progress towards departmental goals
- Revisit Investment Strategy Cycle

Strategic Feedback & Learning

- Conduct feedback process to evaluate progress, identify gaps and redirect
- Articulate insights and learning's and communicate to employees
- Emphasize the importance of good measures for decision making

Results of a Successful Investment Strategy

- A clear future direction is set for the organization
- A clear set of priorities is established
- Coherent decision making is the norm
- The organization can focus on its priorities
- Decisions are made across levels and programs
- Organizational performance improves
- Teamwork and expertise are expanded

Appendix A

Mobility

Based on Texas Transportation Institute Study Data

Current National Condition

Congested Roadways

A national survey, the Urban Mobility Study, in 68 of the nation's largest metropolitan areas of population over 100,000 show more severe congestion that lasts a longer period of time and affects more of the transportation network in 1999 than in 1982. The average annual delay per person climbed from 11 hours in 1982 to 36 hours in 1999, more than tripling. And in urban areas from 100,000 to 1 million in population, the delay over the same period quintupled. The cost of congestion, a motoring public concern, has increased from \$72⁴ billion in 1997 to \$78 billion in 1999. This is the value of 4.5 billion hours of delay and 6.8 billion gallons of excess fuel consumed. Another reason the motoring public is concerned about congestion is because the average rush hour trip takes 32 percent more time than the same trip taken during non-rush hour conditions. Congestion and management of it has fast become one of the higher priorities within transportation.

Current Local Urban Areas Conditions

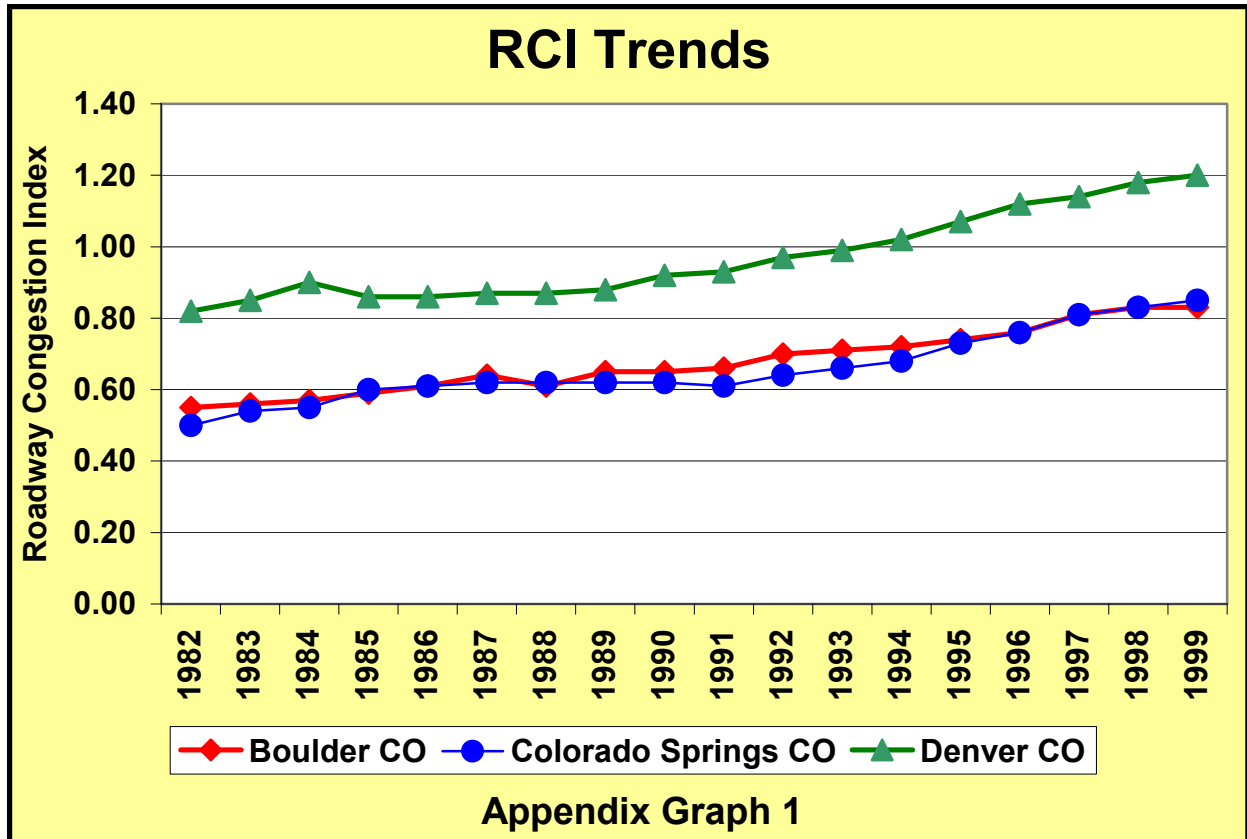
Roadway Congestion Index/Travel Rate Index/Travel Time Index

The Texas Transportation Institute is considered one of the foremost authorities on roadway congestion. Each year they produce an Urban Mobility Study in an effort to monitor travel conditions in major urban areas of the United States.⁵ Using a process that defines urban areas by population size into small (Boulder), medium (Colorado Springs), large (Denver) and very large area average, the Texas Transportation Institute gathers data that demonstrates congestion levels by comparison. The Urban Mobility Study data are included in the following Roadway Congestion Index (RCI) Trends, the Travel Rate Index (TRI) Trends, and the Travel Time Index (TTI) Trends graphs depicting data in Denver, Colorado Springs and Boulder.

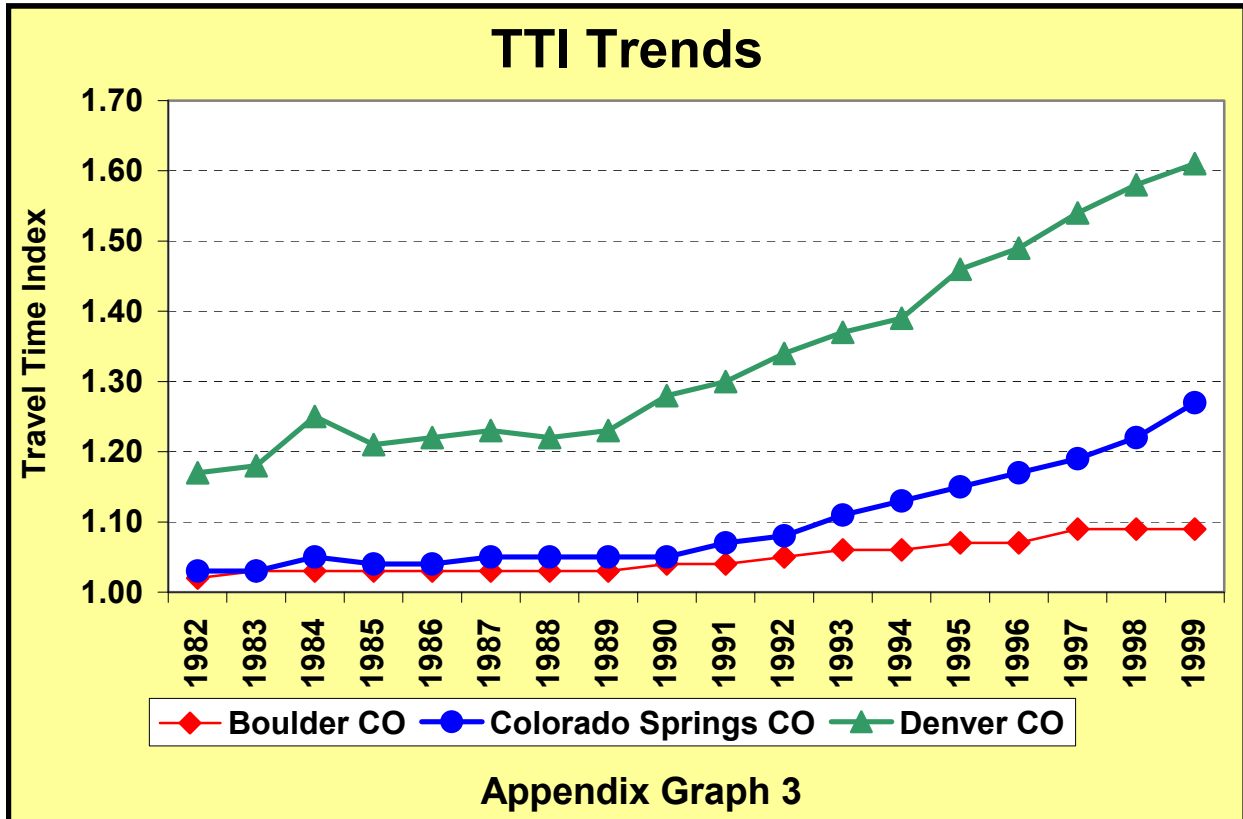
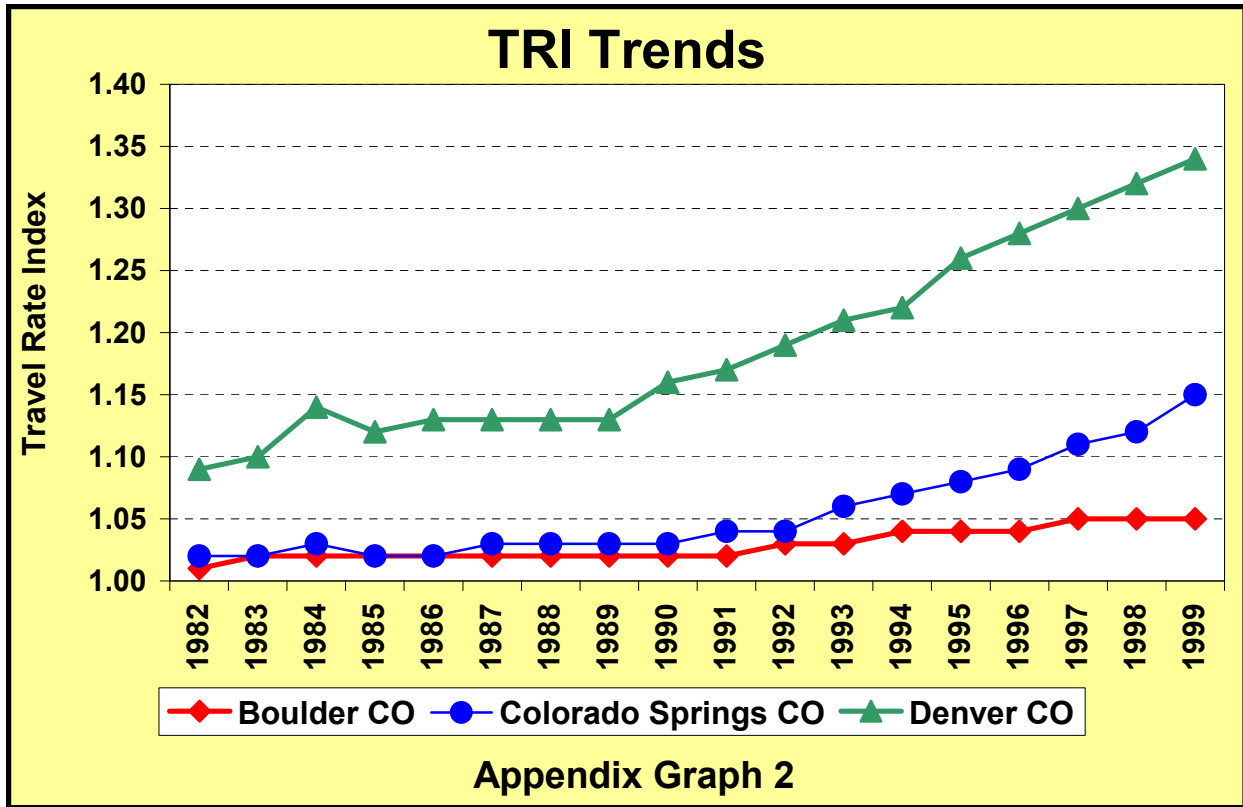
The data from the Roadway Congestion Index trends in Denver, Colorado Springs and Boulder illustrate parallel degradation in the mobility of the public on the transportation system, as do the TRI and TTI trends. Since the initial tracking by the Texas Transportation Institute of RCI in 1982 to the present, the change has been a .38 increase in the RCI for Denver, .35 for Colorado Springs and .28 for Boulder.

⁴ U.S. Transportation Secretary Slater, Outlines Administration Efforts To Improve Mobility, Relieve Congestion, News Release, Wednesday, November 17, 1999

⁵ The most recent Urban Mobility Study was completed in April 2001



The Travel Rate Index (TRI) measures the impact of travel in congested conditions against uncongested condition and is mode neutral. Each tenth change in the index represents a ten percent change in travel time. The longer it takes to travel during congested periods, the higher the travel rate index. As the trend demonstrates, each year travel during congested periods continues to take longer than during free-flow periods. The trend has continued upward from 1982 through 1999 in Boulder, Colorado Springs and Denver. CDOT has begun monitoring several major corridors to gather data on travel delays and congestion that will assist in the analysis that will demonstrate congestion trends over time. Once this monitoring and analysis is established, CDOT will have the techniques and processes developed to expand the observation to other congested corridors throughout the state.



One important additional measure reported in the Texas Transportation Institute Mobility Study and included for the first time in the CDOT Performance Report is the Travel Time Index for Denver, Colorado Springs and Boulder in Appendix Graph 3. This is a comparison of total travel time in the peak to travel time in free flow conditions similar to Travel Rate Index. However, the Travel Time Index is different from the Travel Rate Index because it includes delay from both heavy traffic demand and roadway incidents. The TRI focuses only on delay caused by heavy traffic demand. The measure of TTI and TRI each illustrate a central concern of urban residents and that is the time it takes to travel in the peak periods.

In the following Appendix Graph 4 is a depiction of the three Colorado cities' TRI compared to the national average of cities in the respective classifications. It appears the concern voiced by Colorado residents in the 2000 Statewide Resident Survey about congestion in the metropolitan Denver area is supported by the data.

