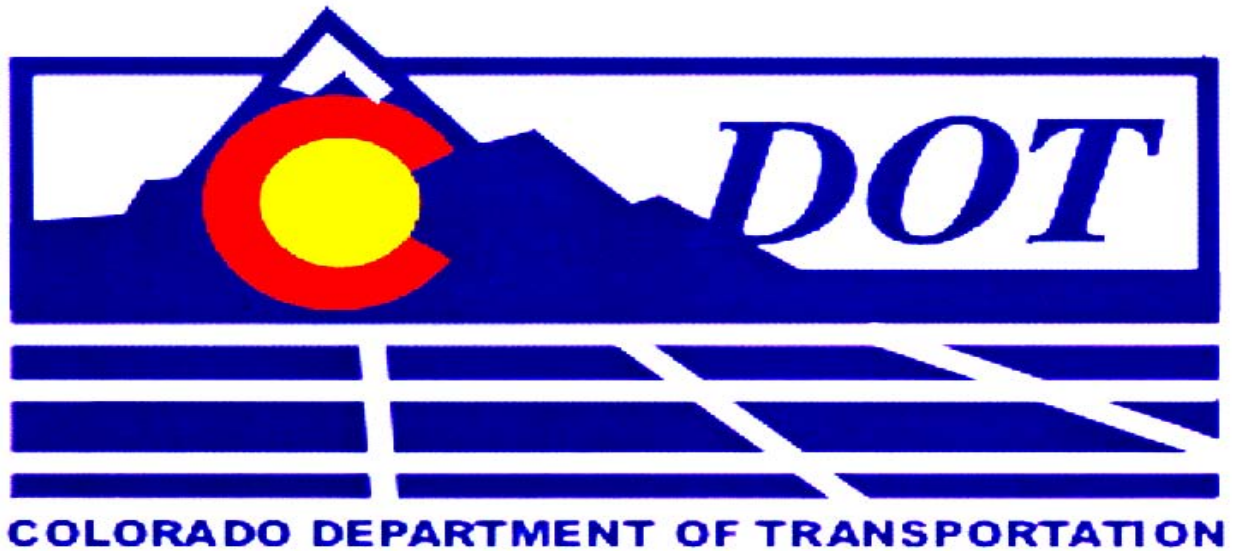


**Colorado**  
**Department Of Transportation**



***Investment Level Performance***  
***Report***

**FY 2000**

*Prepared by*  
**Arthur Andersen LLP**  
**In collaboration with**  
**CDOT Division of Transportation Development**

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## **EXECUTIVE SUMMARY**

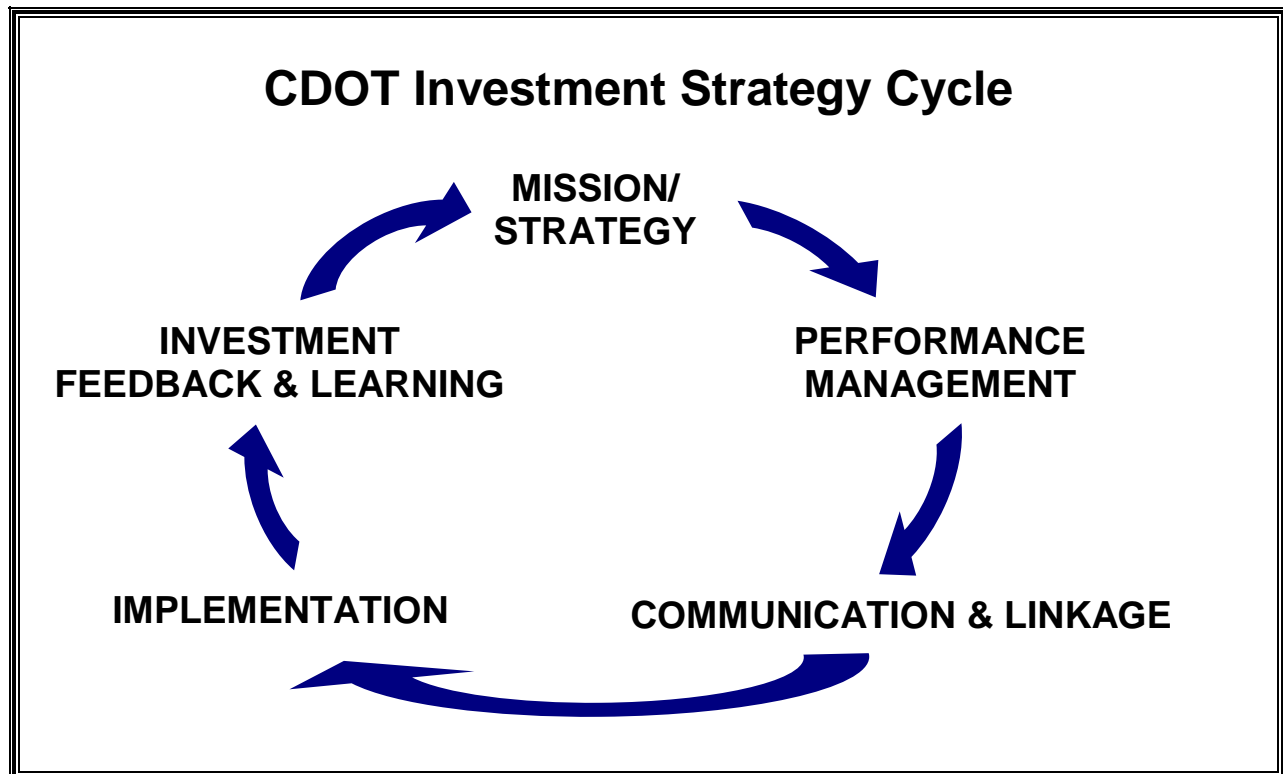
In 1996, a transformation began within the Colorado Department of Transportation (CDOT) and how transportation decisions will be made. The Transportation Commission and the department's Executive Management Team (EMT) determined that the traditional approach to transportation decisions was losing its effectiveness in gauging transportation trends in order to anticipate and prepare to meet the ever-growing challenges within the transportation future of Colorado.

In a rapidly changing world, government's success depends, in part, 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 about resources and program performance. To achieve this requires careful planning and wise investing. Through the insightfulness of the department's leadership, they are focusing on five key categories of business services called Investment Categories. These categories are Safety, System Quality, Mobility, Strategic Projects and Program Delivery. The Investment Categories represent the overall short and long term concentrated areas of service of the department rather than the needs of independent programs and projects. The result is an aggressive investment strategy that establishes a framework for investment planning to guide how resources can be deployed and managed to enable the department to effectively carry out its mission.

Consequently, not all investment decisions will be perceived by customers to be wise on face value but is the compelling basis for managing the Department's assets. An example of such a situation might appear around the maintenance of the state's roadways. Within the past year, CDOT has begun transitioning pavement condition ratings from ride-ability condition rating to remaining service life rating. What this means to a customer is that CDOT may appear to ignore poor condition roads with short service life and maintain fairly new or good condition roads with long service life. The traditional approach to this situation has been to equalize the roadways. Fix the "poor" roadways and bring the condition up a little while deferring the "fair and good" roadways, allowing the 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 investments for the customer.

A significant challenge with this Investment Strategy is to effectively communicate and raise the level of understanding with both employees, to validate and champion the investment decisions, and with customers to understand and support this investment strategy.

In the past year, CDOT's Investment Strategy has evolved into the full cycle of strategic planning. This encompasses key elements that will assure successful implementation and sustainability.



Previous year's investment strategy cycle was limited to alignment of CDOT's Mission, Performance and Investment. The strategy now has evolved to include components of communication and linkage, implementation and feedback and lessons learned. 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:

Mission / Strategy

- Evaluate stakeholder and customer expectations
- Assess the department's strengths and weaknesses
- Assess the department's external opportunities and threats
- Develop strategic objectives for step-change actions by the department

Performance Management

- Assess current processes and structures for strategic fit
- Formulate performance models of the business and identify fundamental drivers of success
- Identify key performance measures around the Key Measurement Areas: Productivity, Timeliness, Sustainability and Customer Perception.

### 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: resources, 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

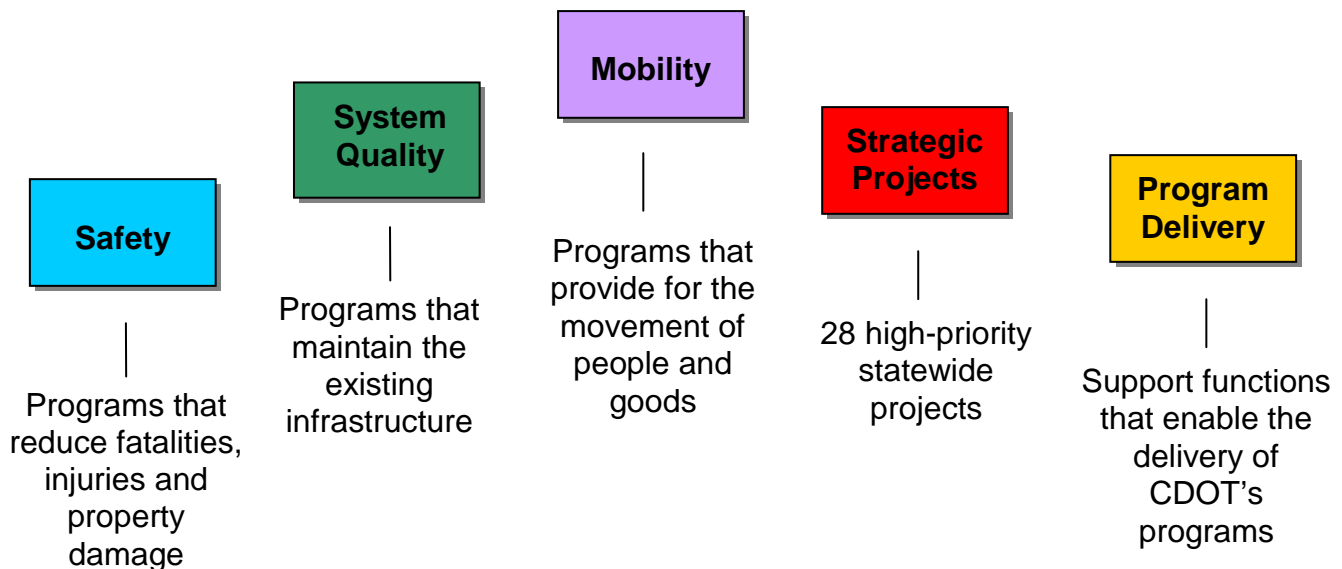
### Investment Feedback and Learning

- Continually assess the validity of the investment categories, goals, objectives and performance measures and make necessary revisions
- Evaluate the areas of weakness and identify root causes: external influences, resource limitations or inadequate agency capabilities
- Document and summarize lessons learned and insights for strategic revisioning and refocusing

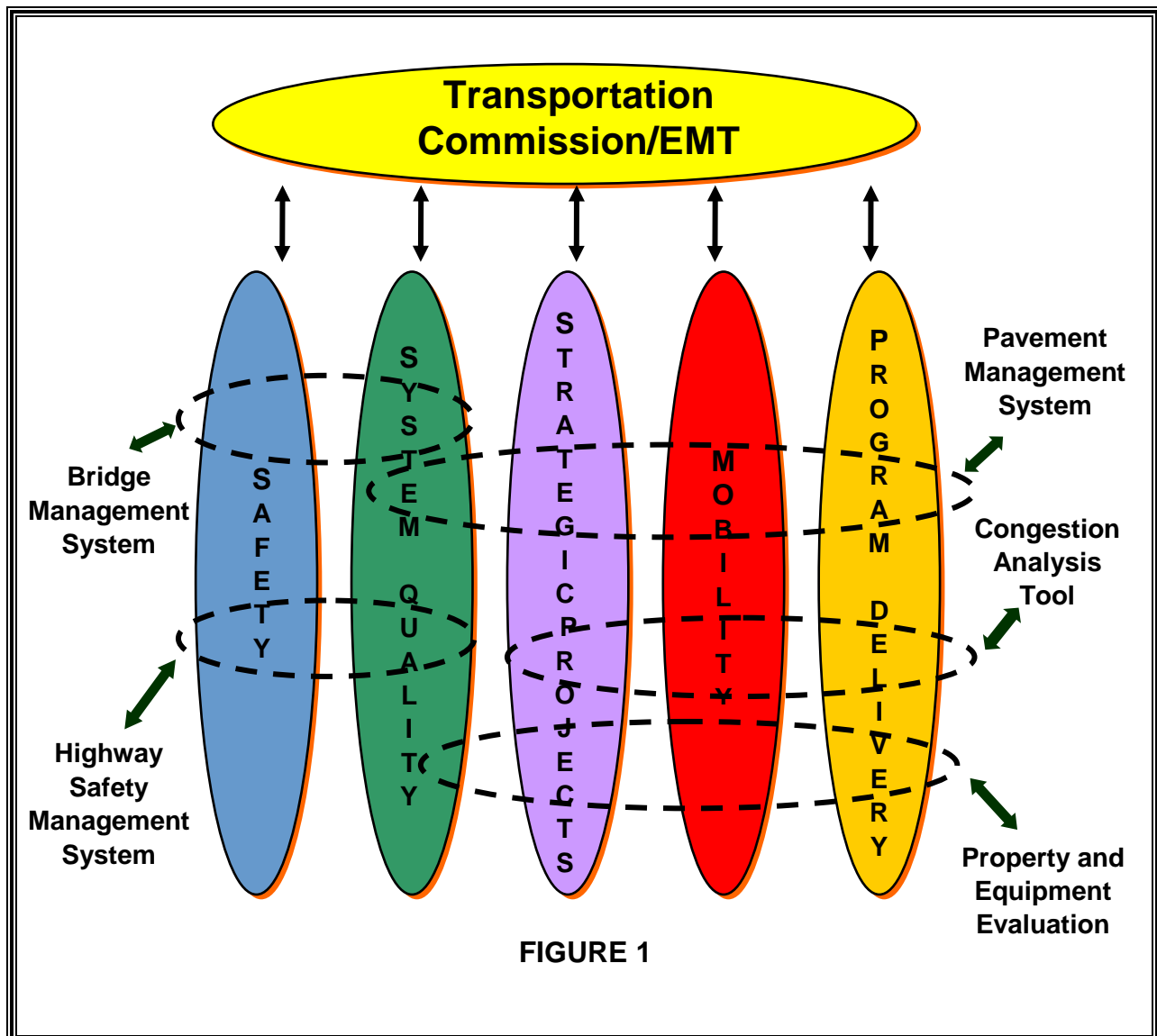
Following this cycle of the Investment Strategy, CDOT's Transportation Commission and the Executive Management Team has set the broad outline for the Investment Strategy by setting investment level goals. These goals, defined as a long-term organizational targets and direction of development, state what the organization wants to accomplish and become over the next several years. Over the past year, the department has aggressively pursued completing this structure by identifying investment level objectives for all five of the investment categories. Objectives channel attention to the point of implementation and commit people to action. Objectives are the what and when of the Department's goals that show progress towards the mission. Performance Measures have been developed to measure and report progress to the employees, customers and stakeholders on the outcomes and benefits of their investments.

CDOT's Investment Strategy is supported by five categories. The categories are framed to define all of CDOT's major activities. However, the categories are not independent but supplement and complement each other and require interfacing between the categories for effective decision making. Below are the five investment categories.

## CDOT Investment Categories



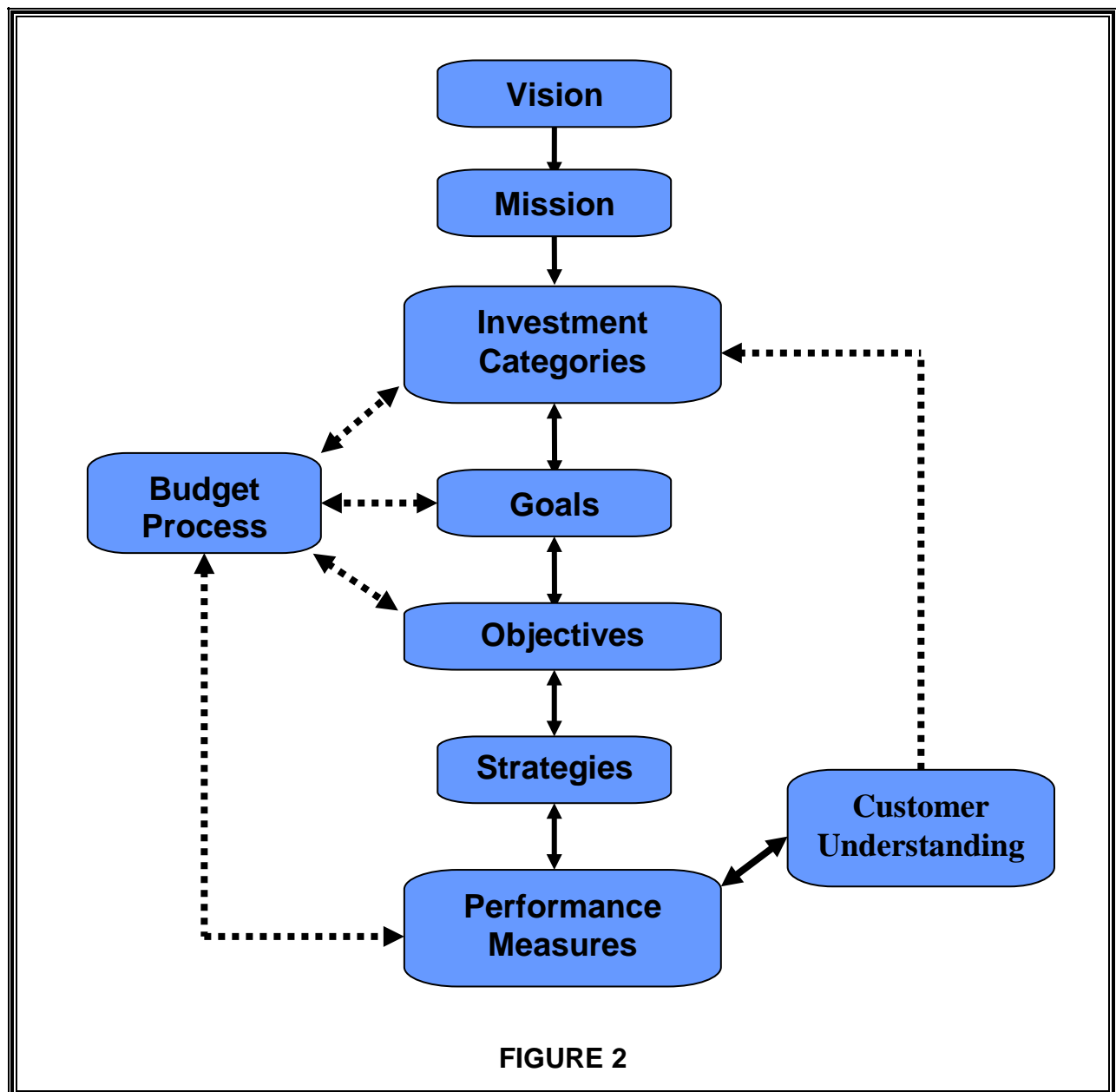
The investment categories are designed to focus on priority areas of transportation needs for Safety, Mobility, etc. However, the management systems that exist within CDOT are designed to provide support across the investment categories. Figure 1, on the next page, give scenarios of how each management system may impact and assist in multiple investment category decision-making. For example, CDOT may decide to invest in a major pavement preservation project. In doing so, the decision may impact investment categories around System Quality to improve the transportation system infrastructure, Strategic Projects to prioritize and expedite funding, and Program Delivery to align resources to support this project. However, the initial desired outcome or result of this investment decision is to maintain or improve Mobility for the designated improvement area. The value perceived by customers for this investment decision may be delayed as their understanding of how investment decisions are made. The challenge is to manage the customer perception towards short and long-term goals.



This 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.

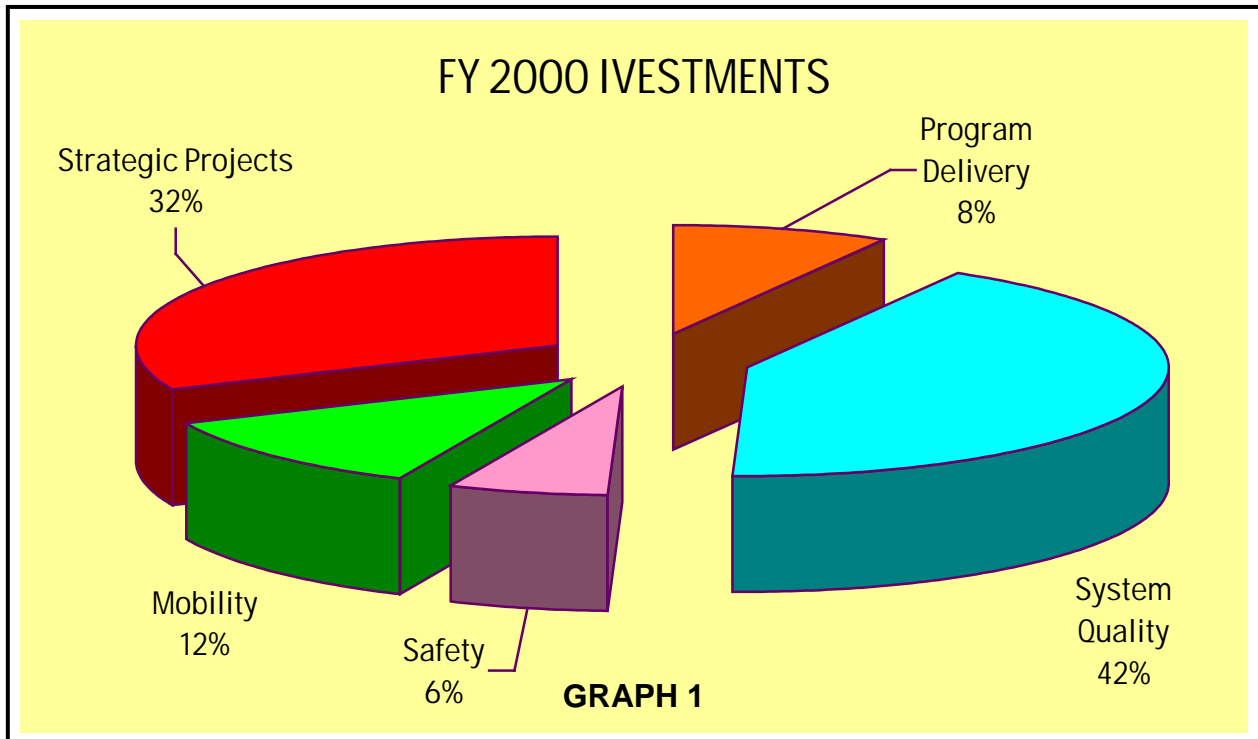
## Investment Strategy Alignment Model

The figure below demonstrates the alignment relationship that the investment categories have within the overall department and to other organizational processes. Their 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 that can help determine where management decisions need to focus and the budget necessary to support the investment outcome.





Based on CDOT's Fiscal Year 2000 Budget, funds have been assigned to the five Investment Categories as shown in Graph 1 below. This will assist the Transportation commission in resource allocation through performance based budgeting. Over the past three years, performance measures data has been compiled to establish some baselines for comparing investments to results. Throughout this report, the performance measures data will give an indication to the customer of the current state of the five investment categories.



## Safety Investment Category

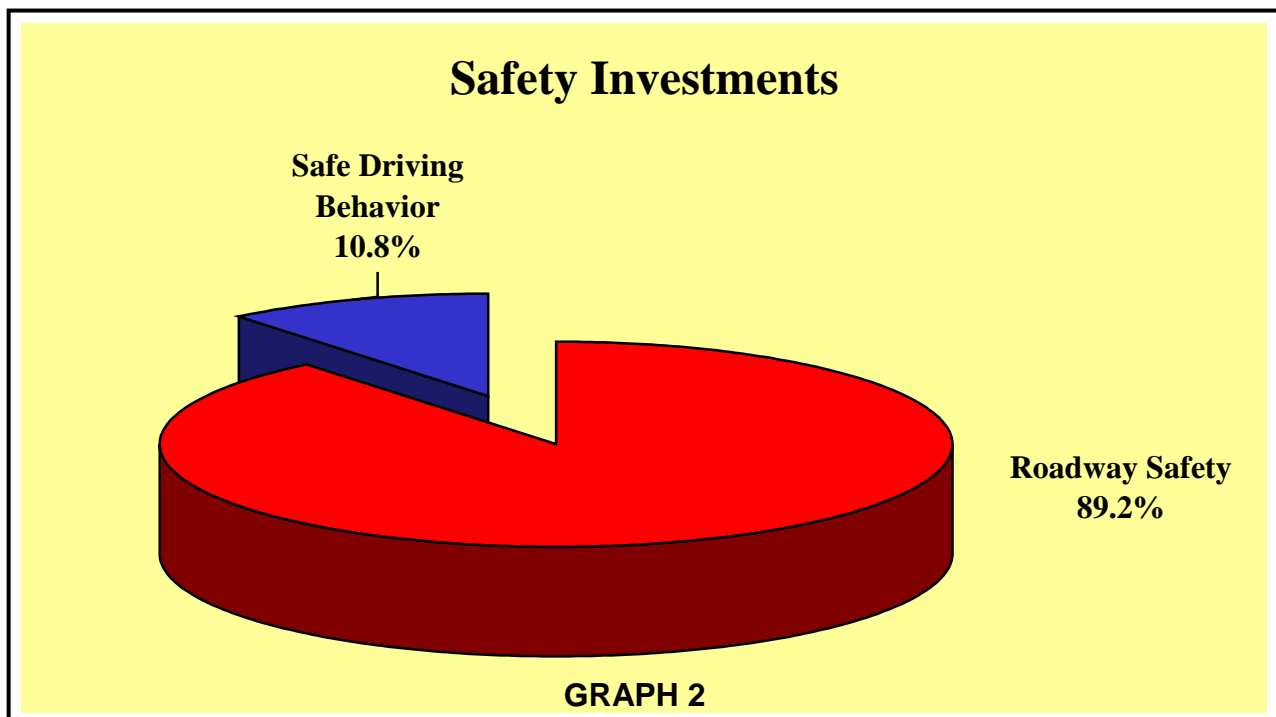
***“Services, programs and projects that reduce fatalities, injuries and property damage for all users of the system.”***

What remains constant within the Safety Investment Category is the objective around safety incidents such as Crashes by Type, Fatality Rates, and the differentiation between Safety Driving Behavior and Roadway Safety Characteristics. What's 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 report 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 2000 Budget Allocation, CDOT allocates approximately \$58.2 million to Safety programs and projects. The investment is divided between two key Program Areas: Safe Driving Behavior and Roadway Safety.

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

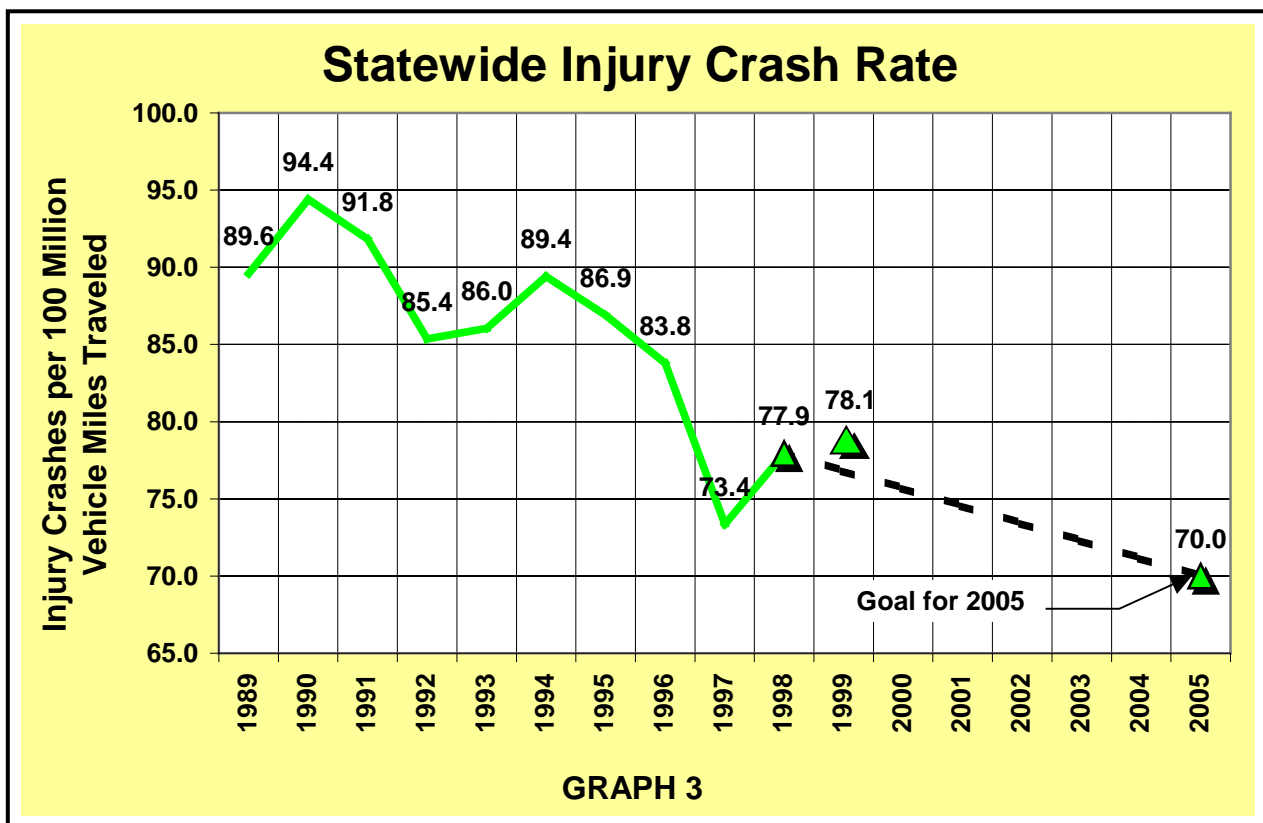
- Statewide safety incident rate including fatal and injury rate

### Purpose

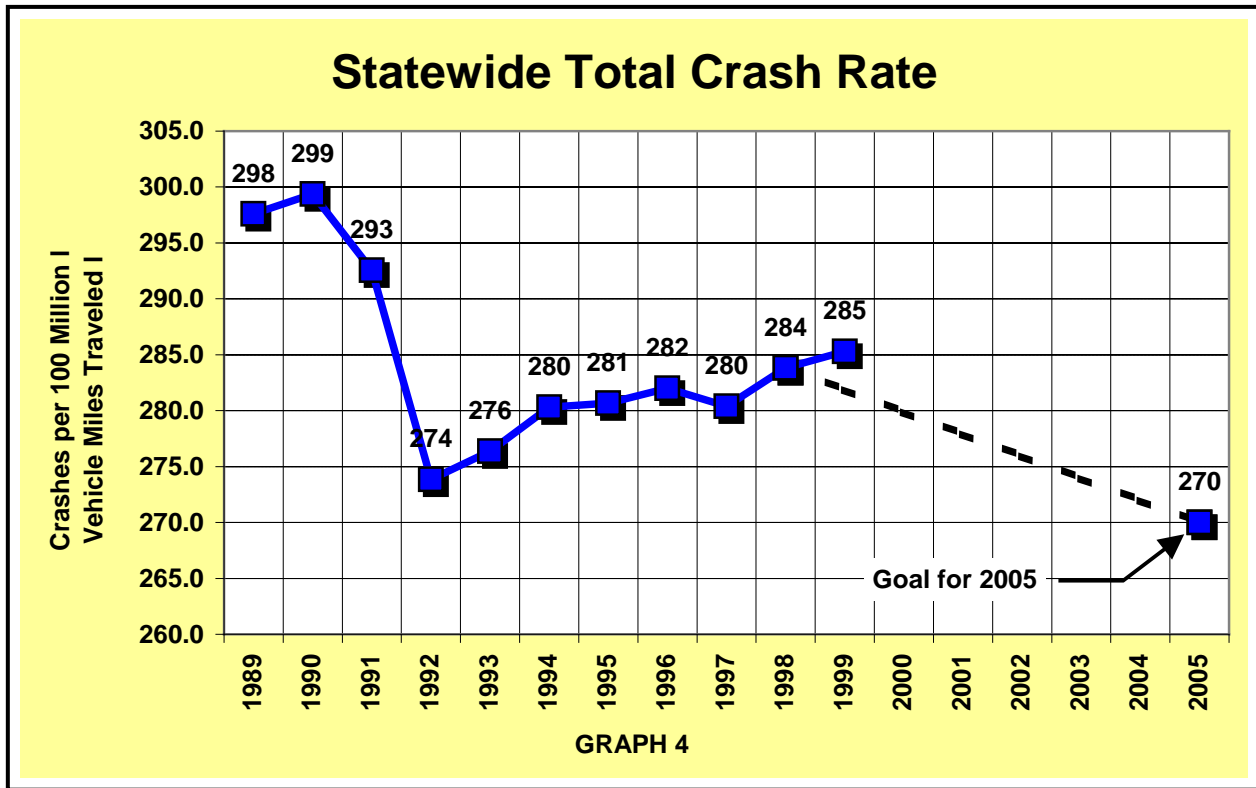
Graphs 3, 4, and 5 show the frequency of injury, crashes and fatalities by year. This information enables CDOT to indirectly determine if their safety investments are having an impact in reducing frequency and severity of crashes.

### Current Condition

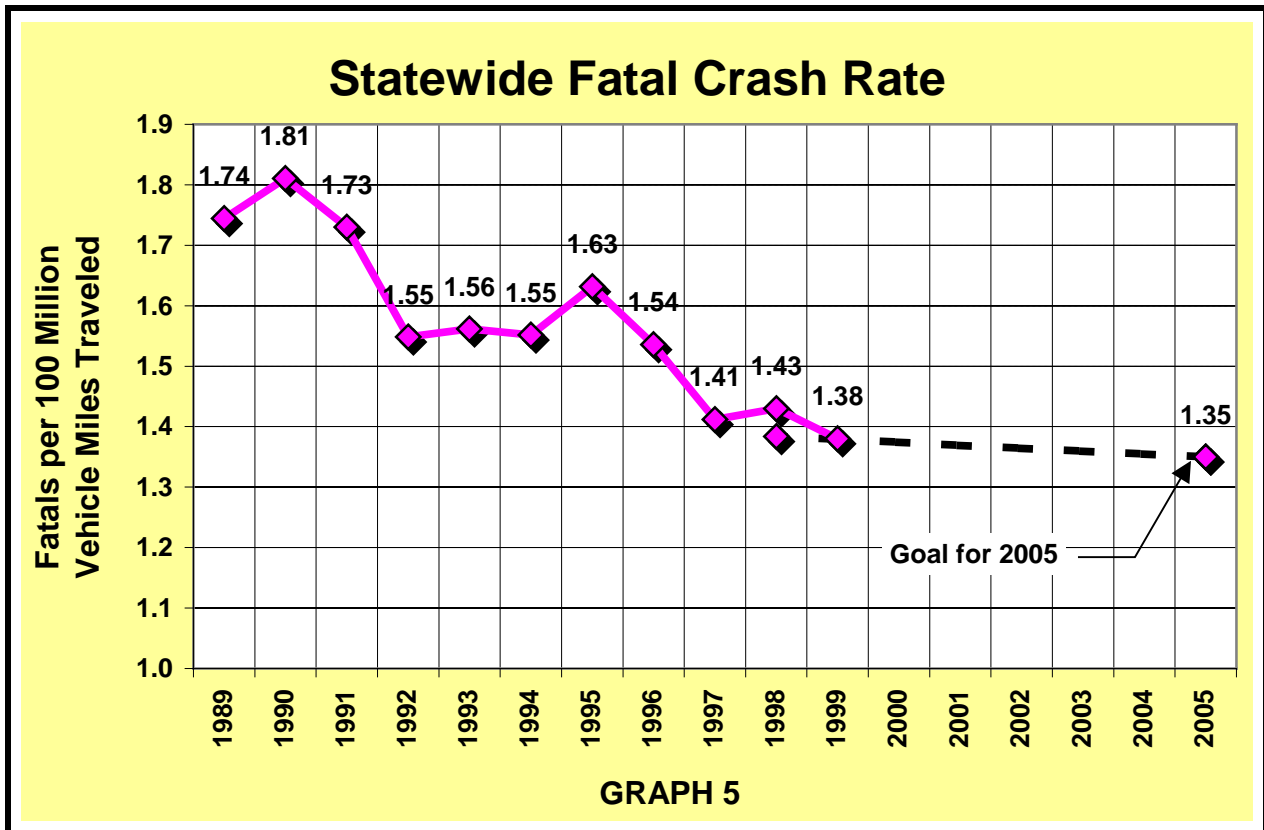
Overall, the frequency of total crashes is steadily rising while the number of fatal crashes has been on a steady decline. The injury crash rate (Graph 3) substantially increased from 1997 to 1998, stabilizing in 1999. The goal of



monitoring total crash rates is to determine how Colorado is progressing in meeting their year 2005 target of reduce crashes to 270 per one hundred million vehicle miles of travel.



Despite the steady rise in total crashes within the state, the rate of fatal crashes is on a decline from 1998. The challenge for CDOT is to determine if their driver behavior programs had any causal influence in this decrease. From this data, the department can begin to plan for and manage aggressively their safety programs moving towards their goal to continue to reduce the fatal crash rate per one hundred million vehicle miles of travel to 1.35 by the year 2005. In 1999 Colorado reached its best fatal rate to total crash rate ratio since the data has been collected of 1.38 per one hundred million miles of vehicle miles traveled as illustrated in Graph 5.



**OBJECTIVE:**

- Promote the education and awareness of safe driving behavior

**Performance Measure**

- Alcohol Related Incidents Compared to Statewide Incident Rate

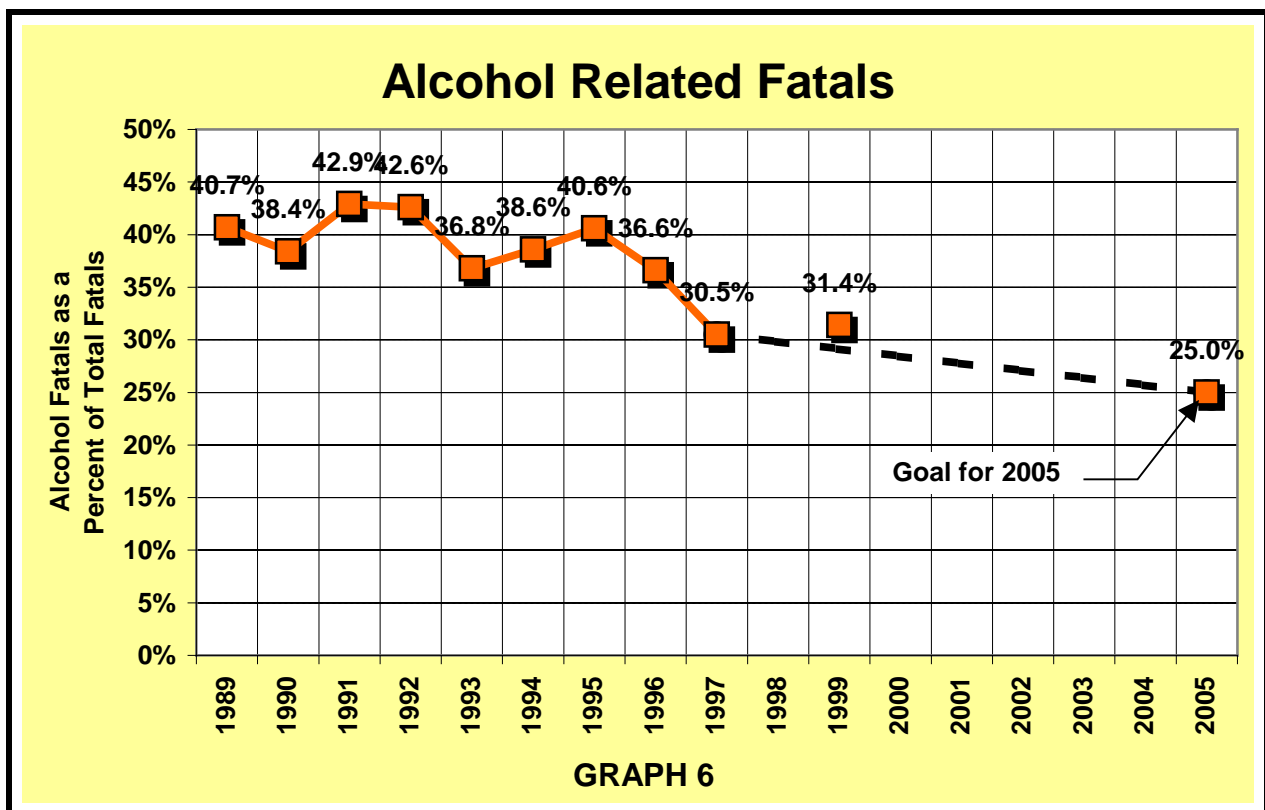
**Purpose**

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 and specifically driving while impaired.

**Current Condition**

Since 1996, the number of alcohol related fatal crashes have improved slightly but still averages about 30% of all fatal crashes.

While monitoring total crashes helps determine the magnitude of problems in safety, differentiating the types of crashes between those that are fatal, alcohol related, lack of seat belt usage or roadway environment can help determine the specific problem. The department's investment focus than can be determined. The maintenance of these crashes will help minimize the loss due to economic and social impacts. Graphs 6 and 7 report the current year results.



**Performance Measure**

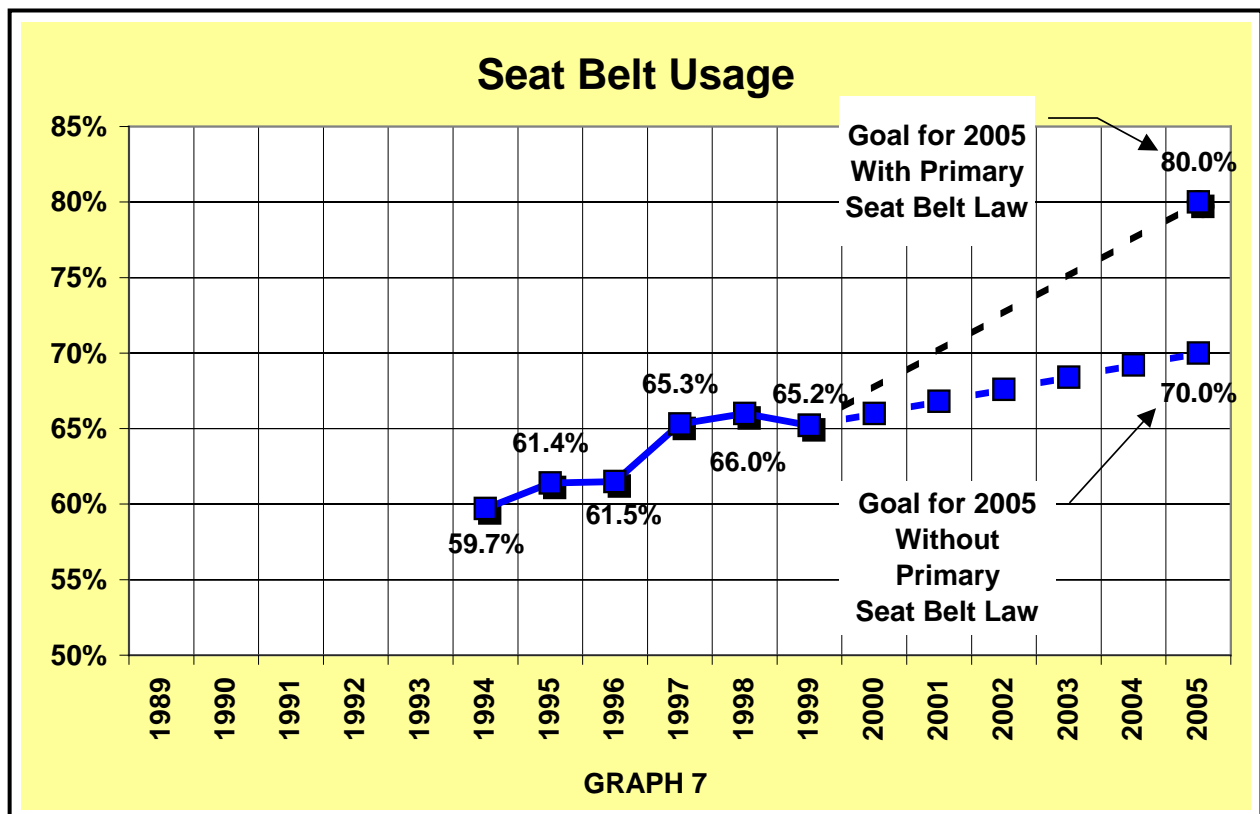
- Incidents Involving Seatbelt Usage Compared to Statewide Incident Rate

**Purpose**

This measure determines what percentage of the general population is adhering to safe driving behavior by wearing their safety belt. The performance of this measure could have an impact on fatalities, injuries and economic loss from crashes incurred.

### Current Condition

In 1999, approximately 65% of the general population used their seat belts. The goal is to increase this to 80% in the year 2005 with the passage of the primary seat belt law, and 70% without the law. From the trend line and statistics from other States that have a primary law, it's projected that Colorado would greatly benefit with a primary seat belt law.



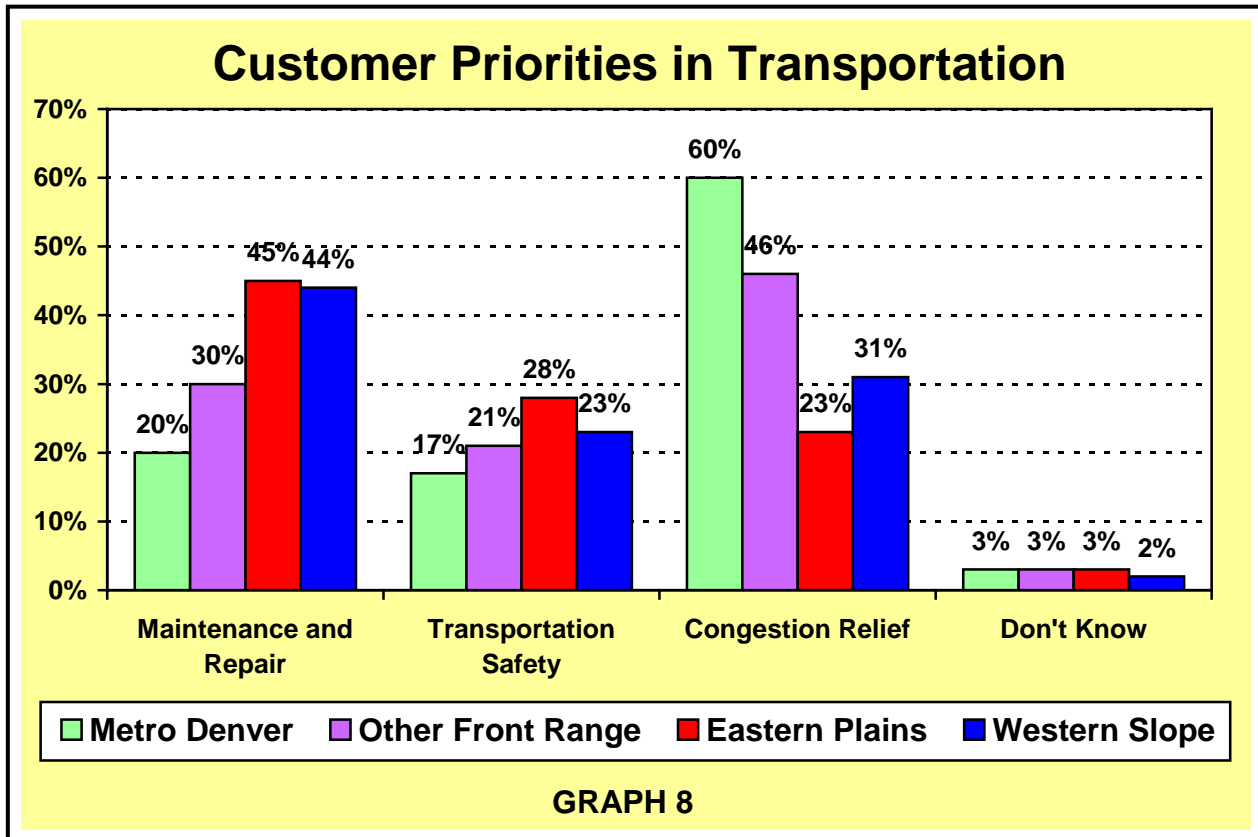
### Customer Perception of Safety

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.

Overall, safety, in the minds of the transportation user, is not the number one or two priority according to the results of the survey. Forty and thirty four percent of the survey participants cited "traffic congestion" and "maintenance and repair" respectively as the most important transportation-related problems in Colorado. The participants residing in the Metro Denver area indicated congestion relief as their highest priority while

participants residing in the Eastern Plains indicated maintenance and repair as a higher priority.

### Safety Program Customer Survey 2000



**Performance Measure**

- Customer perception rating of system safety and driver behavior programs

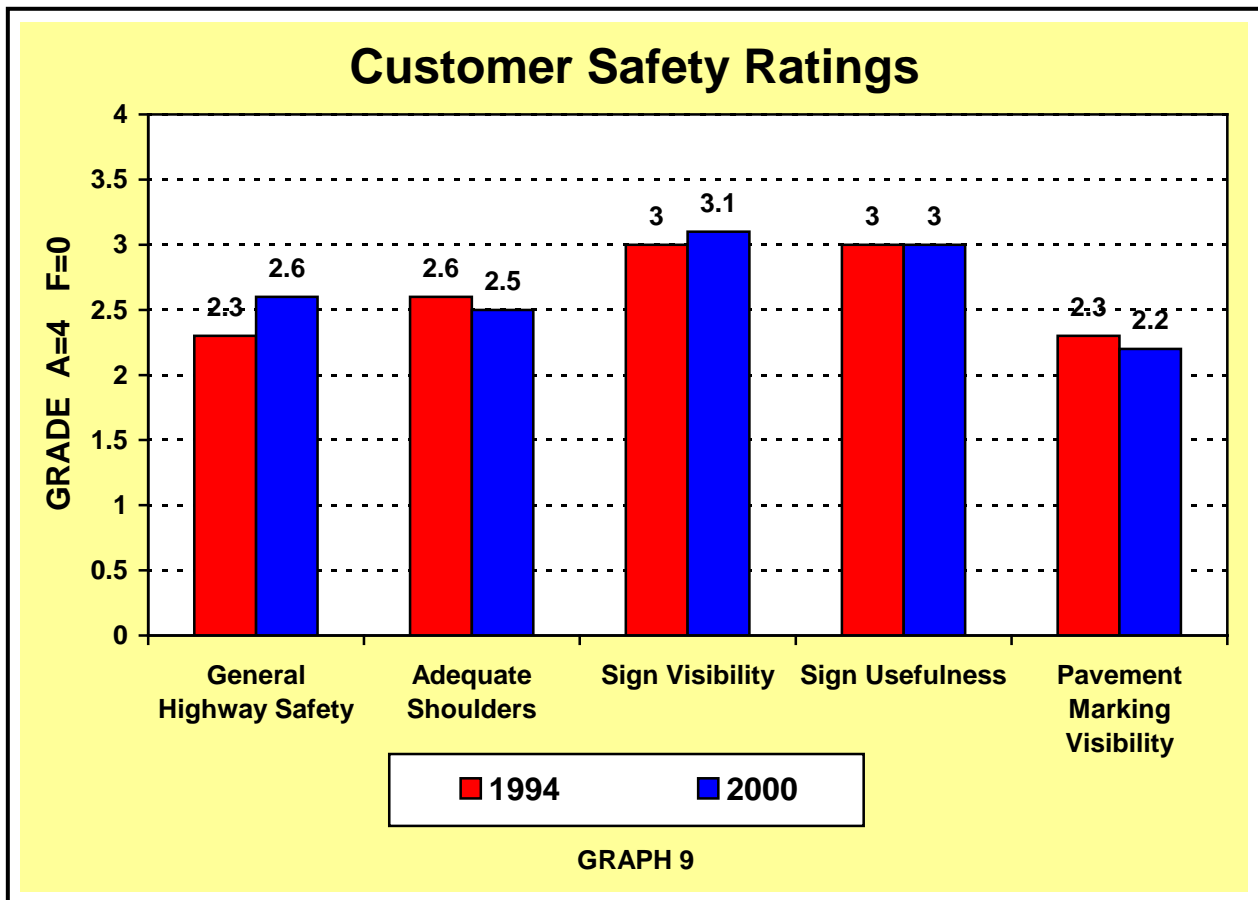
**Purpose**

The purpose of this performance measure is to gauge overall customer perception on what they perceive to be safe or not. This measure will help CDOT determine if their safety improvement projects are perceived as having a positive impact on their customers. With the possible changes within the investment categories over time, gauging customer perception will be the technique used to validate Safety investment decisions.

**Current Condition**

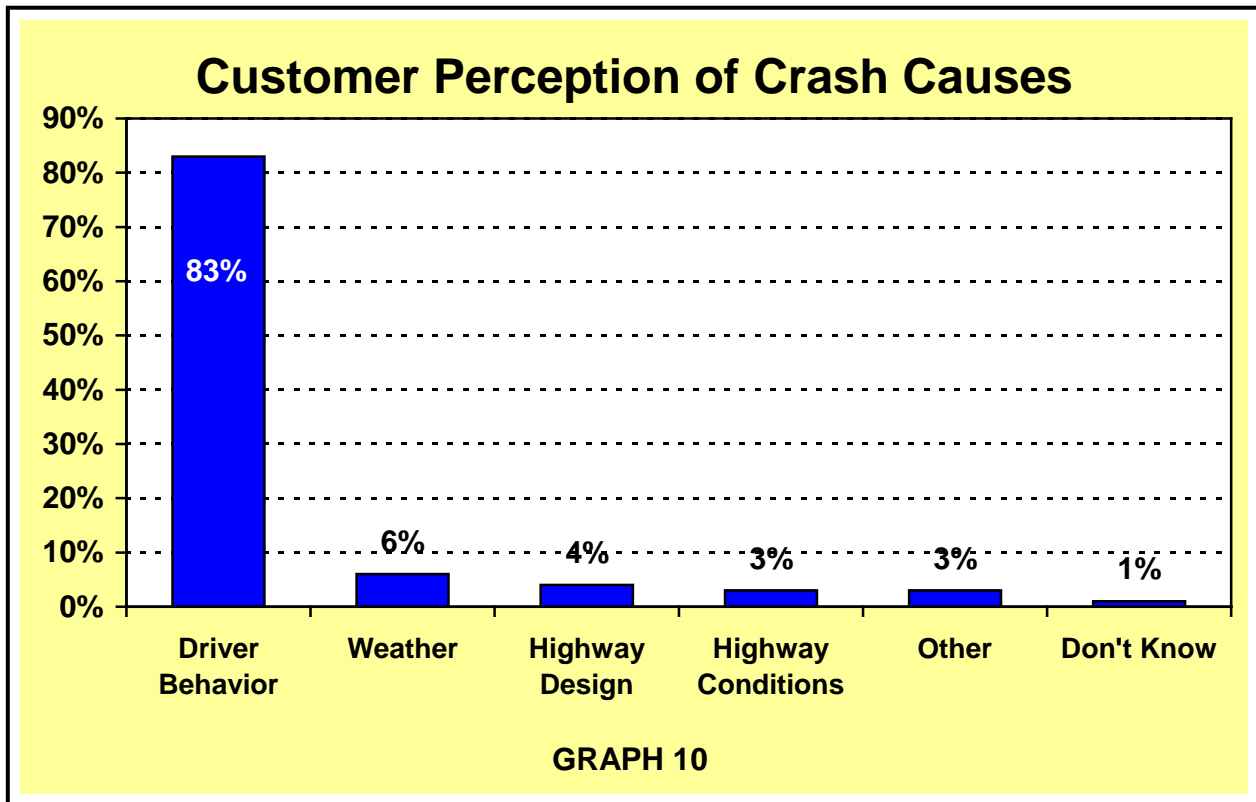
Customers rated transportation safety an overall grade of 2.6 or a C+ on a scale of 4 through 0 or A through F, respectively. As shown in graph 9, there weren't any specific safety areas that demonstrated a significant high or low in customer perception grade.





Rating System: A = 4 B = 3 C = 2 D = 1 F = 0

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



Trade offs within each of these categories were posed to respondents. Overall, intersection safety improvements were more often given a higher priority, but in rural areas improvements such as guardrails and shoulders on rural roads were chosen more often.

Campaigns to reduce aggressive driving were given a higher priority than campaigns increasing the use of safety restraints, or reducing driving under the influence of drugs or alcohol.

**OBJECTIVE:**

- Emphasize applicable safety features consistent with the population growth

***Performance Measure***

- Return on investment for designated improvement sites

***Purpose***

This measure is new this reporting year. It will help determine if safety investment projects are achieving a return on investment.

***Current Condition***

Since this measure is new this year, 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.

***Performance Measure***

- Corridor safety assessment

***Purpose***

This measure is new this reporting year. This will help gauge areas of safety improvements necessary to focus investment decisions.

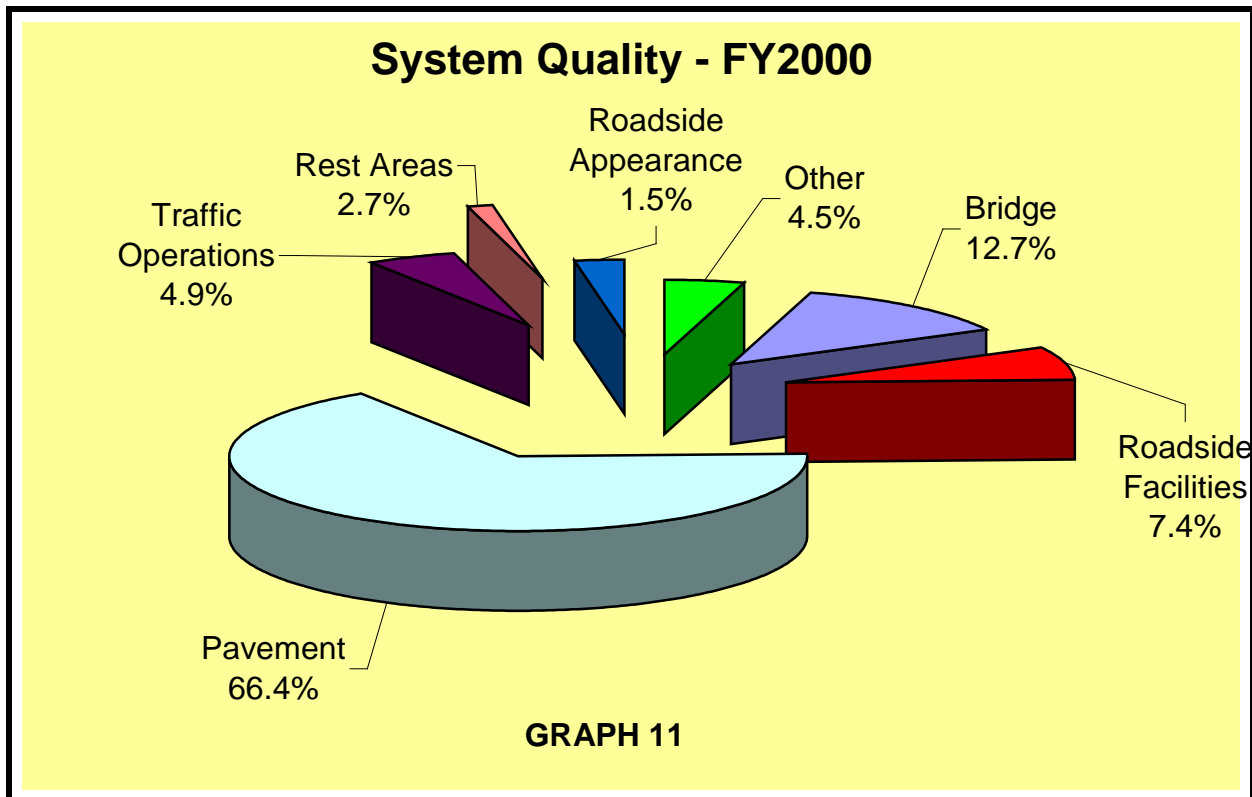
***Current Condition***

Since this measure is new this year, data isn't available in this format. Data will have to be gathered this next year and reported in the next performance report.

## 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 quality of roadways and structures as well as their service life. Like the other investment categories, System Quality is dependent on the interface with other investment categories to ensure the maximum return on investment. The investment Program Areas are: Pavement, Bridge, Roadside Facilities, Traffic Operations, Rest Areas, Roadside Appearance and Other Modes. Based on the fiscal year 2000 Budget Allocations, CDOT allocates approximately \$401 million, which is 42.2 % of the total budget, to System Quality programs, services and projects.



## 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 Measure*

- 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 condition of this transportation system infrastructure directly impacts the performance of other investment categories such as the level of safety and mobility performance as well as customer perception of these.

### *Current Condition*

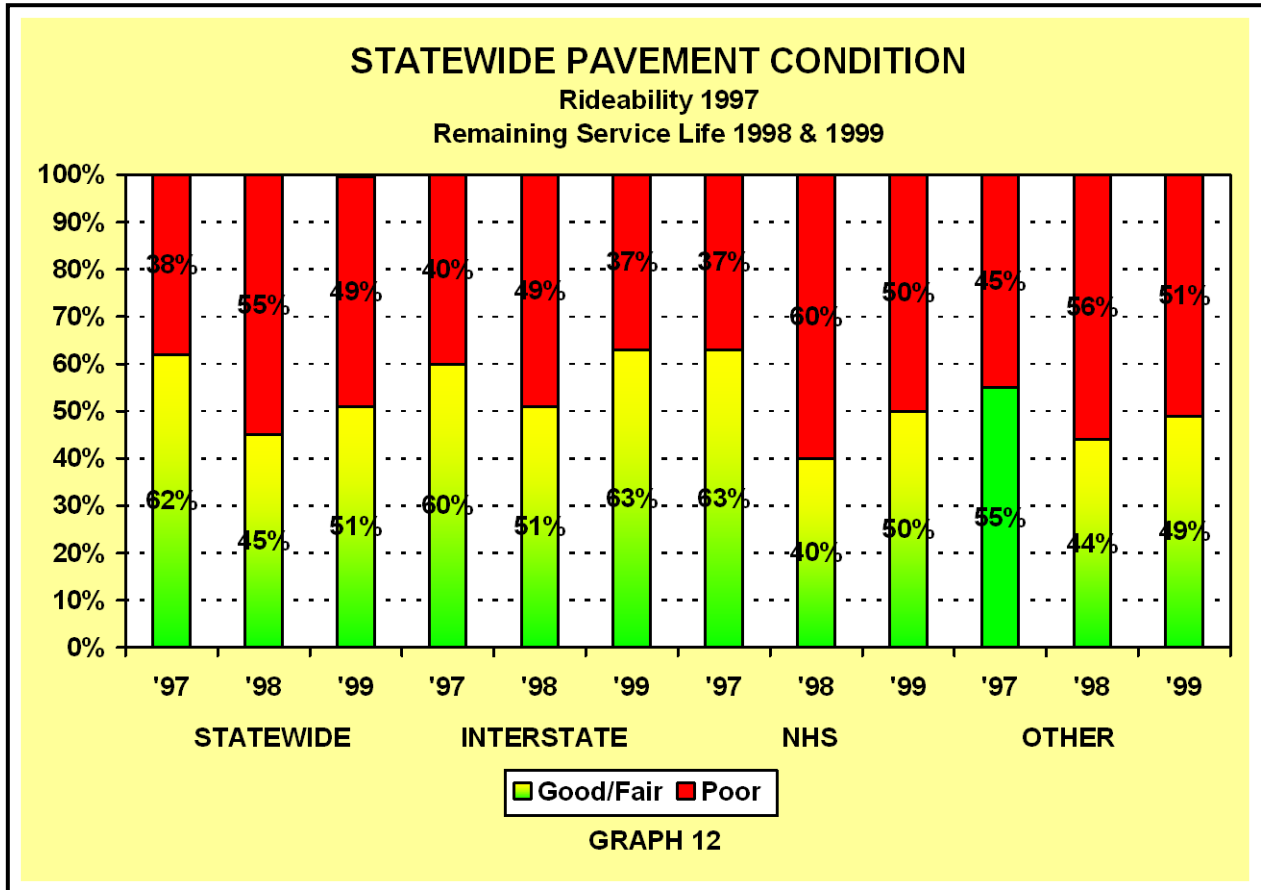
Consistent with the departments' investment strategy direction, the output of the Pavement Management System is focused on actual Remaining Service Life (RSL) rather than Ride-ability conditions.

**The following are the adopted targets for the roadway system.**

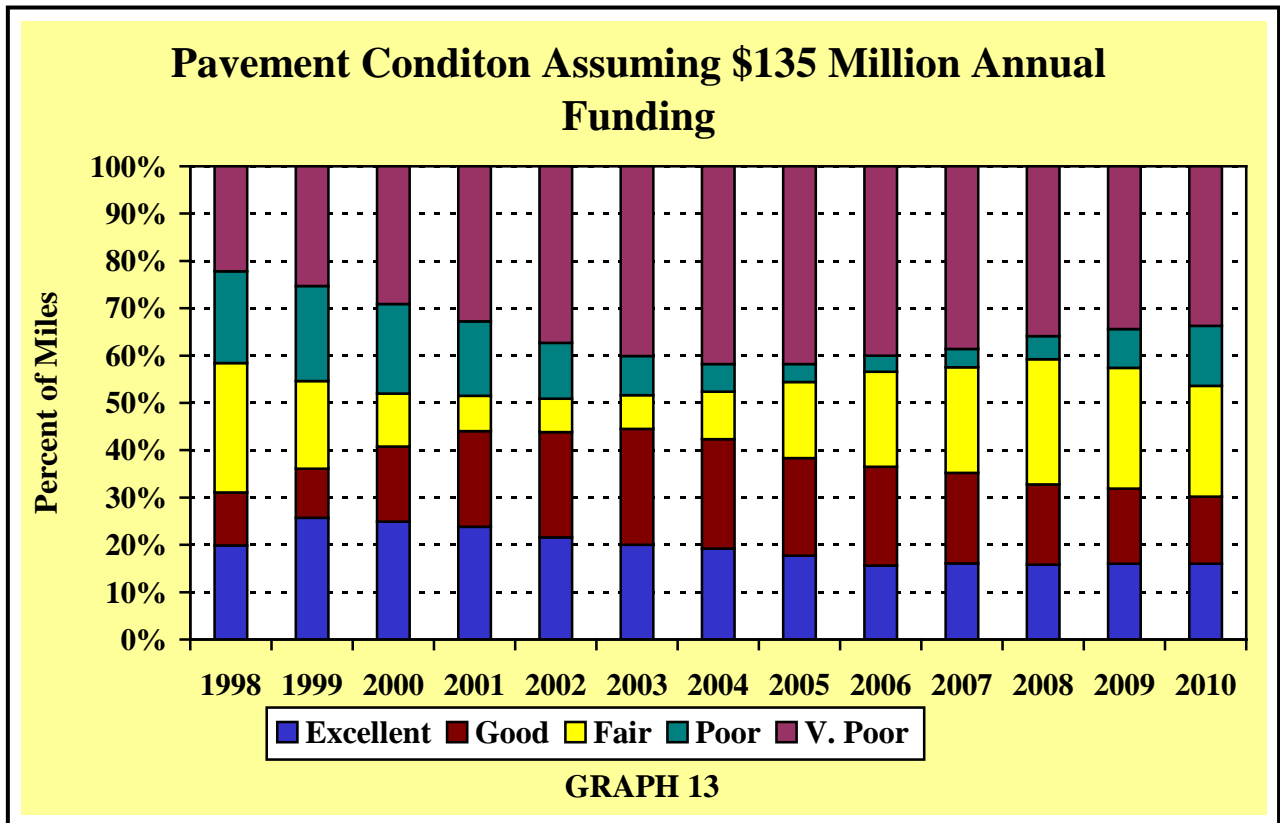
<b>Total System</b>	<b>60% in Good or Fair Condition</b>
<b>Interstate System</b>	<b>85% in Good or Fair Condition</b>
<b>National Hwy. System</b>	<b>70% in Good or Fair Condition</b>
<b>Other State Hwys.</b>	<b>55% in Good or Fair Condition</b>
<b>Table 1</b>	

Colorado's state roadways pavement condition rating is reflected in graph 12. The graph illustrates 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 ride-ability 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 % Good/Fair Statewide overall pavement condition on Interstates, NHS, and other state highways. Graph 13 indicates that with the current \$135 million dollars annual investment, the Good/Fair pavement condition increases every year from 2002 to 2008 towards the objective. However the pavement condition decreases again after 2008.



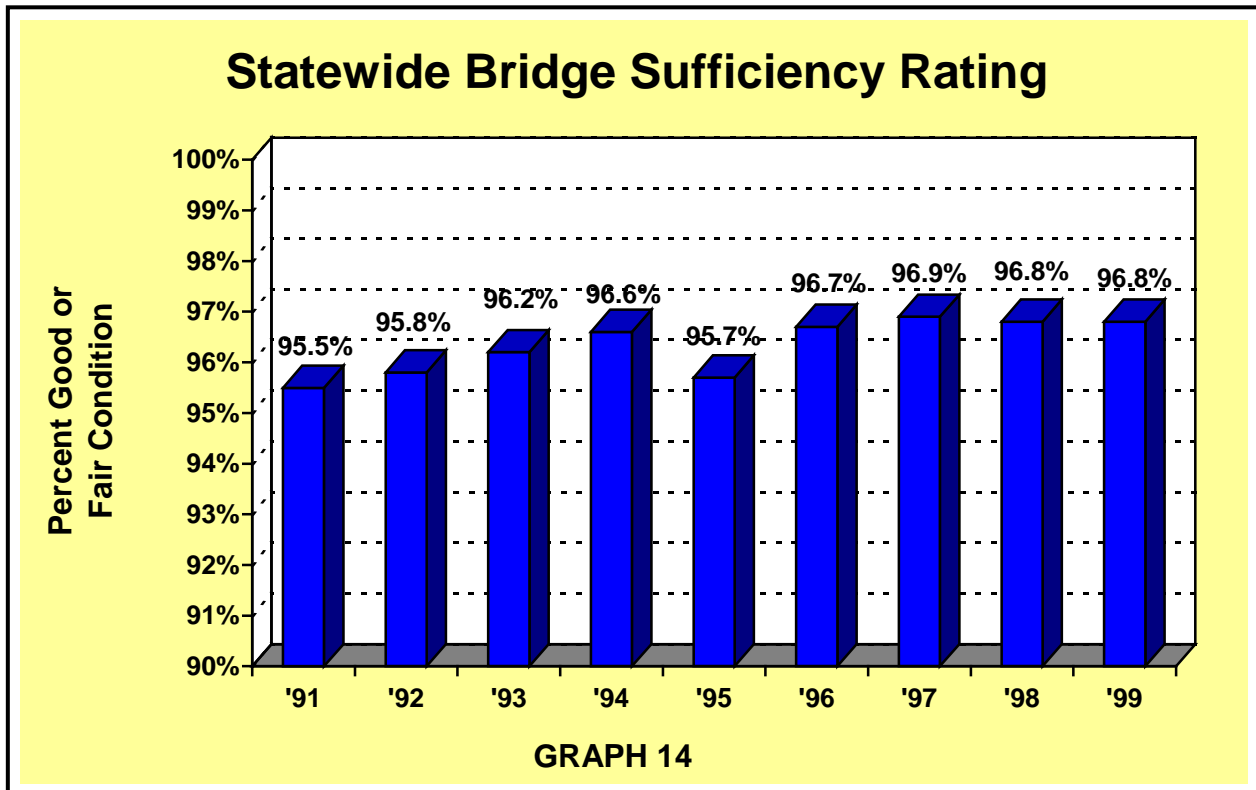
**Current condition – Bridges**

The bridge sufficiency rating for 1999 indicates insignificant increases in both bridges rated good and poor while bridges at the fair level decreased slightly sustaining the overall percent of bridges at good or fair condition rating at 96.8%.

	1991	1992	1993	1994	1995	1996	1997	1998	1999
<b>Good</b>	3,226	3,242	3,249	3,277	3,060	3,098	3,082	3,122	3,154
<b>Fair</b>	242	261	284	285	477	497	496	470	447
<b>Poor</b>	162	153	138	127	158	123	114	117	120
<b>Total</b>	3,630	3,656	3,671	3,689	3,695	3,718	3,692	3,709	3,721

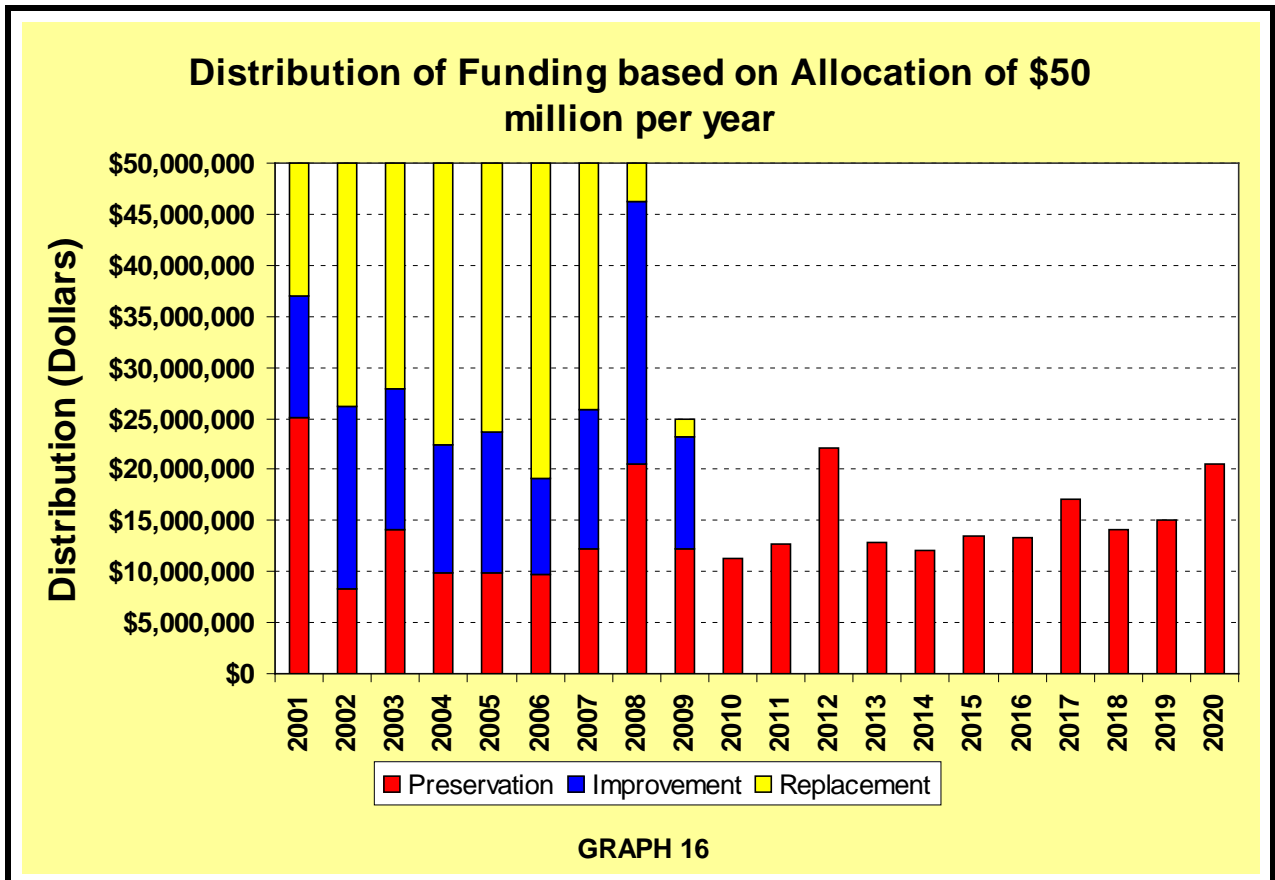
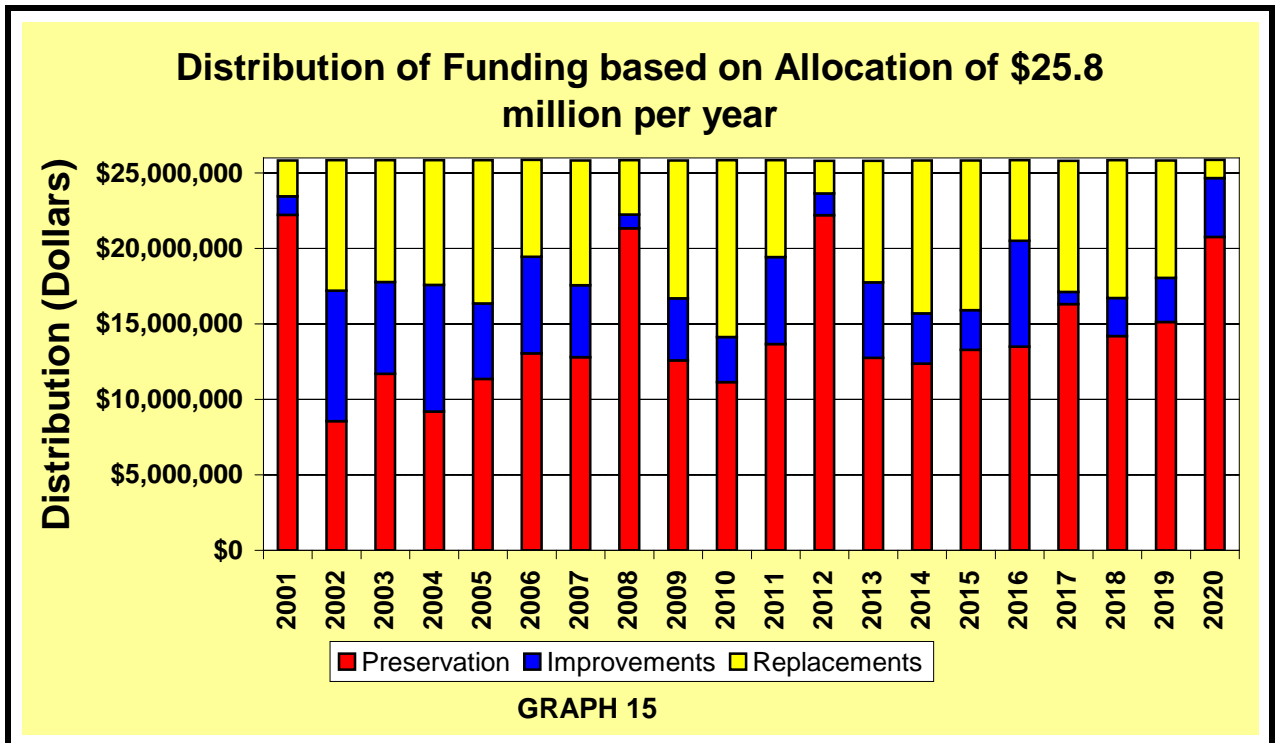
**Table 2**

Good = Structural Sufficiency Rating > 80  
Fair = Structural Sufficiency Rating > 50 but < 80 (Functionally deficient)  
Poor = Structural Sufficiency Rating < 50 (Structurally deficient)



The next two graphs demonstrate different levels of bridge condition impacts and focus with different funding support using a current funding level of \$25.8 million per year and a \$50 million per year over a 20 year timeframe. The graphs also demonstrate the shift in investment focus from improvement to preservation based on the level of investment. The goal is to retain consistent funding against the bridge sufficiency needs in order to preserve the bridge infrastructure and minimize cost impacts due to deferred improvement work. Each funding scenario demonstrates at what point the transition goes from improvements to preservation.





## 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 Maintenance Levels of Service represent performance accountability at the tools & service level for 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; Road Surface; Roadside Facilities; Roadside Appearance; Traffic; Structures; Snow & Ice Control; Equipment, Building & Grounds; 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.

### **OBJECTIVES:**

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

### ***Performance Measure***

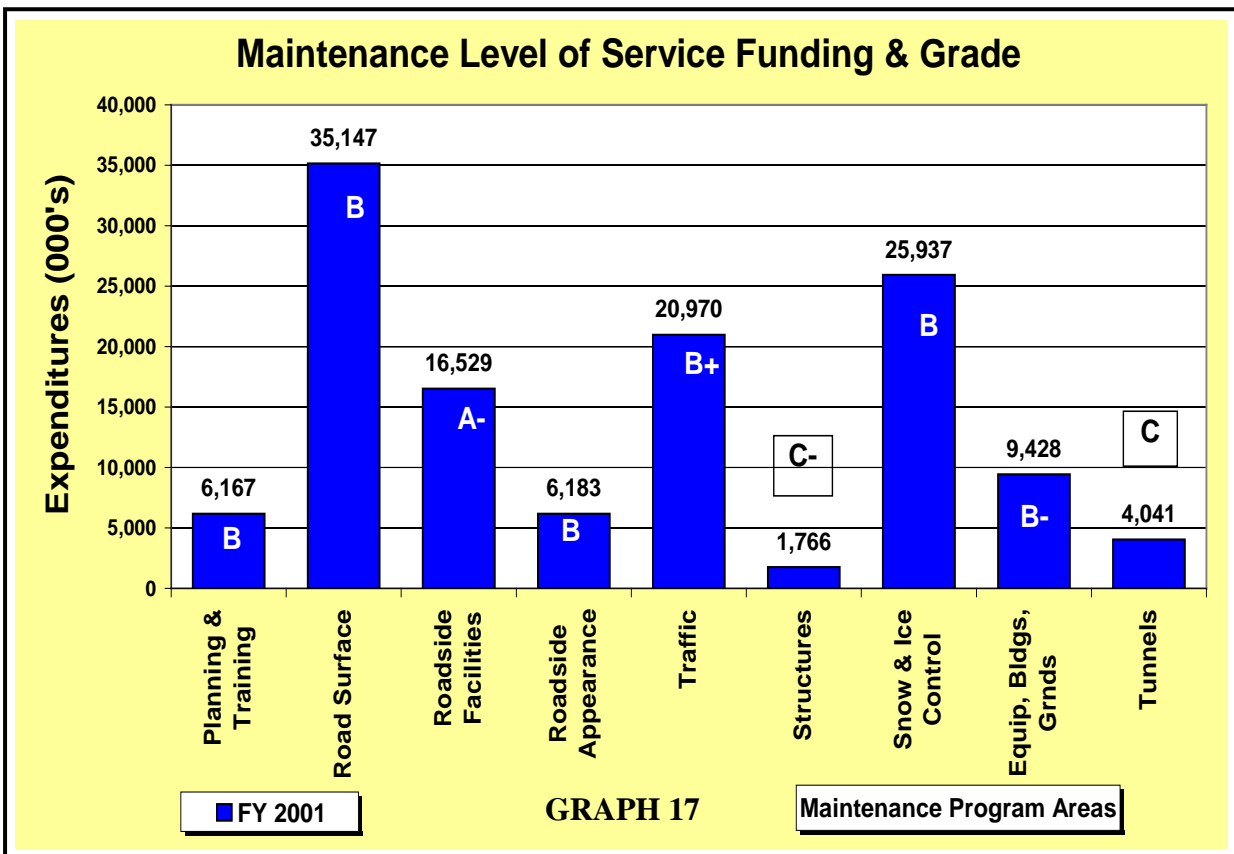
- Maintenance Condition Survey

### ***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 constant from the 1999 MLOS since improvements in service levels weren't anticipated for several years. There was a slight improvement in Structures from a D+ grade in 1999 to a current C- grade.



**OBJECTIVE:**

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

**Performance Measure**

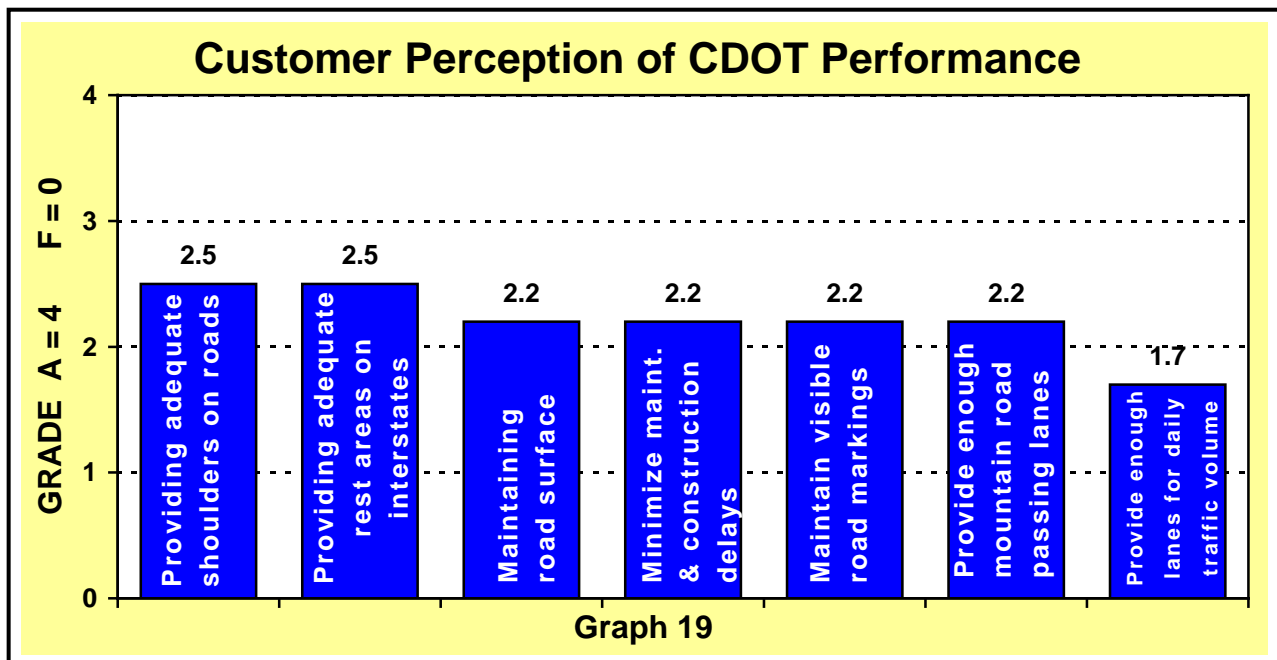
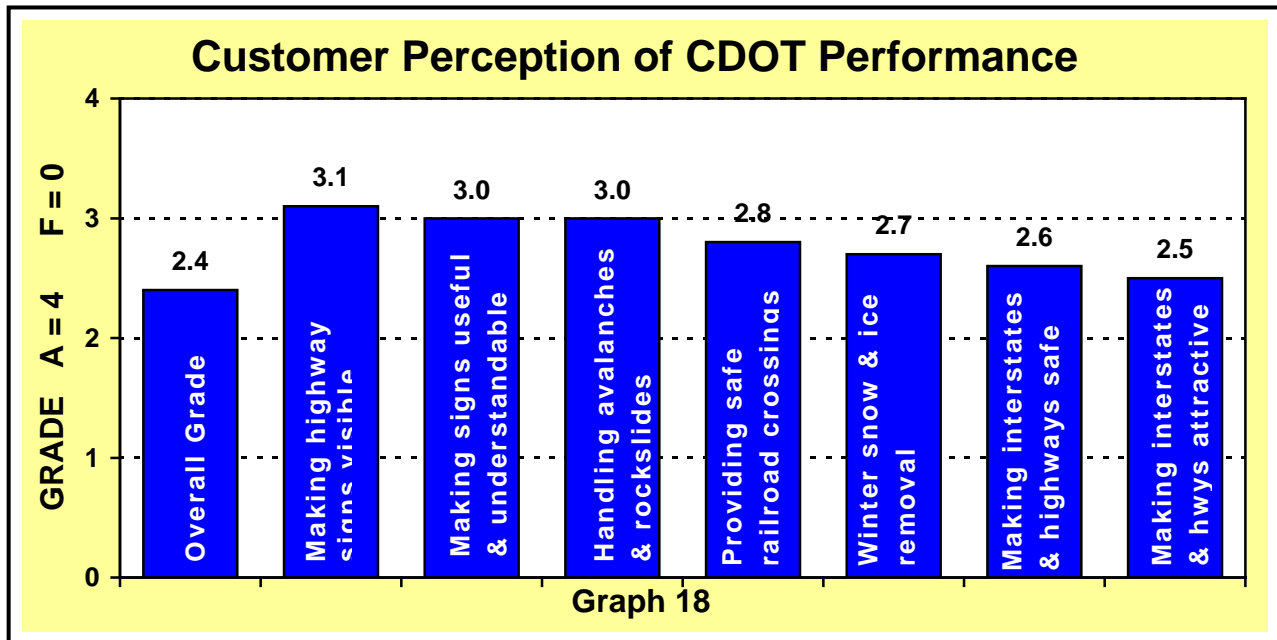
- Return on investment for Quality of Life Sites
- Customer Perception of CDOT Performance

**Purpose**

The collective measures over time will help CDOT understand if their investments are providing value and benefit in meeting the departments goals as well as meeting customer expectations.

**Current Condition**

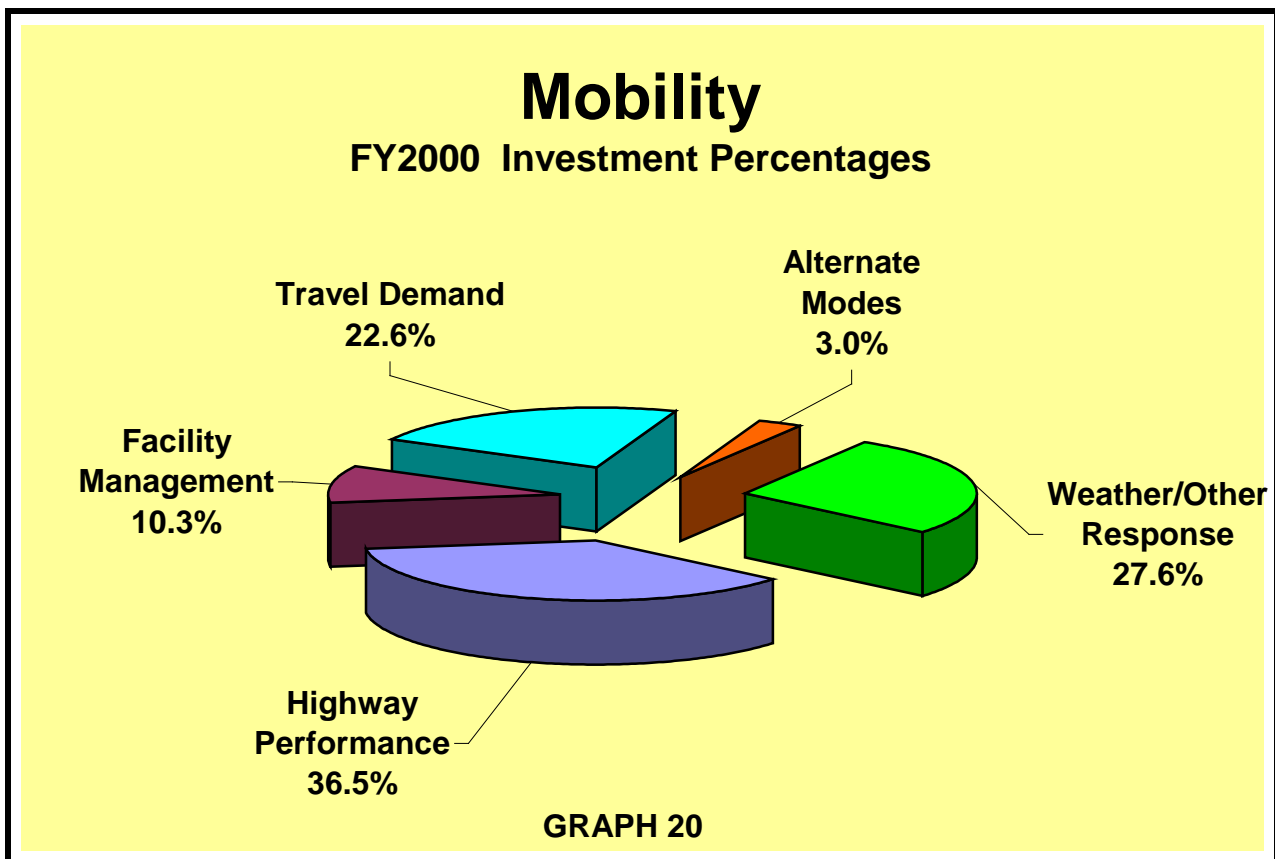
The Customer Perception of CDOT Performance is quantified in a report of the statewide survey conducted in early 2000. The state was divided into four different demographic areas to correlate with the 1994 survey. The results from the "Opinion Survey on Transportation Issues in Colorado" by residents scored CDOT's overall performance at "C." Average ratings of specific aspects of services provided by CDOT ranged from the mid to high "B" level down to the "D" level. Compared to other local government transportation services, CDOT's score is average. However, 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 and overall infrastructure management. CDOT allocated for Fiscal Year 2000 over \$109 million, which is 11.5 % 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

### OBJECTIVE:

- 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 Motor Vehicle Emissions
- 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.

## **Colorado's Congested Roadways**

A national survey showed that in more than 30 of the nation's largest metropolitan areas, traffic congestion has more than tripled in the past 16 years. The cost of congestion now totals \$72 billion.<sup>1</sup> Congestion and management of it has become fast one of the higher priorities within transportation. CDOT will continue to conduct annual evaluations of roadways with a volume-to-capacity ratio of  $> .85$ . These roadways are identified in red on a statewide map, page 32.

### **Roadway Congestion Index/Travel Rate Index**

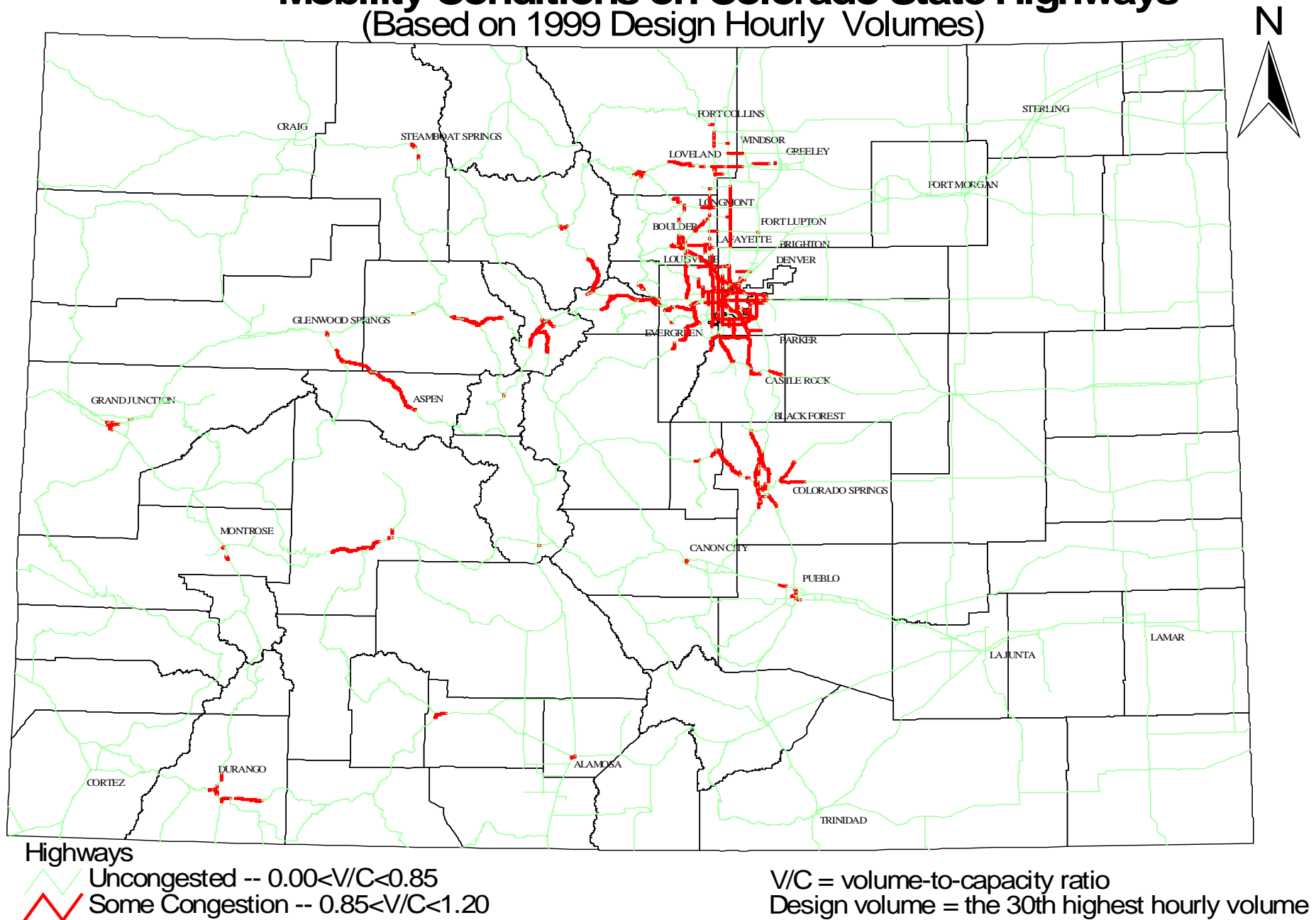
The Texas Transportation Institute (TTI) is considered one of the foremost authorities on roadway congestion. Each year they produce an Urban Mobility Study in an effort to monitor travel conditions in major urban areas of the United States.<sup>2</sup> Using a process that defines urban areas by population size into small, medium and large, the TTI gathers data that demonstrates congestion levels by comparison. Since the next Urban Mobility Study is not currently available the data included in the following Roadway Congestion Index (RCI) Trends and the Travel Rate Index (TRI) Trends remain the same as in the 1999 Performance Report. Once the release of new RCI and TRI data, the charts will be updated. As noted in the 1999 report, Denver's congestion values have been increasing since 1997. Colorado Springs and Boulder demonstrate a similar increase in their congestion and maintain very close RCI values. Congestion continues to retain the highest priority of concern in each of the regions within the state as one of the top five transportation concerns. To address this problem, CDOT has focused on improved mobility and increase travel reliability as investment strategy goals.

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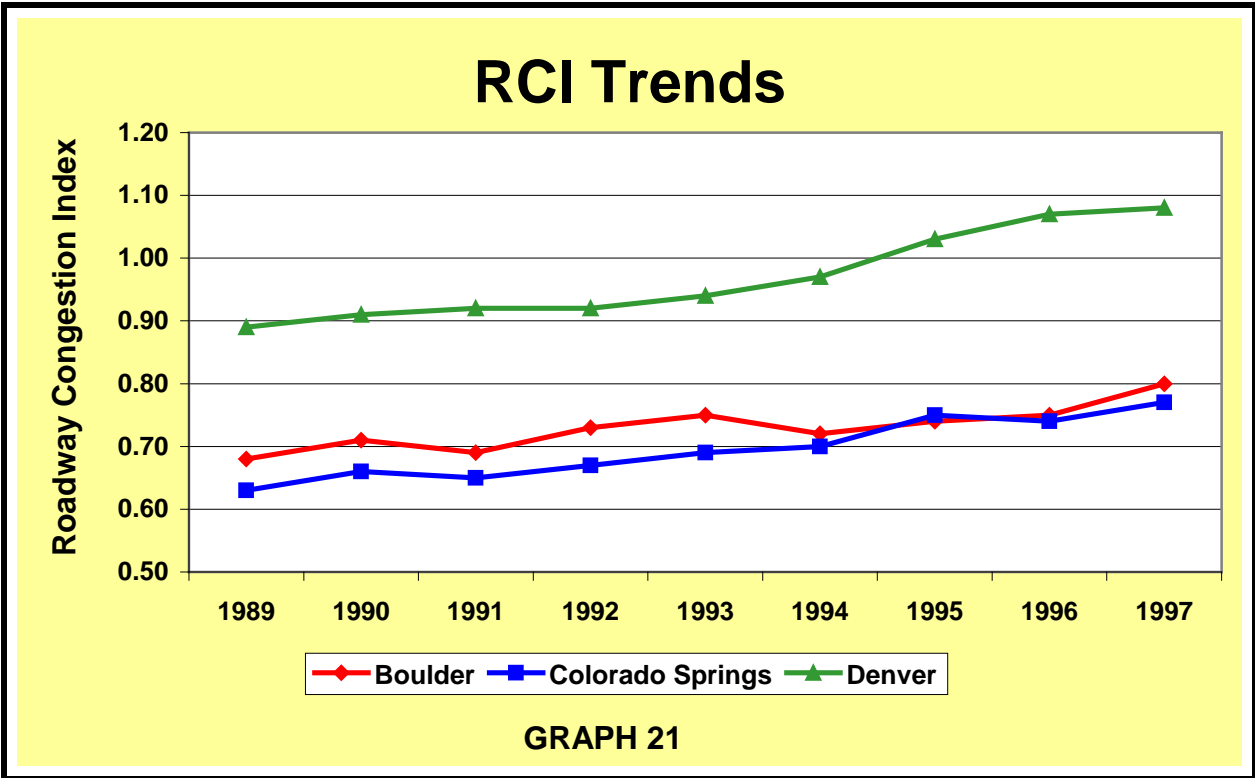
<sup>1</sup> U.S. Transportation Secretary Slater, Outlines Administration Efforts To Improve Mobility, Relieve Congestion, News Release, Wednesday, November 17, 1999

<sup>2</sup> The next Urban Mobility Study is schedule for completion in April 2001

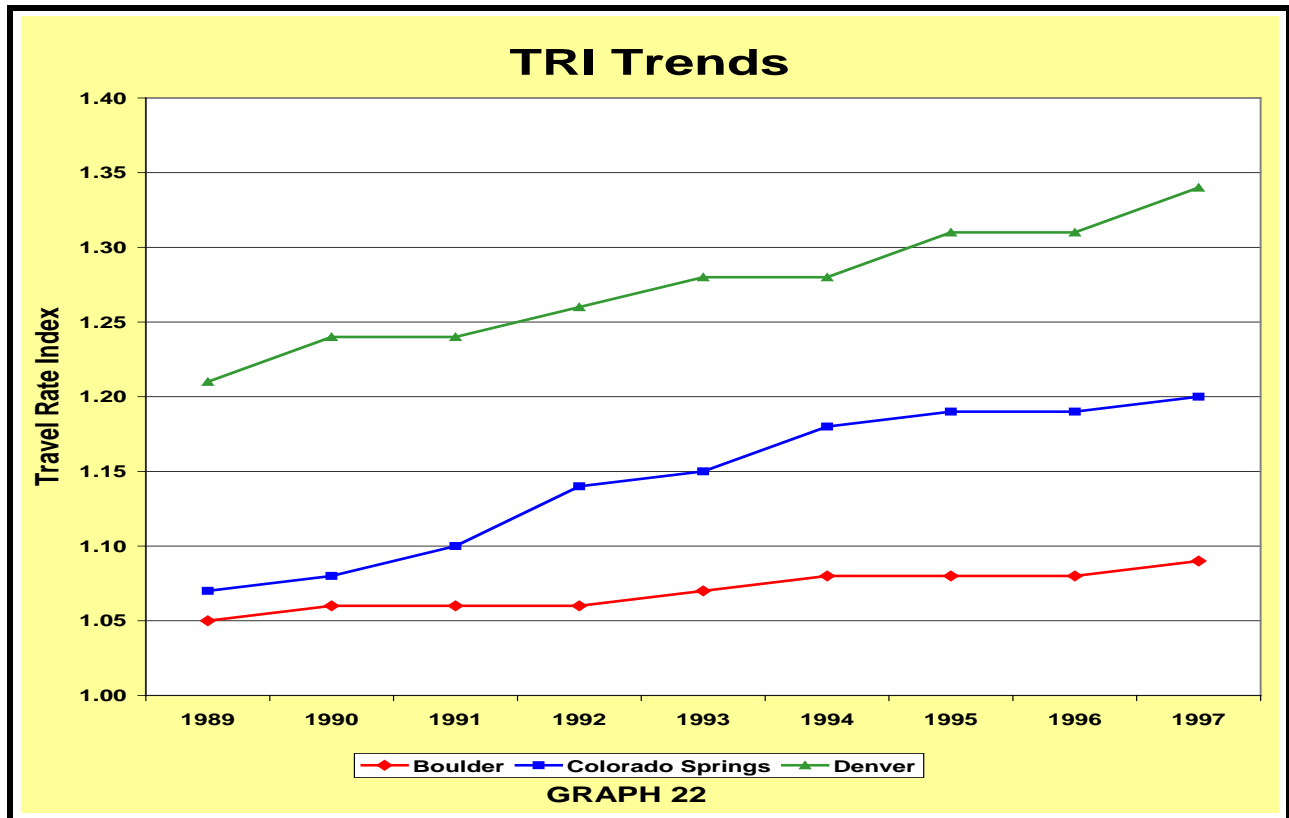
# Mobility Conditions on Colorado State Highways (Based on 1999 Design Hourly Volumes)







The Travel Rate Index (TRI) measures the impact of travel in congested conditions against uncongested condition and is mode neutral. The longer it takes to travel during congested periods, the higher the travel rate index. Because this is the same data reported in the 1999 Performance Report, the TRI remains the same with new data to be reported by TTI in April of 2001. As the trend demonstrates, each year travel during congested periods continues to take longer than during free-flow periods. CDOT has begun monitoring several major corridors to gather data on travel delays and congestion specific to those areas that will assist in the analysis and investment strategies to mitigate congestion. Once this monitoring and analysis is established, CDOT will have the techniques and processes in place to expand their observation to other congested corridors throughout the state.

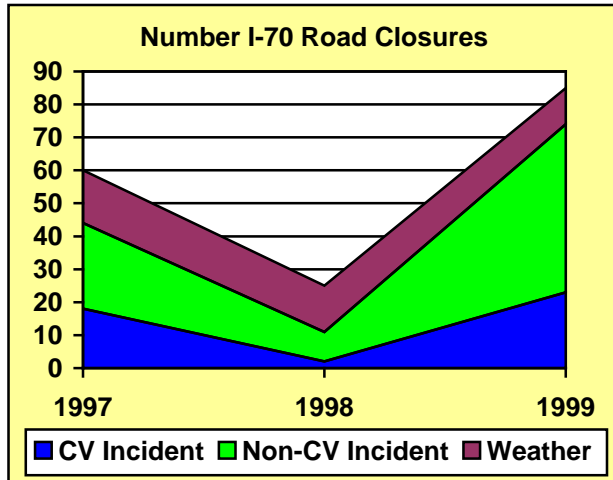


### Number of Road Closures by Closure Type

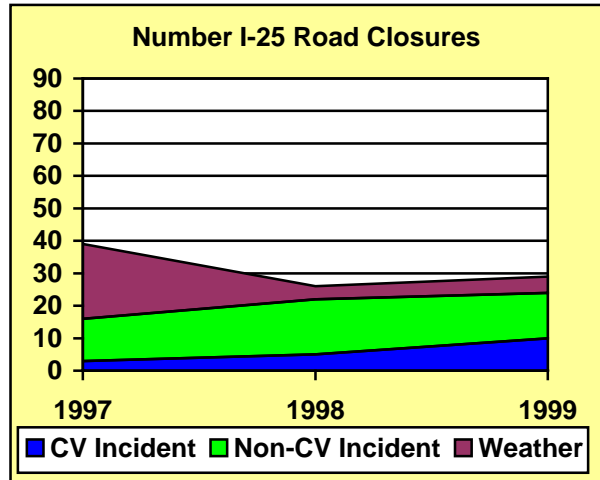
Road closures hamper travel and increase motorist frustrations. The difficulty is managing road closures around a volatile environment where incidents and weather have unmanageable factors. The graphs on page 35 show the number of road closures on I-70 and I-25, two of the busiest interstates in the state for 1997 through 1999. The most significant change in road closures appears on I-70. From 1997 to 1998, road closures decreased from 60 to only 36. From 1998 to 1999, the number of road closures increased from 36 to 85, a significant increase. This was primarily due to a 70% increase in non-commercial vehicle incidents.

Road closures on I-25 increased only slightly from 27 in 1998 to around 30 in 1999. Like, I-70, the increase is associated with an increase in traffic incidents, both commercial and non-commercial vehicle.

The lack of 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.



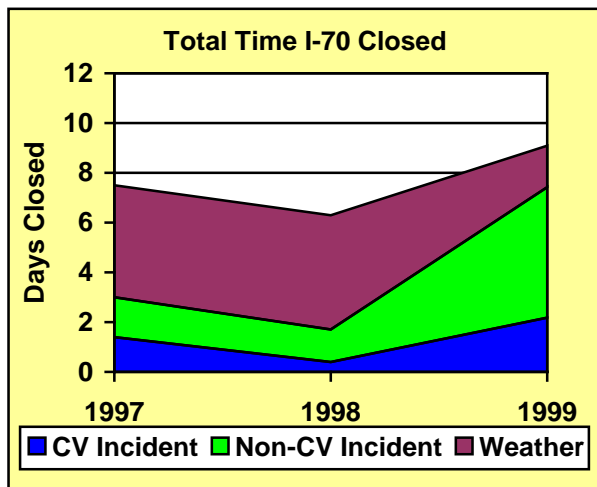
GRAPH 23a



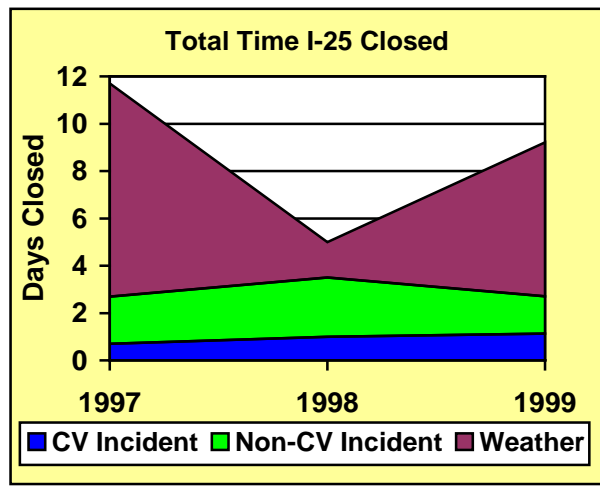
GRAPH 23b

### Duration of Road Closures

While the number of road closures connotes the frequency of I-70 and I-25 road closures, this measure connotes the severity of these closures. On I-70, the total duration of closures increased from the 6.2 days in 1998 to 9 days in 1999. Non-commercial vehicle incidents caused the duration of closures rising from 2 days in 1998 to 9 days in 1999. Weather incidents actually decreased in 1999. While weather contributed little to the duration of closures on I-70, it had a major impact on the duration of closures on I-25. The duration increased from 5 days in 1998 to over 9 days in 1999. Relying solely on the data, it may appear that CDOT is more efficient in responding to weather incidents on I-70 and less so on I-25. What isn't clear is the differences of handling weather incidents in rural areas versus metropolitan areas 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 conditions rather than performance issues.



GRAPH 24a



GRAPH 24b

## 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. For Fiscal Year 2000, CDOT allocated approximately \$301 million to complete the Strategic 28 Projects.

### STRATEGIC PROJECTS GOALS

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

### OBJECTIVE:

- 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:

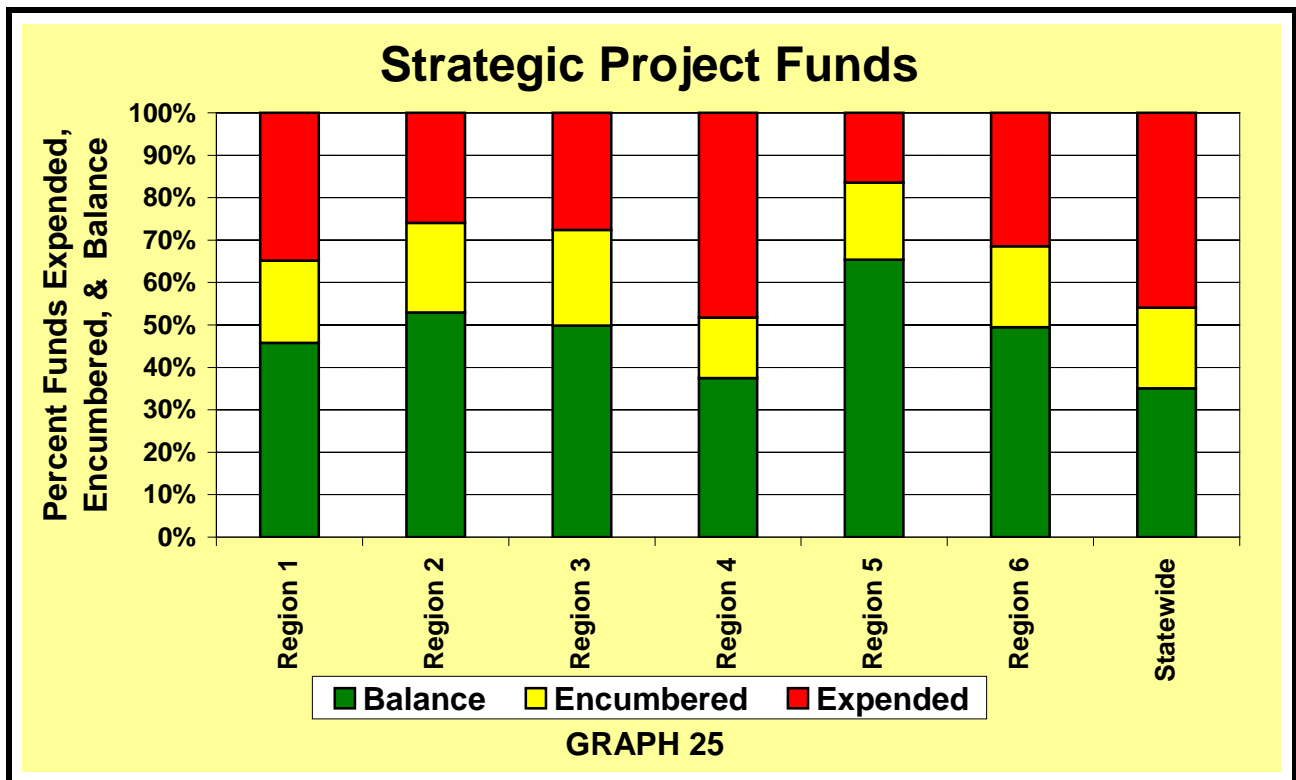
- Actual Funds Encumbered Versus Total Encumbrance Planned by Program
- Actual Funds Expended Versus Planned reported on a quarterly and yearly basis
- Percent Ad Dates Met On-Time, Within 30 Days, 60 days, or beyond 60 days
- Days to Complete Payment Processing and Billing Compared to Indenture and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

**Purpose:**

The combined efforts of the Strategic Projects 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, 75% or 21 projects have expended and encumbered their project dollars 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, thereby rendering a sense of managed control. 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.



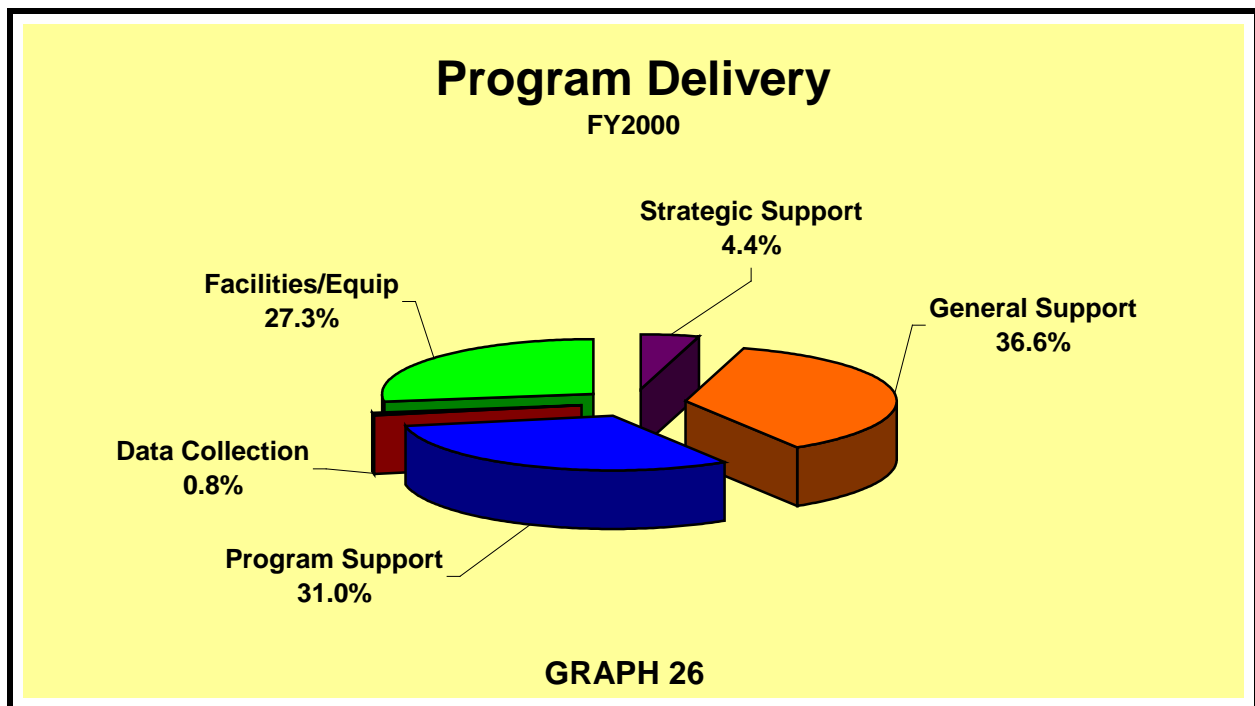
Another key performance measure for this investment category is Percent Ad Dates Met On-Time, Within 30 Days, 60 days, or beyond 60 days. This measure is shared with the Program Delivery investment category at the Program Support Level. While funds encumbered monitors how strategic projects utilize funds, 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. For Fiscal Year 2000, CDOT allocated approximately \$79.7 million to disburse in five program areas.

- 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.



## 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

### OBJECTIVE:

- 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
- Identify innovative HR solutions that maximize existing resources to meet business needs
- Create public confidence in department accountability
- Incorporate education in project development & implementation
- Develop planning processes that enhance future project development
- Design projects that are not barriers to alternative modes
- Maintain a viable service industry to create a competitive environment
- Create an environment that fosters high employee productivity

### ***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 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 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

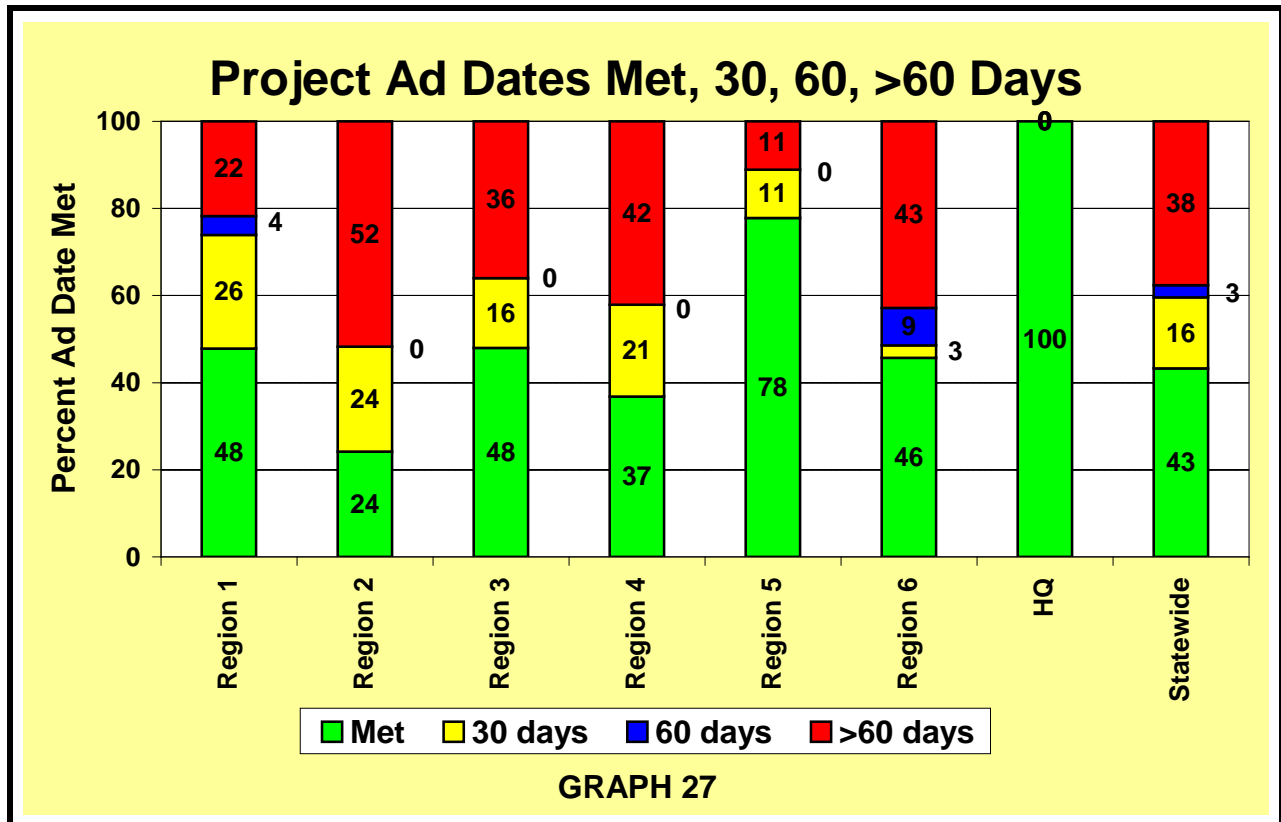
***Purpose:***

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 within planned timeframes. The measures balance the need to fiscally manage the resources while ensuring high caliber product delivery and customer service.

***Current Condition:***

A key driver in meeting both the Strategic Projects and Program Delivery Investment Category performance goals is gauging how well project advertisement dates (Ad dates) are being met. The department is meeting approximately 43% of their Ad dates. However, 38% of project Ad dates are more than 60 days beyond Ad dates. For each delayed day, project timelines are impacted as well as the ability to manage allocated resources. 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. 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 in improvement.





## CDOT Employee Turnover Rate

### OBJECTIVE:

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

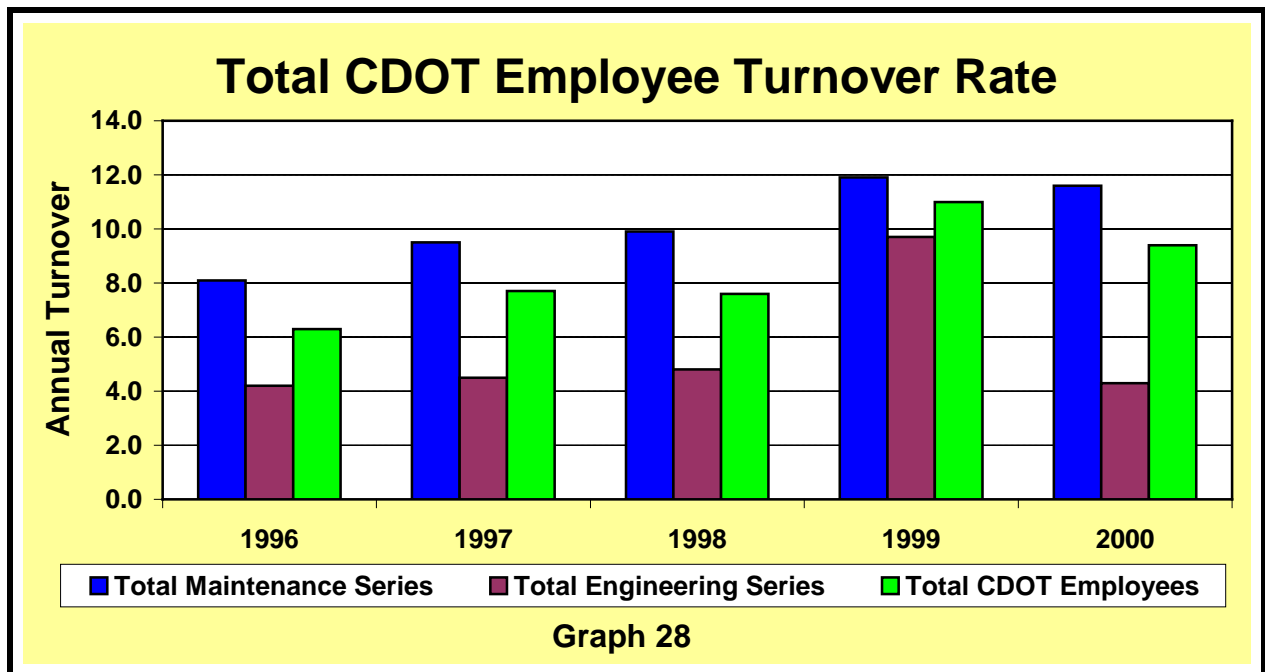
### Performance Measures:

- Average employee turnover rate per year per job class
- Employee satisfaction survey rating regarding management support, tools, resources, and training

There are two types of employee turnover, voluntary (separation) and involuntary (termination or being fired). Turnover is also differentiated between short-term and long-term employees. Short-term employees are new hires and generally have less organizational investment while long-term employees have gained experience, training and institutional knowledge. While the loss of short term employees may occur more frequently, they have less impact to the organization. On the other hand, long-term employee turnover disrupts the organization, taking with them their training, skills, experience, productivity and their social bonds that help other employees come to work.

Over the past several years, CDOT's employee turnover rate has been around 8%. Steadily increasing maintenance employee turnover rate has contributed the majority to this overall turnover rate. While maintenance turnover remains somewhat steady and high, turnovers in the engineering positions have dramatically decreased from over 9% in 1999 to less than 5% in 2000. The primary cause can be attributed to a high level of retirements in engineering positions in 1999 and in maintenance positions in 1997. Turnover of long term employees has a significant impact on the organization.

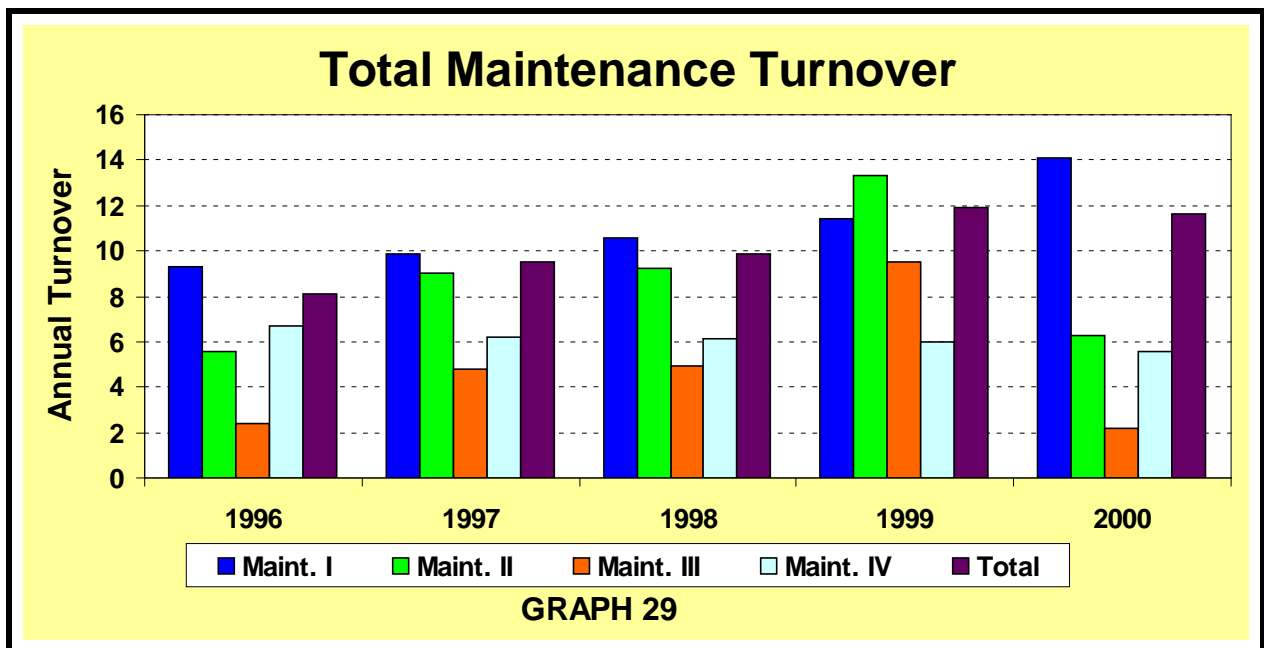
The challenge for CDOT in their investment strategy is to anticipate and prepare the organization to meet increased workload demands with a volatile workforce. Turnover is inevitable in any organization. Instead of focusing on the turnover, CDOT needs to foster an environment that creates a destination for employment. According to a recent study <sup>3</sup>, employee turnover is influenced by commitment to the organization. The study states that an organization that has a clear vision and strong leadership and where employees are a part of helping customers resolve problems creates a sense of commitment and loyalty. Organization planning and communication for the future, rates second as the most important factor influencing employee turnover. In an effort to accomplish the aforementioned factors, CDOT's direction is to focus attention on the program delivery investment strategies. CDOT has built a strong foundation of organizational alignment and support for serving their customers. The continued concentration on the goals and objectives and the development of the program delivery investment level performance measures should enable supporting data for short and long-term investment decisions and the impact to the organization.



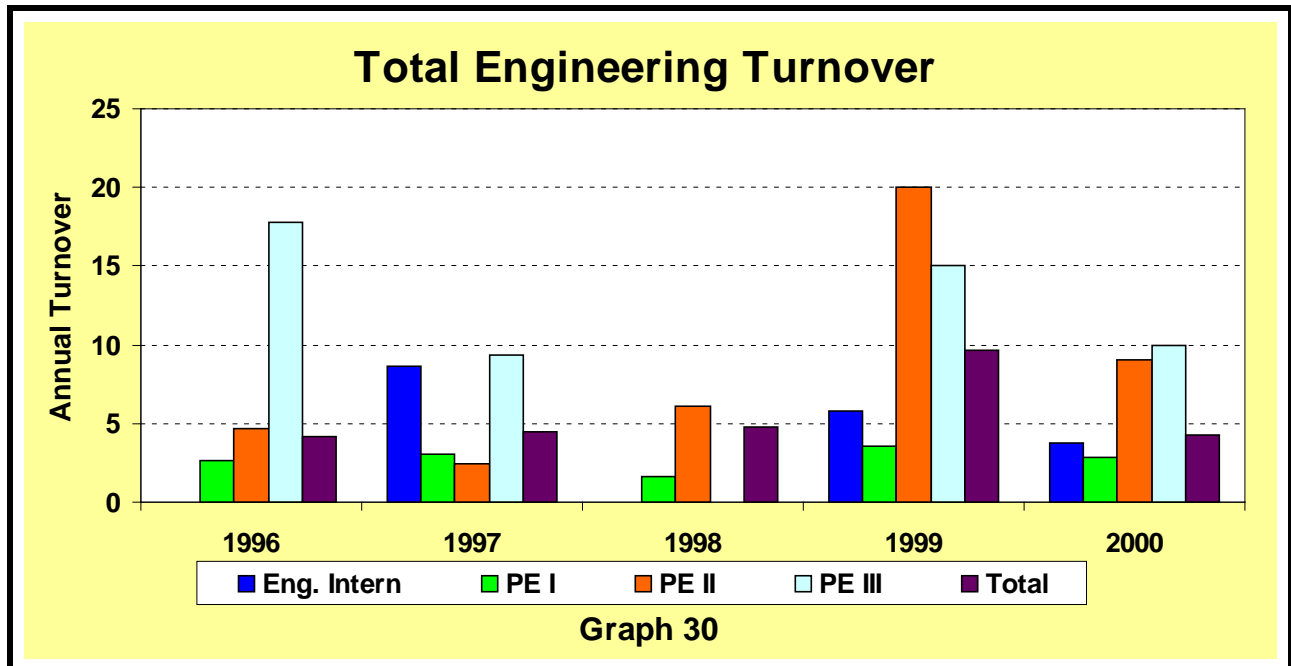
<sup>3</sup> Baverndam Research Incorporated-Special Report, Vol.3 "How Do You Manager Turnover."

**NOTE: In Graphs 27, 28, and 29 - 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)**

According to the most recent data, employee turnover continues to steadily increase for the Maintenance I positions. This is where the short-term voluntary resignations probably occur the most frequently. Generally these positions are in the lower salary scales of the organization requiring a very competitive environment for a competitive employee pool base. Because the maintenance personnel comprises over a third of CDOT's workforce, the increased turnovers, if not managed, can create a transient organizational environment. Furthermore this turnover can minimize the level of camaraderie necessary for the social well being of an organization.



Overall, employee turnover in the engineering positions remains fairly low (Graph 30). However, there was a high fluctuation in the PE II positions from 20% in 1999 to 9% in 2000. As noted above, CDOT experienced a high rate of retirements within this time period. The impact to the organization can create voids of institutional knowledge and experience if not managed properly. CDOT has begun an aggressive succession planning process that will help prepare for these types of transitions. This next year should position CDOT to track and monitor organizational readiness for turnovers.



## Next Steps Within the Investment Strategy Cycle

### Strategy:

- Assess opportunities to provide better 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 and to customers and stakeholders

## CDOT FY 2000 Performance Report

- Check and validate support with necessary levels of management
- Continue the development of performance measures throughout the department

### **Implementation:**

- 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 and provide feedback as appropriate
- 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

## **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 built