Moving the First State Forward

Policy Plan 2010

DELAWARE LONG RANGE TRANSPORTATION PLAN

Delaware Department of Transportation

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State of Delaware

DEPARTMENT OF TRANSPORTATION

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SECRETARY

STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
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October 2010

Dear Delawareans:

After working with many of you to develop this Statewide Long-Range Transportation Plan, I'm very pleased to present the final document for your information.

I would like to thank everyone who contributed to this process or who communicated with the Delaware Department of Transportation (DelDOT) during the update. Your input has helped us formulate a plan that we believe reflects the interests and challenges of Delaware's residents and workers.

Throughout the process, we have also worked hard to ensure that the plan contributes to Governor Markell's Strategies for State Policies and Spending initiatives. We know that transportation has a big impact on livability in many ways: we need to get to work or school safely, maintain our air quality, preserve our property values, and have access to economic opportunity.

To address all these issues, the plan charts the long-term course and reflects the opportunities and challenges that the future will bring for the Department of Transportation. As you read the Plan, you will see four guiding principles that we will use to help guide our decisions on the construction and operation of the state's transportation network.

1. **System Preservation**: Direct DelDOT programs, services, and facilities to focus on safety, maintenance and optimization of the existing transportation system.
2. **Development**: Coordinate land use and transportation in a manner that promotes long-term transportation efficiency.
3. **Travel Opportunities and Choices**: Promote expansion of a variety of travel opportunities.
4. **Cost-Effectiveness**: Making use of existing resources and exploring reasonable alternatives to achieve the same objectives more cost-effectively.

The process of completing the plan may be over, but your interest remains important to its successful implementation. We welcome your continuing participation as we move forward together to create a transportation system that will benefit all of us who live and work in Delaware.

Sincerely,

Carolann Wicks

Carolann Wicks
Secretary

DelDOT

Moving the First State Forward

Delaware's Statewide Long-Range Transportation Plan

livability ❖ mobility ❖ accessibility ❖ walkability

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Introduction

Transportation investment choices made today will have a great affect upon the future.

The Delaware Department of Transportation (DelDOT) is responsible for planning, designing, building and managing Delaware's statewide transportation system. ***Moving the First State Forward*** is Delaware's Statewide Long-Range Transportation Plan (LRTP) that establishes a vision and policy structure, analyzes trends and sets forth innovative strategies to address transportation needs, provides a framework for directing investments and identifies financial resources to sustain the plan's vision to achieving the Department's mission.

DelDOT's mission is to provide a safe, efficient and environmentally sensitive transportation network that offers a variety of convenient and cost-effective choices for the movement of people and goods.

Plan Purpose

The Statewide Long-Range Transportation plan provides a 20-year view of the principles, policies, actions and performance measures that will shape future transportation investments in the state. This plan envisions a statewide transportation network that reflects the ideas and strategies of the state government's Statewide *Strategies for Policies and Spending* report *(referred to as the Better Delaware Initiative)* and new policies and initiatives of the current administration. This plan:

- Serves as a strategic planning tool for the state to chart the course of transportation for the next 20 years.
- Builds upon the 2002 update and provides a fresh look at statistics, programs and policies.
- Establishes a framework to implement strategies that continue to move toward the goals of the Better Delaware Initiative.
- Provides the basis for guiding long term capital investment for transportation planning and decision-making.
- Fulfills Federal reporting and planning requirements.
- Reaffirms the Department's commitment to provide for the transportation needs by implementing policies, programs and strategies that fulfill our mission.

The plan provides methods for improving services to travelers as well as means of measuring the quality of the service DelDOT provides. The plan outlines priorities matched with planned resources for particular project opportunities. This plan also addresses Federal requirements considering SAFETEA-LU elements and performance measures.

The multi-modal transportation system managed by DelDOT affects the lives of Delawareans every day.

Highways

Pedestrians & Bicycles

Bridges

Water Transport

Commuter Rail Service

Transit

Aviation

Planning Process & Vision

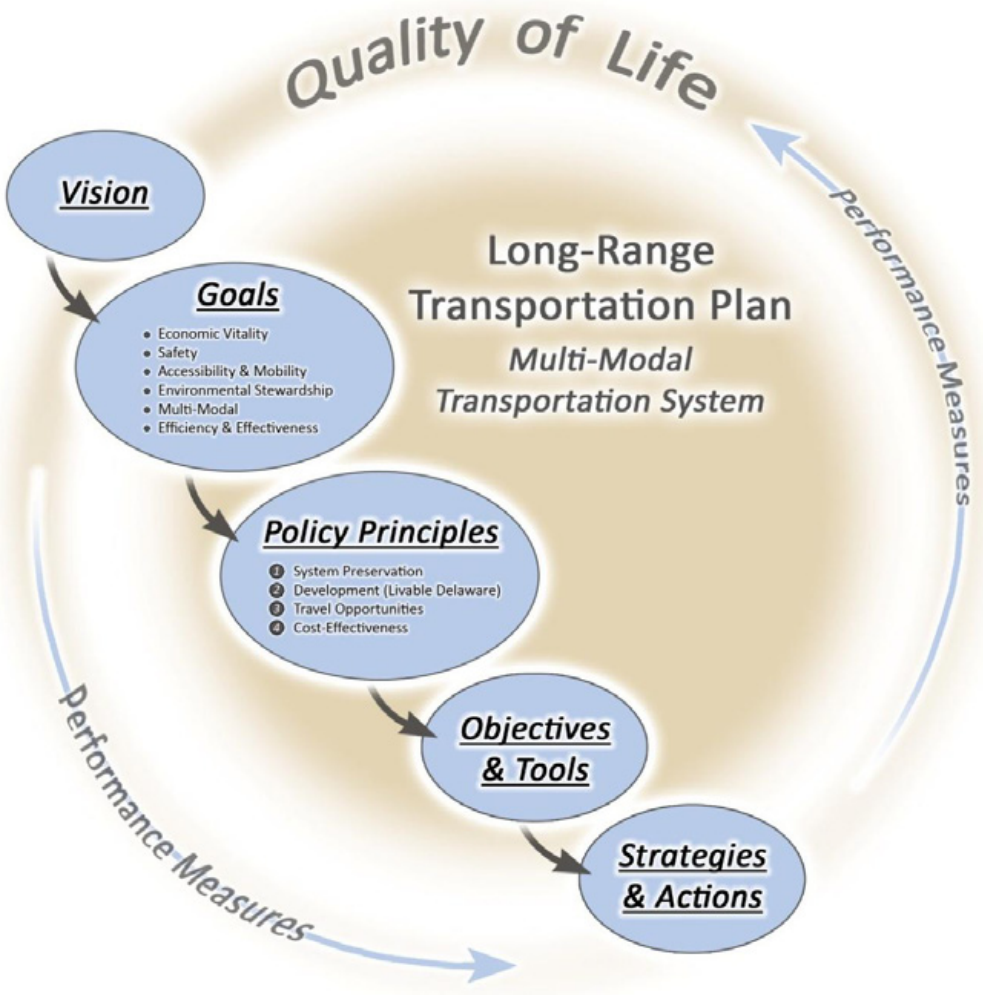
A continuous, comprehensive and coordinated process that involves many stakeholders increases our ability to meet community needs.

The long-range planning process is a thoughtful process that sets realistic but forward-thinking goals and develops an approach and strategies to achieving simultaneously ***smart transportation and smart growth initiatives*** and the Department's Mission and goals. This process sets a clearly defined direction that guides and supports the governance and management of the Department.

Vision
DelDOT will have a well-maintained transportation program that integrates all modes statewide, being able to deliver more transit services, bicycle and pedestrian improvements and critical roadway projects.

The planning process serves as a way to develop and present a common ***vision*** and purpose that is shared among all customers and stakeholders. The planning process builds upon the vision by identifying ***goals and planning principles*** as a framework for plan ***objectives, tools*** and ***strategies*** guiding future investments. ***Performance measures*** are used to ensure a high quality of life for all users of the transportation system.

The plan emphasizes an increased level of commitment for the organization to its policies and helps to motivate and direct the achievement of its goals. The planning process conducted to support development of this plan was one that is continuous, comprehensive and coordinated.



Organizational Structure to Support Implementation

The Office of the Secretary of Transportation manages the state transportation system to accomplish the Department's mission through executive leadership. The following summarizes the Department's various divisions and responsibilities important to implementation of this plan.

- ***Planning*** provides comprehensive transportation planning and development coordination services to address mobility and accessibility needs.
- ***Maintenance & Operations*** is responsible for maintaining and operating a convenient, safe, efficient, cost-effective, and environmentally-sensitive highway system.
- ***Division of Motor Vehicles*** promotes safety on the highways and cleaner air quality.
- ***Delaware Transit Corporation*** designs and provides the highest quality public transportation services.
- ***Transportation Solutions*** develops and constructs safe, efficient and environmentally sensitive engineering projects.
- ***Technology & Support Services*** provides a timely and accurate operating support network that assists the Department in the pursuit of its goals.
- ***Finance*** identifies, acquires and manages the fiscal resources necessary to support the Department in the accomplishment of its goals.
- ***Human Resources*** recruits, develops and retains a diverse, highly qualified workforce and ensures equity and fairness in all aspects of employment.
- ***Public Relations*** support the Department's programs and policies by planning, developing and executing a variety of programs and customer services.

Reference to Other DelDOT Planning Efforts and Documents

This plan is augmented by other DelDOT planning efforts and planning efforts of other Transportation agencies and organizations at the State, MPO, County, and Municipal level. Data contained in this report is routinely updated by DelDOT, planning partners and other agencies. Refer to the Reference section of this plan for resources that are typically posted on websites that contain current data and information.

Summary of Transportation Needs & Challenges

Transportation needs and challenges provide the basis for planning to meet current and future customer expectations.

This plan considers innovative strategies and solutions to best meet the needs and challenges associated with trends suggesting:

❶**Increasing population statewide** creates additional demand on the transportation system to keep pace with new development by providing a system that supports vehicular and non-vehicular modes of travel, meets increasing demands for regional movement of goods and minimizes impacts on the environment.

❷**Increasing percentages of older drivers** creates unique demands with respect to safety, signage and other aspects of travel.

❸**Increasing traffic on roadways** creates new demands on older roads that were not designed for the volume of traffic they now experience or the traffic volume they will be required to accommodate in the future.

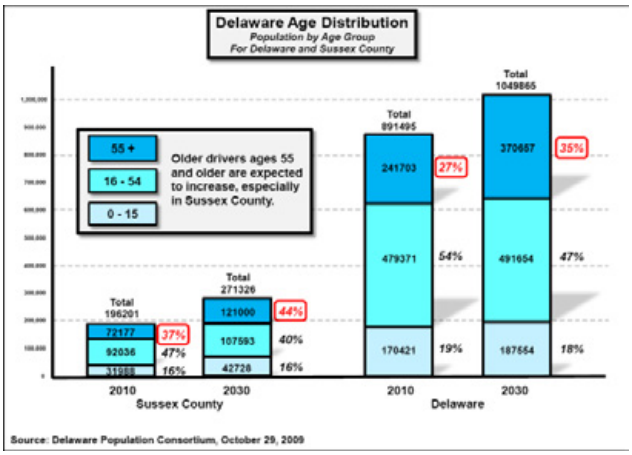
As the First State Moves Forward, DelDOT must address needs associated with:

❶Increasing population statewide

The State's population is projected to exceed one million by 2030. This represents a 35% increase from 2000.

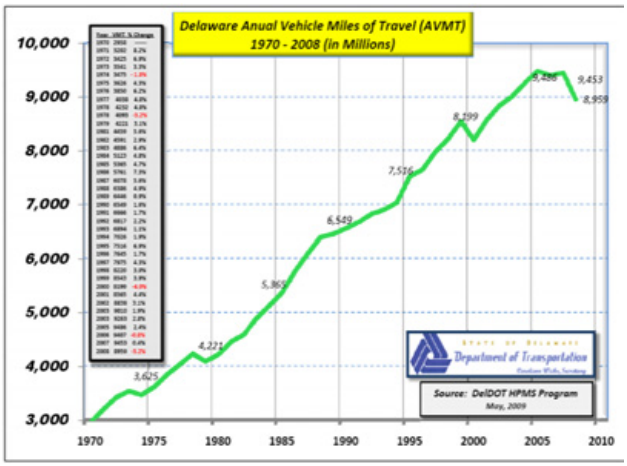
❷ Increasing percentages of older drivers

Of all Delaware drivers, those drivers ages 55 and older comprise 27% of the total with the number of drivers in that age range expected to increase to 35% in 2030.



❸Increasing traffic on roadways

From 2005 to 2007, the number of vehicles registered rose by 30,253 and is anticipated to continue to increase as population increases. Average vehicle miles traveled (AVMT) decreased in 2010 due to a variety of factors.



❹**Need to increase the number of persons walking** to work, school and transit stops, and for recreational purposes requires additional facilities to ensure safety, mobility and accessibility of pedestrians of all ages including disabled persons.

❺**Need to increase persons bicycling** to work, school and transit stops, and for recreational purposes requires enhanced facilities to ensure safety, mobility and accessibility.

❻**Increasing transit ridership** indicates demand for expanded service due to a growing population, an increasingly older population and disabled individuals who are not able to drive, and an increasing desire for alternative modes of transportation to reduce user transportation costs.

❼**Increasing State transportation costs** require innovative strategies to address financial factors such as aging infrastructure requiring more maintenance, rising construction costs, and growing demand for additional capacity and services to improve safety, mobility and accessibility.

As the First State Moves Forward, DelDOT must address needs associated with:

❹Need to Increase persons walking to work

As communities become more pedestrian-friendly, walking to work will increase.

Walking to Commute 1990 vs. 2000

		New Castle	Kent	Sussex	Statewide
1990	Total Workers	227,644	54,697	51,785	334,126
	Number who walk	9,702	1,711	1,449	12,862
2000	Total Workers	245,134	59,813	68,123	373,070
	Number who walk	6,748	1,361	1,528	9,637

Source: Bureau of the Census, U.S. Department of Commerce (1990 & 2000 Census)
Note: Census figures are updated every 10 years

❺Increasing persons bicycling to work

As investments are made to make it easier and safer to ride a bicycle, bicycling to work will increase.

Bicycling to Commute 1990 vs. 2000

		New Castle	Kent	Sussex	Statewide
1990	Total Workers	227,644	54,697	51,785	334,126
	Number who walk	852	137	142	1,131
2000	Total Workers	245,134	59,813	68,123	373,070
	Number who walk	466	137	248	851

Source: Bureau of the Census, U.S. Department of Commerce (1990 & 2000 Census)
Note: Census figures are updated every 10 years

❻Increasing transit ridership

Transit services including fixed bus routes, paratransit, commuter rail and related services will increase as population increases.

DART First State Bus Ridership 2005-2007

	2006	2007	2008
Fixed Routes	8,472,093	8,313,800	8,628,149
Paratransit	791,755	811,907	855,164

Source: DelDOT Delaware Transit Corporation

❼Increasing State transportation costs

Funding is supplied from three primary sources. The increase in population, aging infrastructure, and graying of the population impacts transportation needs requiring additional funding to meet current and future needs.

Change in Revenue 2006-2008

	Bond Proceeds	Trust Funds	Federal Funds
2006	150.0	375.7	116.2
2007	127.4	389.9	102.3
2008	84.7	434.2	146.3

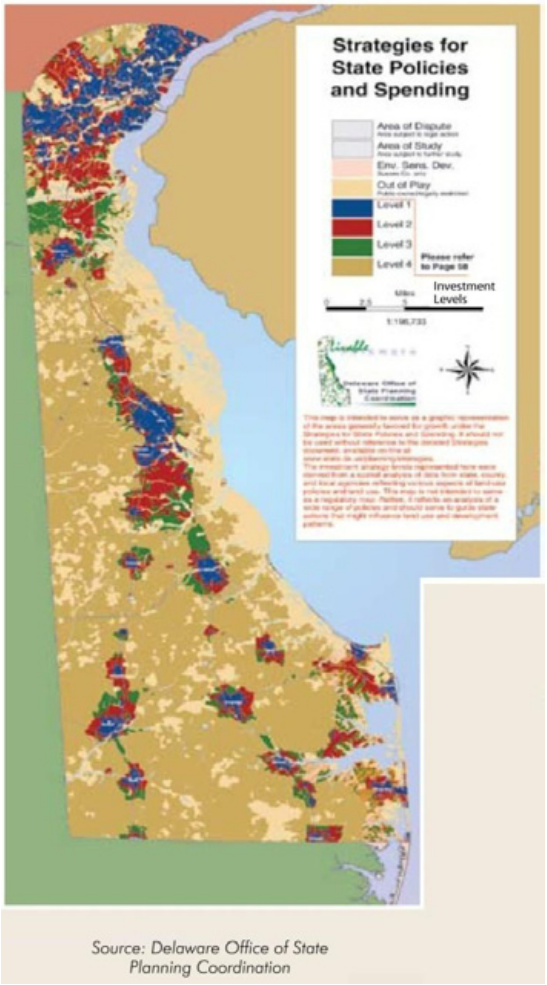
Source: Trust Fund Administration, Audited Financial Statements & Accounting Federal Fund Receivables

Strategies for State Policies and Spending

*The **Better Delaware** vision is a positive, proactive strategy that seeks to curb sprawl and direct growth to areas where the state, counties and local governments are most prepared for it in terms of infrastructure investment and thoughtful planning.* ***DelDOT will develop smart transportation systems consistent with the State's smart growth strategies.***

This initiative has the goal of preparing Delaware for the future and ensuring that its communities and citizens continue to grow and prosper. An important component of this policy is transportation, and the Department's responsibility to respond to the challenge of looking ahead while still meeting the needs of Delawareans. This blue print for Delaware's future provides the following guiding principles creating a foundation for land use, transportation, economic development and infrastructure investment.

- Guide growth to areas that are most prepared to accept it in terms of infrastructure and thoughtful planning.
- Preserve farmland and open space.
- Promote infill and redevelopment.
- Facilitate attractive, affordable housing.
- Protect our quality of life while slowing sprawl.



Source: Delaware Office of State Planning Coordination

Transportation systems in support of land use and economic development policies play an important role in shaping the future of Delaware. Understanding the importance of providing a high-quality transportation system now and in the future is the key to success of the Department.

Area Level	Investment Strategy
1 Cities, Towns & Villages	**Redevelop and Reinvest**
City/town/village areas where population is concentrated, commerce is bustling, and a wide range of housing types already exists; contains core commercial area, several modes of transportation and a variety of housing options.	State policies will encourage redevelopment and reinvestment.
2 Suburbs & Small Towns	**Well-Designed Development**
Rapidly growing suburbs and smaller towns that have, or plan to have, public water, wastewater and utility services. These areas serve as a transition between Investment Level 1 Areas and the state's more open, less populated areas.	Promote well-designed development, including a variety of housing types, user-friendly transportation systems, recreation and other public facilities.
3 Farmland & Natural Resources	**Maintain Existing + Phased Growth**
Significant areas of important farmland and natural resources located either adjacent to, or contained within, more rapidly growing areas; regional roadways.	Maintain existing infrastructure. Invest in phased, guided future growth only after Levels 1 and 2 are substantially built out, or when the infrastructure or facilities are logical extensions of existing systems.
4 Rural & Undeveloped Areas	**Discourage Additional Development**
Rural areas with agribusiness, farms and settlements, typically located at historic crossroads. Also undeveloped natural areas such as forestlands; state and county parks; fish and wildlife preserves.	Retain the rural landscape and preserve open spaces and farmlands. Discourage additional development.

Strategic Approach to Moving Forward

Smart transportation solutions that complete the streets will result in a comprehensive, integrated and inter-connected transportation system offering users the ability to choose a mix of modes of transportation.

As Delaware moves forward, there will continue to be challenges to successfully fulfilling the Department's mission and planned goals and objectives. DelDOT's approach to moving forward is to support priority policies, projects, and programs that guide planning, designing, maintaining and operating a multi-modal transportation system that meets the needs of Delawareans.

DelDOT's Smart Transportation Strategy recognizes that highway improvements alone are not the solution to meeting growing transportation needs, nor the solution to solving projected congestion in year 2030. Therefore, a combination of highway, transit, non-vehicular enhancements and ***smart growth*** land use strategies is the basis for ***smart transportation*** decision-making while adhering to DelDOT's seven guiding principles.

DelDOT's Strategic Approach is built around seven guiding principles:

- **Optimize, preserve and enhance the transportation system.**
- **Direct programs, services and facilities to support smart transportation and smart growth initiatives.**
- **Maximize transportation choices for Delaware residents and visitors.**
- **Use cost-effectiveness as one of our fundamental principles.**
- **Continue to emphasize quality of life as our foundation.**
- **Provide transportation opportunities that support economic development and growth.**
- **Maintain planning and coordination as an integral part of our activities.**

Meeting a variety of transportation needs can be accomplished through collaboration and coordination with the MPOs, counties and municipalities to make ***smart transportation*** decisions with emphasis on ***context sensitive solutions*** that are:

- Tailored to the characteristics of the community and area level associated with Strategies for State Policies and Spending.
- Developed to meet specific project needs and transportation problems.
- Planned, designed and constructed in collaboration with the community in the context of valued resources, surrounding land uses and the environment.
- Developed to consist of the appropriate mix to address needs for alternative modes of transportation.
- Formulated using 'sound engineering judgment" applying flexibility in design and 'sound fiscal judgment' applying innovative funding strategies.

The Department intends to deliberately plan, design, build and maintain accessible streets for all modes of transportation characteristic of urban, suburban and rural landscapes across the state. This approach of ***completing the streets*** views all transportation improvements as opportunities to create safer, more accessible streets for all users, including motorists, bicyclists, pedestrians, and transit and disabled users.

Implementation strategies detailed in this plan will apply the following strategies with the appropriate mix of transportation solutions with a high percentage of projects in Investment Area Levels 1 (cities, towns and villages) and 2 (suburbs and small towns). Core strategies to moving forward include:

❶Linking land use planning and NEPA process
- ○Linking and land use and transportation planning
- ○Environmental streamlining and stewardship;

❷Multi-modal Corridor Plans;
❸Multi-modal Sub-Area Plans;
❹System preservation and optimization; and
❺Innovative funding strategies.

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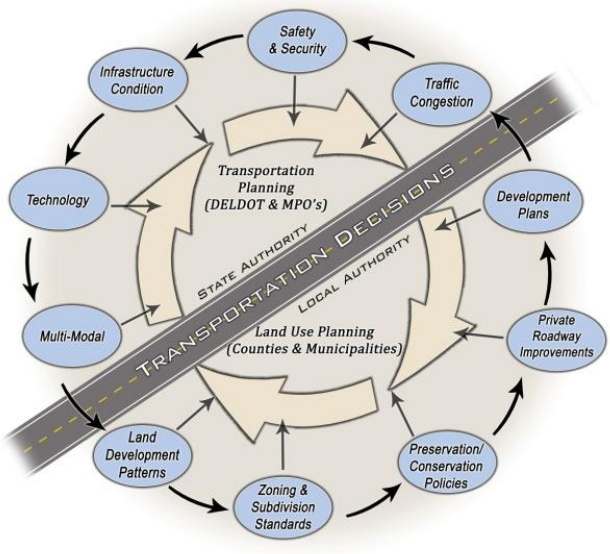
Chapter 1: Policy Plan

DELAWARE LONG RANGE TRANSPORTATION PLAN

2010

Chapter 1: Policy Plan

The Policy Plan provides direction for the future with the establishment of goals, objectives and policy strategies. This section contains the results of analysis associated with studying planning scenarios to determine the best direction for Delaware's future. Policy strategies have been developed based upon these results as well as analysis and planning implications outlined in Chapter 4, the Technical Report portion of this document.



Transportation decisions are influenced by a number of factors related to land use, economics, the environment and valued community resources. Yesterday's decisions impact current and future decisions.

Section 1.1 Transportation Vision, Core Values and Goals

DelDOT's vision is to achieve exceptional quality of life by offering a well-maintained transportation program that integrates all modes statewide, with the ability to deliver more transit services, provide bicycle and pedestrian improvements and administer critical roadway projects.

The Department's nine core values establish a philosophy for internal operations with the goal of providing exceptional customer service to all users of the transportation system. It is these core values identified in the diagram to the left that guide the Department to achieving both its vision and mission. The department intends to continue to maintain open and honest communications based upon integrity of facts and documentation with implementation of projects, services and programs in a responsive manner to meet customer needs using teamwork that applies skills and expertise for the purpose of achieving desired results and diversity through excellent performance.

In addition to these core values, the Department has identified the following six goals that provide the framework for meeting transportation needs through strategic planning, policy making, partnering, smart transportation decisions and prioritizing spending to support implementation.

1. ***Economic Vitality:*** Promote and strengthen the economic vitality of Delaware through transportation policies and programs.
2. ***Safety:*** Ensure the safe and secure movement of people and goods.
3. ***Accessibility and Mobility:*** Improve the accessibility and mobility of goods and all people.
4. ***Environmental Stewardship:*** Focus on environmental stewardship through the integration of land use and transportation, and responsible energy consumption.
5. ***Multi-Modal:*** Enhance multi-modal transportation by advancing transportation system integration and connectivity across all users including people and freight.
6. ***Efficiency & Effectiveness:*** Maximize efficient and effective transportation system management and operation through innovative strategies and techniques, as an alternative for infrastructure expansion.

Section 1.2 Policy Principles and Objectives

The Department uses a strategic approach to providing a dynamic transportation system and services that best meet the needs of our customers. This approach includes a four-tiered framework consisting of Policy Principles, Objectives and Recommended Tools. This framework is used to organize the information that provides the overall ***smart transportation policy*** for the Department. It is the set of transportation policies identified in this section that will be implemented through various strategies to achieve the vision and mission of ***"providing a safe, efficient and environmentally sensitive transportation network that offers a variety of convenient and cost-effective choices for the movement of people and goods."*** The following table depicts the relationship between policy principles, objectives, recommended tools and implementation strategies.

Smart Transportation Goal and Policy Principle Relationship

Smart Transportation Goals	Policy Principles			
	❶System Preservation	❷Development (Better Delaware)	❸Travel Opportunities	❹Cost-Effectiveness
Economic Vitality	✓	✓	✓	✓
Safety	✓	✓	✓	
Accessibility & Mobility	✓	✓	✓	
Environmental Stewardship	✓	✓	✓	
Multi-Modal	✓	✓	✓	✓
Efficiency & Effectiveness	✓	✓	✓	✓

This plan strives to meet the following transportation system objectives.

Policy Principles	Transportation System Objectives
❶System Preservation/Optimization "Maintenance First"	1. Focus system preservation activities such as maintenance and operations and optimization of the transportation system.
❷Development "Direct our programs, services and facilities to support *Smart Growth* and *Smart Transportation* initiatives"	2. Coordinate land use and transportation in manner that promotes long-term transportation efficiency.
	3. Direct or focus transportation investments in a manner that promotes sustainable development within designated areas.
❸Travel Opportunities and Choices "Maximize transportation choices for Delaware residents and visitors"	4. Promote expansion of a variety of travel opportunities with connections to work places, services, residences and recreation for those with limited mobility options and general public.
❹Cost-Effectiveness "Use cost-effectiveness as one of our fundamental principles"	5. Use cost-effectiveness as a key indicator when prioritizing projects or choosing among alternatives optimizing the investment of resources across all modes and balancing fiduciary responsibilities.
	6. Maintain and use existing resources and equipment as a means toward cost-effectiveness.
	7. Take advantage of technology as a means of providing efficient services.

Section 1.3 Transportation Needs/Challenges and Potential Solutions

Transportation demands are greater than the supply of transportation infrastructure and services. Data and information presented in various sections of Chapter 4 support the identification of challenges and needs statewide as well as for the various MPOs and Sussex County. The following challenges are a result of trends associated with local and regional growth, condition of the transportation system and financial constraints:

Table 1: Summary of Transportation Challenges, Implications and Potential Solutions

Transportation Needs/Challenges	Transportation Implications	Potential Solutions
Aging Infrastructure	• Increased demand and cost for maintenance. • Low levels of service.	• State, county, municipal and developer partnerships. • Enhanced maintenance tools, techniques and solutions.
Growing Population and Increasing Incomes	• Increase in vehicle miles traveled and congestion. • Increased need for capacity improvements. • Increased capacity results in increased transportation costs. • Increased transit ridership.	• Expand transit service. • Explore commuter rail service. • Smart growth management strategies (linking land use and transportation planning and smart transportation solutions).
Growth Patterns Resulting in Sprawl	• Longer commutes to work and to commercial centers. • Increased transportation investments. • Reduced LOS in densely populated areas.	• Smart growth management. • Strategic placement of park-and-ride facilities. • Transit connections to park-and ride-facilities.
Increasing Development	• Increased travel distances and costs required to provide basic goods and services to communities increasing freight travel. • Land use policies resulting in sprawl. • Reduced LOS.	• Smart growth management. • Commuter tax. • Expand transit service in Investment Levels 1 and 2. • Implement ITS solutions.

Increasing Commuting through Walking and Bicycling	• Pedestrian and bicycle safety, mobility and accessibility.
	• Opportunities to make connections with transit.
		• Complete the streets in Investment Levels 1 and 2:
		  ○ Focus on closing gaps in pedestrian facilities.
		  ○ Provide bicycle facilities.
		  ○ Provide inter-modal connections.

Aging Population	• Increased need for costly special transportation services and facilities. • Increased transit ridership.	• Coordinate existing service and improve accessibility. • Equitable pricing. • Promote transit use.
Continued Dependence on Petroleum-Based Motor Fuel Tax as Revenue Source	• Motor fuel taxes do not keep pace with need and inflation. • Decrease in transportation revenues.	• Incentives for alternative fuel sources. • Identification of innovative funding sources.
Rising Construction Costs	• Increased cost to expand, maintain and operate transportation network. • Ability to implement fewer projects. • Potential to increase user fees and revenue generating policies.	• Implement ITS solutions. • Focus on intersection improvements to improve LOS. • Prioritize smaller roadway projects that yield higher levels of mobility.
Changing Economic Conditions	• Directly impacts revenues. • May increase sprawl.	• Flexibility in policies and strategies. • Provide incentives for redevelopment and reinvestment in Investment Level 1.

It is these challenges that provide the framework for study analysis to support policy development and identification of planning objectives, planning tools and techniques, and implementation strategies.

Section 1.4 Policy Planning – Transportation Planning Scenarios

Growth and development directly impacts transportation performance and transportation solutions based upon social, environmental and economic factors. Scenario planning is a study tool used to gain a broader understanding of the impacts of growth in the context of transportation. This planning tool does not predict any one particular outlook, yet highlights key factors that may shape the future. The results are used to frame policy development, objectives and implementation strategies.

DelDOT utilized a scenario planning process to assist with planning to meet current transportation challenges and for what lies ahead. Various land use and transportation scenarios were studied to evaluate future alternatives that meet local, MPO and statewide needs. County Comprehensive Plans, MPO Long-Range Transportation Plans and unique characteristics of each County were used to establish travel demand modeling parameters and input.

This analysis provides the basis for gauging possible future conditions and to identify transportation policies and to select an appropriate course of action in response to various issues, needs and demands. Appendix 8: Scenario Planning contains a detailed description for each of the planning scenarios and provides travel demand analysis results. This section provides an overview of the scenario planning results and policy implications.

Section 1.4.1 Preferred Planning Scenario to Support Strategic Approach to Moving Forward

The results of the scenario planning analysis using travel demand modeling suggest that the Department will not successfully meet transportation needs to improve mobility with the application of any one scenario exclusively. Instead, the results suggest transportation mobility needs will be best met geographically through implementation of an appropriate mix of strategies with the cumulative results of the scenario analysis used to focus investments. The mix of implementation strategies statewide emphasizes funding a higher percentage of projects in Investment Area Levels 1 and 2 with a variety of integrated transportation and land use strategy components.

Scenario Planning Conclusions

Modeled results of all three counties indicate that highway improvements alone will not solve the projected congestion in year 2030. A combination of highway, transit, and land use shifts will yield some relief but not necessarily to the extent desired. Even with funded projects and an "aspiration" list of projects, there is still significant amount of projected congestion. Additional study is needed to identify the range of cumulative effects of the types of highway, transit, and land use shift strategies to be considered.

Section 1.4.2 Comparison of Planning Scenarios & Policy Implications

Each of the future scenarios used to study mobility are based upon a 2005 baseline assessment of existing conditions with respect to traffic volumes and relative levels of congestion. Six scenarios were studied to assist with formulation of transportation policies, objectives and recommended implementation strategies. Scenarios studied include:

- ***Scenario 1: 2030 No-Build (Worse Case Scenario)*** represents the hypothetical future conditions of 2030 growth levels and existing conditions of roadways used to estimate a "worse case" scenario if resources were spent on maintenance only and no projects were implemented.
- ***Scenario 2: 2030 MPO Plans*** represents future conditions of 2030 growth levels and all currently planned roadway and transit outlined in MPO long-range plans.
- ***Scenario 3: 2030 Additional Highway Capacity*** represents future conditions of 2030 growth levels, all currently planned roadway and transit projects and any projects listed in the "aspirations lists" of MPO and county long-range plans.

- ***Scenario 4: 2030 Additional Transit Capacity*** represents the estimated effects of a tripling of transit ridership levels above existing conditions.
- ***Scenario 5: 2030 Land Use Shift 1 Preservation of Natural Landscapes (Investment Level 4 Preservation)*** represents a shift of 10% of future household growth out of Level 4 to Levels 1 thru 3.
- ***Scenario 6: 2030 Land Use Shift 2 Emphasizing Better Delaware Initiative (Smart Growth – Investment Levels 1 & 2)*** represents a shift of 10% of future household growth out of Levels 3 and 4 to Levels 1 and 2.

Table 2 depicts the results of the comparison of benefits of scenarios based upon the use of key performance measures such as projected vehicle miles traveled (VMT) and level of service (LOS). The following table identifies the optimum scenario for each geographic level comparing statewide to each county. The analysis for Sussex County considered travel under both non-seasonal and seasonal peak times based upon population and employment changes. The results depicted below suggest transportation needs will be best met geographically through implementation of an appropriate mix of strategies used to focus transportation investments. The ✶ in the table below denote the optimum scenarios based upon geography.

Table 2: Geographic Benefits of Scenario Implementation

Geographic Level	Benefits from Planning Scenario Policies						Performance Measures of Planning Scenario Policies	
	Scenario 1: 2030 No-Build	Scenario 2: 2030 MPO Plans (Fiscal Constraint Plans)	Scenario 3: 2030 Additional Highway Capacity	Scenario 4: 2030 Additional Transit Capacity	Scenario 5: 2030 Land Use Shift 1 – Preservation of Natural Landscapes (Investment Level 4 Preservation)	Scenario 6: 2030 Land Use Shift 2 – Emphasizing Better Delaware Initiative (Smart Growth – Investment in Levels 1 & 2)	Projected Vehicle Miles Traveled (VMT)	Level of Service (LOS)
Statewide			✶	✶	✶	✶	Average 21,200,000	(94%) LOS D or + (6%) LOS E or F
New Castle County			✶	✶			Scenario 3: 13,000,000	(88%) LOS C or + (62%) LOS A
							Scenario 4: 12,763,314	Lower LOS
Kent County					✶	✶	Scenario 5: 3,764,759	(90%) LOS C or + (51%) LOS A
							Scenario 6: 3,792,104	Lower LOS
Sussex County* *(AADT Conditions)*			✶				Average 4,400,000	(91%) LOS C or + (59%) LOS A
Sussex County *(SADT Conditions)*			✶				Average 6,500,00	(73%) LOS C or + (37%) LOS A

Note: Sussex County was analyzed under two conditions – (1) AADT Conditions – Annual Average Daily Traffic and (2) SADT Conditions – Seasonal Average Daily Traffic.

The following summarizes planning scenario results and policy implications:

1. Although the planned projects under ***Scenario 2: 2030 MPO Plans*** are consistent with and satisfy Federal requirements for fiscal constraint and air quality conformity requirements, the results do yield sufficient roadway and/or transit capacity to maintain existing levels of congestion and mobility in the future.
2. Although the proposed project lists in ***Scenario 3: 2030 Additional Highway Capacity*** yield improved mobility statewide, the capacity alone will not be enough to provide acceptable mobility in 2030. This list contains several large projects that have important potential benefits and impacts at the corridor level that provide benefits.
3. Additional roadway and transit projects beyond those shown in the MPO plan "aspiration lists" under ***Scenario 3*** are likely to be needed to address needs along certain corridors in the state. If key corridor projects are implemented, additional funding will be needed.
4. Benefits are demonstrated with implementation of ***Scenario 4: Additional Transit Capacity***; yet, this scenario alone will not result in the 2030 horizon year maintaining levels of congestion and mobility.
5. ***Scenarios 5 and 6: Land Use Shift Scenarios*** resulted in some benefit at both state and county levels due to the simplified structure of the travel demand model. A more detailed modeling effort may suggest greater benefits.
6. The ***combination of scenario strategies*** was not analyzed due to limited resources and limitation of the travel demand model. It is anticipated that the cumulative benefits of a mix or integration of strategies would yield best results with respect to mobility.
7. Explanation of County level implication are as follows:
    - ***New Castle County*** benefits from implementation of Scenarios 3 and 4 due to a higher concentration of population and employment centers across the County with a plan containing projects which significantly increase lane miles of capacity to meet transportation needs.
    - ***Kent County*** benefits from implementation of Scenarios 5 and 6 emphasizing a shift in land use policy due to concentration of employment centers in cities and towns with land use patterns across all landscapes.
    - ***Sussex County*** benefits from implementation of Scenario 3 considering non-seasonal and seasonal conditions. A significant portion of land in the County is within Investment Level Area 4 which may have impacted the results of Scenarios 5 and 6. Transit during seasonal conditions would provide a benefit.

When comparing the results of various planning scenarios, the following standards are generally applied to guide transportation investment based upon LOS with respect to Investment Levels and contributions by DelDOT.

Table 3: Guidelines for Investment Based Upon Level of Service

Investment Level	Level of Service	DelDOT Contribution
Investment Level 1 & 2	E	75%
Investment Level 3	D	50%
Investment Level 4	C	0%

Table 4: Policy and Spending Strategy Components identifies the various Investment Area Levels, investment strategy and implementation strategy components with respect to land use and transportation. The ✶below denotes various transportation and land use implementation strategies consistent with investment strategies for Investment Area Levels 1 through 4.

Table 4: Policy and Spending Strategy Components

Strategies for State Policies and Spending (Better Delaware Initiative)		Transportation and Land Use Implementation Strategy Components							
Investment Area Levels	**Investment Strategy**	**Pedestrian Improvements**	**Bicycle Improvements***	**Corridor Improvements***	**Transit Solutions / Improvements***	**Multi-modal Solutions**	**Transit Oriented Development**	**Sub-Area Plans***	**Smart Growth Partnerships**
Level 1: Urban Landscapes (Cities, Towns & Villages)	**Redevelopment and Reinvestment** State policies will encourage redevelopment and reinvestment.	✶	✶	✶	✶	✶	✶	✶	✶
Level 2: Suburban Landscapes (Suburbs & Small Towns)	**Well-Designed Developments** Promote well-designed developments, including a variety of housing types, user-friendly transportation systems, recreation and other public facilities.	✶	✶	✶	✶	✶	✶	✶	✶
Level 3: Rural Landscapes (Farmland & Natural Resources)	**Maintain Existing & Phased Growth** Maintain existing infrastructure. Invest in phased, guided future growth only after Levels 1 and 2 are substantially built out, or when the infrastructure or facilities are logical extensions of existing systems.		✶	✶	✶			✶	✶
Level 4: Natural Landscapes (Rural & Undeveloped Areas)	**Discourage Additional Development** Retain the natural and rural landscape through emphasis on preservation of open spaces and farmlands. Discourage additional development.		✶					✶	✶

**Improvements in Levels 3 and 4 will be made only when necessary to support regional transportation needs as identified in a Sub-Area Plan, Corridor Plan or Transit Plan with demonstrated countywide and/or statewide benefits. Bicycle improvements in Levels 3 and 4 are primarily for recreational purposes.*

The detailed summary table, Table 5: Comparison of Planning Scenarios, shown on the following pages provides a description for each scenario, assumptions and policy implications or conclusions. Policy implications are conclusions or circumstances that are implied based upon various trends, patterns or projected conditions, that if not addressed will impact the accessibility, mobility and safety of users of the transportation system. The results of analysis for all scenarios do not meet mobility needs of 2030. Refer to Appendix 8 for more details of planning scenario analysis.

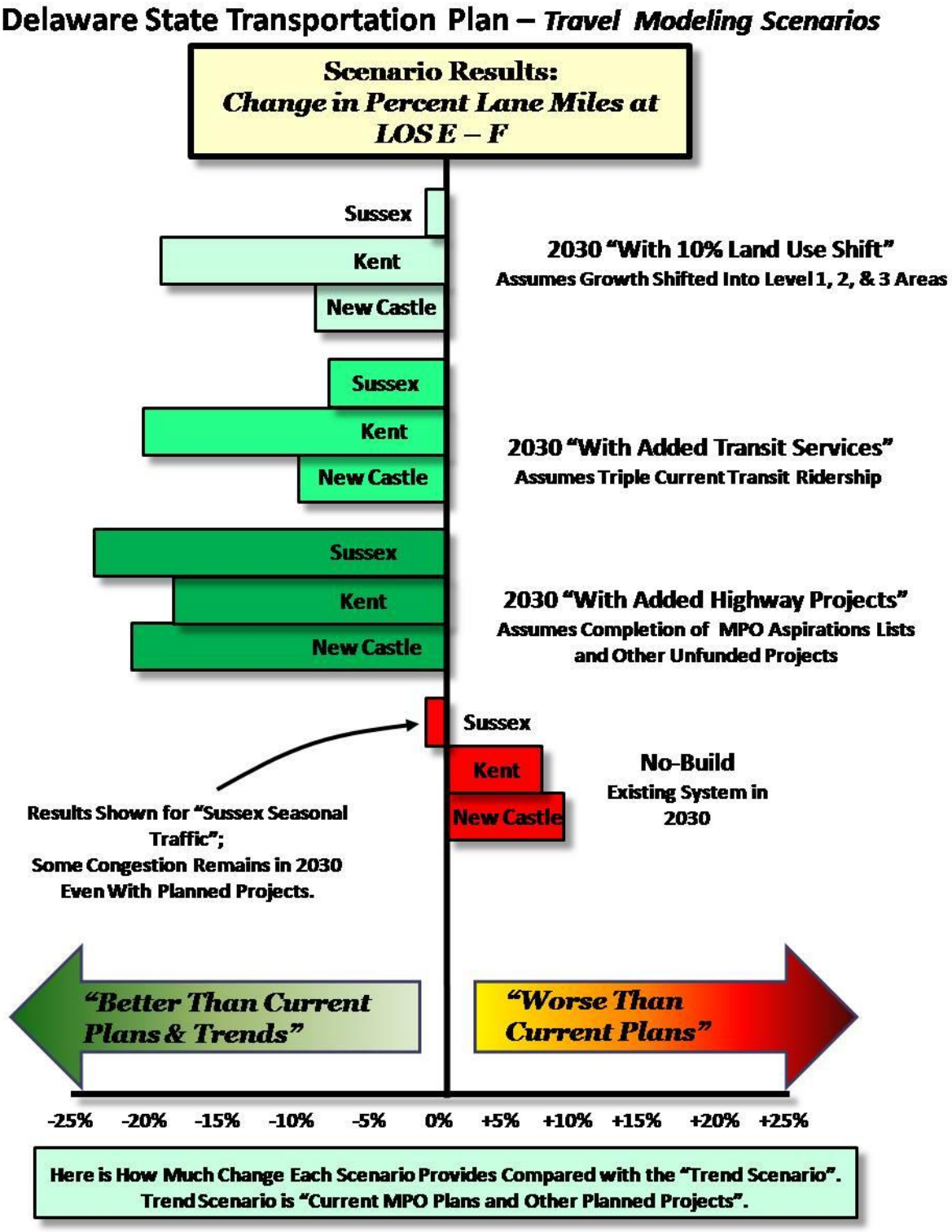
Table 5: Comparison of Planning Scenarios

Planning Scenario Description	Assumptions	Conclusions or Policy Implications	Level of Service (LOS)	Air Quality	Smart Transportation Rating
Scenario 1: 2030 No-Build (Worst Case Scenario) This scenario represents future conditions of 2030 growth levels with no changes to roadway conditions to demonstrate that if the transportation infrastructure did not change while anticipated increases to population, housing and employment occurred, what would be future conditions under this worst case assessment.	○ Increases in housing, population and employment. ○ No MPO or State improvements identified in LRTPs are built.	Under this Scenario, resources can focus on maintenance and operation, enhancements for pedestrians and bicycles, and system optimization (ITS improvements) to improve mobility, safety and accessibility.	C	Decrease in Air Quality	Maintenance & Operations Investment Levels 1-4 Project Focus is on Investment Levels 1-2
Scenario 2: 2030 MPO Plans This scenario represents future conditions of 2030 growth levels and all currently planned roadway and transit projects outlined in the MPO and County LRTPs.	○ Increases in housing, population and employment. ○ MPO and State improvements identified in LRTPs. MPO Plans include: WILMAPCO 2030 Regional Transportation Plan (RTP); Dover/Kent MPO 2030 Long Range Transportation Plan (LRTP); and Transportation Plan for Sussex County (prepared by DelDOT). ○ All projects identified in plans meet air quality conformity requirements. ○ All projects identified are constructed for use.	Although projects listed in the MPO Plans studied under Scenario 2 are consistent with and satisfy Federal requirements with respect to fiscal constraints and air quality conformity, the results indicated that there will not be enough capacity created to provide acceptable levels of mobility in 2030. Planned projects under this Scenario are projected to result in a 1.8% reduction in congestion and a .2% increase in vehicle miles traveled contributing to air quality impact. Additional cost associated with this scenario limits the ability to fund routine maintenance and operational needs.	C	Decrease in Air Quality	Maintenance & Operations Investment Levels 1-4 Project Focus is on Investment Levels 1-2

Planning Scenario Description	Assumptions	Conclusions or Policy Implications	Level of Service (LOS)	Air Quality	Smart Transportation Rating
Scenario 3: 2030 Additional Highway Capacity This scenario represents future conditions 2030 growth levels considering all currently planned roadway and transit projects, and any projects listed in the "aspirations lists" of MPO and County long-range plans.	○ Same assumptions as Scenario 2. ○ Builds upon results of Scenario 2 by adding MPO and County "aspirations list" of projects. ○ "Aspirations list" of projects do not currently meet federal plan requirements for fiscal constraint and air quality conformity.	Increased highway capacity has potential to contribute to increased sprawl as indicated by increased miles traveled. Adding highway capacity beyond those planned projects in MPO and County Plans does not significantly reduce vehicle miles traveled, increase levels of service or reduce congestion statewide when compared to the 2030 no-build scenario by County. Although adding highway capacity shows some benefits at both the state and county levels, the level of 2030 projected capacity does not meet the mobility needs of projected growth. Added highway capacity under this Scenario is projected to result in a 5% reduction in congestion and a 1% increase in vehicle miles traveled contributing to air quality impact. Additional costs associated with this scenario limit the ability to fund routine maintenance and operational needs.	C (80%) A (50%)	Decrease in Air Quality	Project Focus is on Investment Levels 1-4
Scenario 4: 2030 Additional Transit Capacity This scenario represents future conditions 2030 applying the estimated effects of a tripling of transit ridership levels above existing conditions.	○ Builds upon results of Scenario 2 by increasing transit ridership by 3 times the level of 2005 ridership. ○ No specific projects were assumed.	Although results suggest no notable impacts on mobility, the continued increase in transit usage and service will result in long-term positive impacts on mobility. Additional costs associated with this scenario limit the ability to fund routine maintenance and operational needs.	C	Improved Air Quality	Project Focus is on Investment Levels 1-2

Planning Scenario Description	Assumptions	Conclusions or Policy Implications	Level of Service (LOS)	Air Quality	Smart Transportation Rating
Scenario 5: 2030 Land Use Shift 1A Preservation of Natural Landscapes This scenario represents future conditions 2030 with a shift of 10% of future household growth directed out of Investment Level 4 Areas to Investment Levels 1-3 Areas.	○ Projected growth between 2005 and 2030 is between 95,000 and 100,000 additional housing units, representing a 28% increase above the 325,000 units statewide in 2005. ○ Annual housing unit increase is approximated at 3,500-4,000 units annually statewide. ○ Reallocation of approximately 10% (350-400 units) of the projected units from Investment Level 4 to Investment Levels 1, 2 and 3.	Additional costs associated with this scenario limit the ability to fund routine maintenance and operational needs. The results of Scenarios 5 and 6 with respect to a land use shift does not indicate significant impacts and would require additional detailed study to understand if a benefit can be achieved under acceptable levels of investment.	C	Improved Air Quality	Project Focus is on Investment Levels 1, 2 and 3.
Scenario 6: 2030 Land Use Shift 2A Emphasizing Better Delaware Initiative This scenario represents future conditions 2030 with a shift 10% of future household growth out of Investment Levels 3 and 4 to Investment Levels 1 and 2.	○ Projected growth between 2005 and 2030 is between 95,000 and 100,000 additional housing units, representing a 28% increase above the 325,000 units statewide in 2005. ○ Annual housing unit increase is approximated at 3,500-4,000 units annually statewide. ○ Reallocation of approximately 10% (350-400 units) of the projected units from Investment Level 4 and Investment Level 3 to Investment Levels 1 and 2.	Although, Scenarios 5 and 6 did not show significant impacts overall, the strategy of directing growth to Investment Levels 1 and 2 Areas along with a No-Build Scenario could benefit as follows: • Kent County can benefit the most by applying this Better Delaware initiative more aggressively with positive results in mobility.	C	Improved Air Quality	Project Focus is on Investment Levels 1 -2.

The following diagram depicts the comparison of impact of various scenario results for each County with respect to change in percent lane miles and Level of Service (LOS).



Section 1.5 Recommended Tools

The following policy components depicted in Table 6 have been developed based upon the results of the planning scenario analysis and research contained in the Technical Report section and Appendices of this document. The following ***smart transportation policy*** is crucial to the success of implementation.

Table 6: Policy Principles, Objectives and Recommended Tools

	Policy Principles	Objectives	Recommended Tools
Development Options	❶System Preservation/Optimization "Maintenance First"	Focus system preservation activities such as maintenance and operations and optimization of the transportation system.	Implement ITS Solutions
			Asset Management Programs
			Needs Analysis & Prioritization Systems
			Enhanced Pavement Management System
	❷Development "Direct our programs, services and facilities to support Better Delaware"	Coordinate land use and transportation in a manner that promotes long-term transportation efficiency for pedestrians, bicyclists and motorists.	Access Management Program
			Transportation Impact Studies
			ADA Compliance and Interconnectivity Policy
			Education
			Congestion Standards *(urban, suburban and rural landscapes)*
			Complete Streets Standards *(urban, suburban and rural landscapes)*
		Direct or focus transportation investments in a manner that promotes sustainable development within designated areas.	Prioritize Projects and Programs
			Site Design Standards to reduce Environmental Impacts
			Streamline Regulatory Processes
			Corridor Capacity Program
			Key Corridor Program
	❸Travel Opportunities and Choices "Maximize transportation choices for Delaware residents and visitors"	Promote expansion of a variety of travel opportunities with connections to work places, services, residences and recreation for those with limited mobility options and the general public.	Implement DTC Strategic Plan
			Complete Streets Standards *(urban, suburban and rural landscapes)*
			Ridesharing
			Public Education and Awareness
Implementation Effectiveness			
	❹Cost-Effectiveness "Use cost-effectiveness as one of our fundamental principles"	Use cost-effectiveness as a key indicator when prioritizing projects or choosing among alternatives optimizing the investment of resources across all modes and balancing fiduciary responsibility.	Project Performance Measures
			Conduct Post-Project Assessments
		Maintain and use existing resources and equipment as a means toward cost-effectiveness.	Facility Inventory
			Maintenance Management System
			Bridge Management Program
		Take advantage of technology as a means of providing efficient services.	Continue Implementation of DelTrac
			Pursue Advanced Transit & Auto Technologies
			Continue use of Incident Management System
			Research and Develop Technology Transfer Program

Section 1.6 Key Implementation Initiatives (Strategies and Actions)

The study analysis contained in this plan suggests the following core strategies to address transportation system needs.

❶ *Linking Land Use Planning and NEPA Process*

Modification to county and local land use policies may be necessary for Investment Level Areas 3 and 4 to reduce mobility demands. A variety of land use tools, techniques and strategies to encourage compact, livable neighborhoods providing connections to employment and shopping centers is crucial to addressing mobility needs. The expansion of existing employment and commercial centers and the location of new centers must be collaboratively planned, funded and implemented by the Counties and the State to ensure adequate transportation facilities.

> ***Cost of Sprawl***
> *Roads are the lifeblood of sprawl. Keeping pace with sprawl is the state's greatest challenge. Expanding road capacity attracts unplanned growth. Current transportation revenue cannot meet the demand for roadway improvements required to support sprawl development patterns.*

Key Actions:

- **Linking Land Use and Transportation Planning**
  - Continue Smart Growth transportation strategies as part of Better Delaware.
  - Coordinate local and regional land use and economic development planning, policies and decisions with transportation planning and project prioritization.
  - Implement Delaware's Complete Streets Policy with the intent of providing enhanced access, safety and mobility for all modes of transportation.

- **Environmental Streamlining and Stewardship**
  - Work collaboratively with natural, cultural and historic resource agencies to establish realistic timeframes for environmental review and clearance.
  - Protect and enhance the environment by avoiding, minimizing and mitigating environmental impacts through context sensitive design solutions, and continuous and coordinated assessment of impacts through all phases of project development with involvement of the public.
  - Continue the wetland banking initiative to mitigate impacts to watersheds and wetlands.

❷ *Multi-Modal Corridor Plans*

Corridor planning fosters cooperative transportation efforts through state and local collaboration and partnership. Corridor planning will assist in the prioritizing of multi-modal transportation projects, preserving public right-of-way to meet future needs, integrating land use and transportation policies, and developing management strategies along the corridor. Larger projects such as corridor level improvements must be considered and closely studied with respect to meeting multi-modal needs, mitigating environmental impacts and minimizing land use impacts in Investment Level Areas 3 and 4.

Key Actions:

- Coordinate multi-modal corridor planning with key stakeholders to improve safety, mobility and accessibility.
- Plan, design and implement multi-modal, context sensitive transportation solutions.
- Implement various strategies to support movement of people, freight and goods with emphasis on rail, truck, port, airport, commuter and freight rail opportunities, as well as bus and rail transit commuter opportunities.

- Implement the Strategic Vision for I-95 Corridor with emphasis on freight, commuter traffic and local and regional travel.
- Implement recommended improvements in the CTP.

❸*Multi-Modal Sub-Area Plans*

The collaborative development and implementation of multi-modal sub-area plans achieved through public/private partnerships and developer agreements meeting land use and economic development goals while coordinating transportation improvements.

Key Actions:

- Coordinate land use and transportation planning with implementation of improvements that provide neighborhood connectivity for pedestrians, bicyclists and motorists.
- Implement Delaware's Complete Streets Policy with the intent of providing enhanced access, safety and mobility for all modes of transportation.
  - Provide bicycle, pedestrian and transit facilities.
  - Provide ADA compliant facilities.
  - Establish and implement Transit Oriented Development Standards.
- Implement recommended improvements in the CTP.

❹*System Preservation and Optimization*

System preservation and optimization focuses on maintenance and optimization of existing facilities through the use of technology and other improvements.

Key Actions:

- Implement ***maintenance first strategy*** to preserve the transportation system.
- Continue enhancement of the Department's Pavement Management System.
- System optimization through the use of ITS.
- Traffic safety and operations improvements:
  - Special Events;
  - Seasonal Demands; and
  - Emergency Evacuation.

❺*Funding Strategies*

Innovative funding strategies are necessary to meet current and projected mobility needs. Implement where appropriate by combining traditional funding and innovative funding strategies.

Key Actions:

Consider the following –

- Increase in Motor Fuel Tax
- Increase in Tolling and Tolls
- Congestion Pricing
- HOT Lanes
- Cordon Pricing

Section 1.7 Recommended Future Study Analysis

The following are next steps that build upon the travel demand modeling efforts conducted to study the various planning scenarios at the state level and for each County. Next steps include a recommendation for additional analysis to support planning, decision-making and implementation of transportation system improvements to better meet mobility needs.

1. Analysis to determine the necessary amount, type and location of additional roadway and transit capacity beyond currently planned projects to provide acceptable levels of mobility. This information can be used to determine funding requirements and prioritization of transportation system improvements needed to either sustain or improve existing levels of mobility from present to year 2030.
2. Capacity analysis to estimate how changes in demand and supply affect statewide, countywide and local mobility measures.
3. A more robust land use shift analysis considering not only shifting future development associated with residential development in various landscapes, but analyzing employment center locations in various landscapes.
4. Analysis to identify the range of cumulative effects of the types of highways, transit and land use shift strategies.
5. Study of impacts of global climate change with respect to policy, environment and economics and those challenges to the transportation sector.

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Chapter 2: Financing Strategies

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DelDOT is faced with financial challenges that draw concern for the short-term as well as the long-term. This transportation funding shortfall is a national problem. Short-term and long-term funding sources of transportation come from the Transportation Trust Fund (which includes proceeds from the sale of Revenue Bonds) and Federal Funds. Routinely, these funds do not meet annual needs for many states across the nation including Delaware.

Section 2.1 Federal Financial Framework – Federal-aid Funds and Grants

Delaware's surface transportation investment are funded through a grant-based funding strategy know as the Federal-aid Highway Program (FAHP). Revenues from the Federal gas tax and other excise taxes are credited to the Federal Highway Trust Fund (HTF) and allocated among the States using a formula for reimbursement of eligible capital costs. Other financial tools include Federal grant programs, State Infrastructure Bank (SIB) credit assistance to projects and federal credit assistance.

Section 2.2 Delaware's Financial Framework – Transportation Trust Fund

The state plays a key role in funding transportation and in strategic management of transportation assets. The state's Transportation Trust Fund is Delaware's largest and most stable source of funds. The primary sources of revenue are divided into three major categories including motor vehicle fees, toll road revenue and motor fuel tax.

Section 2.3 Challenges – The Need to Better Manage Travel Demand

The primary key challenge for Delaware's transportation system is that the increase in user demand is far outpacing the ability to add capacity, leading to higher levels of congestion and system inefficiencies especially, in densely populated areas.

Delaware's current revenue sources that are used to provide, maintain and operate an effective surface transportation system are inadequate to meet present and future needs. This shortfall is due to the following conditions resulting in continued transportation demands that are greater than the supply of transportation infrastructure and services that can be provided with current and projected revenues.

Economic Impacts

In 2009, Delaware will experience a revenue shortfall of $42.2 M and this shortfall is expected to continue for years to come.

Short-term and long-term revenue shortfalls area associated with:

- Department of Motor Vehicles
  - Decline in Auto Sales
  - Decline in Title Transfers
- Motor Fuel Tax
  - Decline in fuel consumption
- Toll Roads
  - Decline in travel
- Investment Income
  - Lower investments and lower interest rates

- Aging infrastructure requiring more maintenance;
- Population growth and increasing incomes resulting in an increase in vehicle miles traveled and congestion requiring increased infrastructure construction and rehabilitation needs;
- Sprawling growth patterns resulting in increased and longer commutes to work and to commercial centers;
- Increased development results in increased travel demand and costs required to provide basic goods and services to communities resulting in increased freight travel;
- Aging population in need of costly special transportation services and facilities;
- The trend of petroleum-based motor fuel taxes decrease as VMT increases due to increased vehicle miles per gallon;
- Transportation operation and construction costs increase due to inflation; and

- External economic changes directly impacting revenues.

Section 2.4 Recommended Strategies

The following are specific programs, initiatives, or policy strategies to achieve the stated plan vision, goals and objectives outlined to meet the transportation needs of Delaware.

1. ***Continue responsible stewardship of State and Federal transportation funding*** – This can be accomplished with the strategy to pay-as-you-go system, where funds are only encumbered after receipt of taxes, fees and other revenue. This approach does not require debt financing and the future use of revenues to service the debt. These anticipated funds can be used to borrow funds, otherwise known as debt financing.
    a. ***Debt Financing Options***
        i. ***Bonding Instruments*** – Two forms of bonds are available such as those secured by highway user revenue and general obligation bonds secured by the state.
        ii. ***Federal Credit Assistance*** – The federal government provides assistance to states to help lower interest rates and expand access to capital through the Transportation Infrastructure Finance and Innovation Act (TIFIA) loan program. This program provides assistance for projects that meet certain criteria typically used for large, complex and potentially risky projects.
        iii. ***State Infrastructure Banks (SIBs)*** – This is a revolving fund to finance highway and transit projects through direct loans with low interest rates. This is a mechanism typically used to fund large projects.

2. ***Direct user fees –*** Direct user fees can take the form of tolling, congestion pricing or cordon pricing. These options are described below.
    a. ***Tolling*** – A toll is the charge for passage across a bridge or along a roadway to finance transportation improvements, operations and maintenance. Currently, tolls provide a small share of total transportation revenue, this method of revenue generation should be considered using state-of-the-art communications and pricing technologies to facilitate market responses to congestion. Electronic toll collection (ETC) tags which enable drivers to pay without stopping at a toll booth are widely used.
    b. ***Congestion Pricing*** – This is a relatively new tolling approach whereby roadway use is priced to reduce demand, to improve efficiency and to raise revenue. This principle of congestions pricing is that the price of accessing available roadway capacity is higher at the places and the times of day when demand for highways is the greatest. Benefits include reducing demand at peak times, improved efficiency and enhanced air quality. This strategy may reduce the need for new roadway capacity.
        i. ***Entire Road*** – Congestion pricing works most effectively when an entire road is tolled. The fee can vary from time of day or by vehicle type to discourage commercial vehicles during rush hour.
        ii. ***HOT Lanes*** – Requiring a toll for one or more existing lanes. This is typically accomplished by converting a high occupancy vehicle lane (HOV) to a high occupancy toll (HOT) lane.
        iii. ***New Capacity*** – Creating HOT lanes by building new lanes rather than assigning the existing lanes for HOT land use. The mechanism is used to build capacity rather than converting a free lane into a tolled lane.

c. ***Cordon Pricing –*** the primary objectives of cordon pricing is to reduce congestion in the urban core by reducing automobile traffic through a user fee to enter. The fee is used to deter vehicle usage and to support transit. The additional fees generated are generally utilized to support expanded transit facilities.

3. ***Increase motor fuel taxes*** – Motor fuel taxes are the single largest source of revenue for transportation at the federal and state levels. This method of revenue generation is cost effective and an increase provides an incentive for users to purchase more fuel efficient vehicles, while more fuel efficient vehicles will contribute less to this type of revenue. For the fuel tax to be effective long-term the tax must be indexed to account for inflation such as linked to the Consumer Price Index (CPI) or some similar mechanism. Due to higher demands than this type of revenue source can generate, policymakers must consider options to supplement (public-private partnerships, road pricing and tolling) or eventually replace the fuel tax with a VMT tax.

4. ***Expand Transit opportunities*** – Expansion of transit opportunities is costly, yet provides a solution with less impact on the environment and with a reduced demand for additional highway capacity.

5. ***Vehicle Miles Traveled (VMT) Fees*** – VMT fees are charged to drivers directly for each mile traveled. This is a long-term solution for transportation funding that could supplement or replace motor fuel taxes. The VMT fee is unaffected by the greater use of more efficient vehicles. VMT fees could be paired with congestion pricing to provide a disincentive for non-essential and peak period trips.

6. ***Increase consumer preference for more fuel efficient vehicles*** – This strategy will lessen impacts on the environment while reducing the motor fuel taxes generated.

7. ***Public/Private Partnerships (PPPs)*** – PPPs are contractual agreements formed between a public agency and private sector entity that allow for greater private sector participation in the delivery of transportation projects. PPPs can take the form of management and operations, asset leases and private funding and management of new facilities. There are some specific PPP finance models that relate to transit.

Section 2.5 Targeting Funding Strategies

Various funding strategies may be targeted by area such as urban, suburban and rural landscapes according to the type of funding strategy, flexibility to apply different policies to different landscapes and political support. The following table identifies those strategies that should be targeted statewide versus targeted based upon landscape characteristics.

Table 7: Menu of Funding Options

Menu of Funding Options			
Landscape	**Funding Strategy Type**	**Implementation Strategy**	**Implementation Time Reference**
Statewide	Increase Trust Fund Revenue	Innovative Strategies	Immediate
	Bonding	Continue	Ongoing
	Federal Credit Assistance	Utilize for Large Projects	Establish
	State Infrastructure Bank	Establish for Large Projects	Establish
	Tolling (high demand routes)	Continue / Expand as Needed	Ongoing
	Congestion Pricing (commuter routes)	Establish in Wilmington Area	2-5 years
	Motor Fuel Tax	Increase	Immediate
	Vehicle Miles Traveled Fees	Educate and Gain Support	5-10 years
	Expand Transit Opportunities	Continue Expansion	Ongoing
	Jet Fuel Tax	Increase	Immediate
	Air Registrations	Study	5-10 years
Urban (Investment Level 1)	Tolling (high demand routes)	Continue / Expand as Needed	Ongoing
	Congestion Pricing (commuter routes)	Establish in Wilmington Area	2-5 years
	HOT Lanes*	Establish in Wilmington Area	2-5 years
	Cordon Pricing (Wilmington)	Establish for Wilmington	5 – 10 years
	Expand Transit Opportunities	Continue Expansion	Ongoing
Suburban (Investment Level 2)	Tolling (high demand routes)	Continue / Expand as Needed	Ongoing
	Expanding Transit Opportunities	Continue Expansion	Ongoing
Natural & Rural (Investment Levels 3 & 4)	Tolling (high demand routes)	Continue	Ongoing

*HOT Lanes should be carefully studied to determine feasibility.

Chapter 3: Implementation and Performance Measures

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Chapter 3: Implementation & Performance Measures

The project implementation portion of this plan is important because projects are what translate the plan's approach to ***moving forward*** into specific actions visible to the communities across the state. Certain actions are identified to produce near-term measurable results while others are designed to produce gradual results over a longer period of time. The same is true with respect to project implementation and the timing associated with bringing facilities in to service.

Section 3.1 Project Implementation

The following tables identify the short-term and long-term projects identified by County that have been studied as part of the scenario planning to determine the best mix of improvements to meet a variety of transportation needs in the context of DelDOT's smart transportation strategy.

Table 8: Summary of Projects

New Castle County	In-Service 2010	In-Service 2020	In-Service 2030	CTP Projects	Aspirations List
I-95, SR 1 to SR 141 – Widening to Add 5th Lane	✶				
School Bell Road, SR 7 to US 13 – Upgrade	✶				
Choptank Road, Bunker Hill Road to Bethel Church Road – Upgrade	✶				
Bunker Hill Road, Choptank Road to US 301 – Upgrade	✶				
Levels Road, Strawberry Land to US 302 – Upgrade	✶				
St. Anne's Church Road, Levels Road to SR 71 – Upgrade	✶	✶			
I-95/US 202 Interchange Ramp Improvements		✶		2012	
Tyler McConnell Bridge - Widening		✶			
SR 141, Kirkwood Highway to Faulkland Road – Upgrade		✶			
SR 2, SR 100 to Broom Street – Upgrade		✶			
I-295 Improvements, I-95 to Memorial Bridge		✶			
SR 2 Elkton Road, MD Line to Delaware Avenue – Upgrade		✶		2010	
SR 4, SR 896 to SR 2 Elkton Road – Upgrade		✶			
I-95/SR 1 Interchange Ramp – Improvements		✶		2010	
Road A Bridge – Widening		✶			
SR 7, Newtown Road to SR 273 – Widening		✶			
SR 72, SR 1 to north of SR 71 – Widening		✶			
US 301, MD Line to SR 1 – New Freeway		✶			
Hyetts Corner Road, Jamison Corner Road to US 13 – Upgrade		✶			
Cedar Land Road, North Broad Street to SR 896 – Upgrade		✶			
SR 299, Middletown to Odessa – Widening		✶			
Wiggins Mill Road, St. Anne's Road to Pine Tree Road – Upgrade		✶			
US 301, Peterson Road to Levels Road – Widening		✶			✶
SR 141, I-95 to US 13 – Upgrade					✶
SR 1, US 13 to SR 273 – Widening					✶
Road A Extension – New Connection					✶
SR 1/Road A – Interchange Ramp Improvements					✶
US 13, SR 1 to US 40 – Widening					✶

New Castle County	In-Service 2010	In-Service 2020	In-Service 2030	CTP Projects	Aspirations List
Brackenville Road, SR 7 to SR 41 – Upgrade					✶
SR 7, PA Line to Valley Road – Widening					✶
Churchmans Road Extension, SR 2 to SR 4 – New Road					✶
SR 9 New Castle Area Improvements					✶
US 40, SR 896 to SR 1 – Widening					✶
Newtown Road, SR 896 to Salem Church Road – New Road					✶
SR 72, Newtown Road to DelLaws Road – Upgrade					✶
Porter Road, Church Road to SR 7					✶
Church Road, Porter Road to US 40					✶
SR 7, Porter Road to US 40					✶
I-95/SR 72 Ramps to and from the north – New Ramps					✶
I-95, MD Line to SR 1 – Widening					✶
Paddock Road, US 13 to SR 9 – Upgrade					✶
Duck Creek Road, US 13 to SR 300 – Upgrade					✶

Kent County	In-Service 2010	In-Service 2020	In-Service 2030	CTP Projects	Aspirations List
Carter Road, SR 300 to Sunnyside Road – Upgrade	✶			2010	
Harrington Truck Route, SR 14 to US 13 – Upgrade	✶				
West Dover Connector, North Street to US 13 – New Road		✶		2011	
Sunnyside Road, US 13 to SR 300 – Upgrade			✶		
Denny's Road, McKee Road to US 13 – Upgrade			✶		
College Road, SR 15 to Kenton Road – Upgrade			✶		
Kenton Road, SR 8 to Fireschool Road – Upgrade			✶		
SR 15, SR 6 to SR 42 – Upgrade					✶
SR 42, SR 300 to US 13 – Upgrade					✶
US 13, Carter Road to Scarborough Road – Upgrade					✶
McKee Road, SR 42 to Denny's Road – Upgrade					✶
SR 8, Mifflin Road to west of Artis Road – Widening					✶
New Burton Road, North Street to Wyoming – Upgrade					✶
South State Street, Webbs Lane to US 113 – Upgrade					✶
US 13A, SR 10 to US 13 (Canturbury) – Upgrade					✶
SR 15, US 13 (Canturbury) to SR 14 – Upgrade					✶
Walnut Shade Road, South State Street to US 13 – Upgrade					✶
US 113, SR 9 to Milford – Widening					✶
Carpenter Bridge Road, SR 14 to US 13 – Upgrade					✶

Sussex County	In-Service 2010	In-Service 2020	In-Service 2030	CTP Projects	Aspirations List
SR 24, SR 1 to Love Creek – Widening		✶			
SR 54 Improvements		✶		2010	
SR 26, SR 1 to Omar Road – Widening		✶			
Western Parkway, SR 1 north to Five Points to Old Landing Road					✶
US 113 Improvements					✶

Section 3.2 Integrating Performance Measures into Transportation Decision Making

Performance-based planning is a systematic process integrated into the Department's ongoing planning, management and decision making process. The information and analysis from performance measures can be used to determine progress toward specific organizational objectives. These measures include both quantitative and qualitative evidence as the measurement of customer satisfaction and customer perceptions. Various performance measures assess progress toward meeting the objectives of the transportation system management and operations such as mobility, safety and accessibility.

This analysis of performance can be used to influence policy changes, transportation choices and resource allocation decisions. The measures define the implications of policy or resource allocation options so that decision makers better understand the likely outcomes of selected options. The following potential performance measures or indicators have been identified in response to goals and objectives previously identified in the Policy Plan portion of this document. Each set of performance measures or indicators are matched to the guiding principles and plan objectives.

Table 9: Performance Measures / Indicators

Principles/Objectives	Potential Performance Measures/Indicators
System Preservation/Optimization **"Maintenance First"**	• Number of miles inventoried and assessed. • Miles of roadway in need of repair. • Number of bridges in need of repair.
Development **"Direct our programs, services and facilities to support Better Delaware"**	• % of projects in State Strategies for Spending Areas (target Investment Levels 1 & 2). • Number of retail jobs within 15 minutes of home. • Developed non-agricultural land per capita. • % of land dedicated to transportation uses • Acres of preserved space.
Travel Opportunities and Choices **"Maximize transportation choices for Delaware residents and visitors"**	• % of Transportation Enhancement $ spent in Investment Levels 1, 2 and 3. • % of trips by non-motorized means. • % of population within a ½ mile of fixed route transit. • Average travel time for trips by region. • % increase in transit ridership.
Cost-Effectiveness **"Use cost-effectiveness as one of our fundamental principles"**	• Use Bridge Health Index to schedule rehabilitation and replacement activities. • % decrease in annual cost of wasted time (travel delay times and levels of congestions) and fuel per motorist. • Subsidy per transit trip, by type. • % of VMT traveled on roadway with "Good" or better rating. • Cost/benefit comparisons of proposed projects.
Quality of Life **"Continue to emphasize quality of life as our foundation"**	• Transportation-related injury and fatality rates for existing facilities without or with improvements (Traffic Safety Index). • % decrease in incident response time. • % of Transportation Enhancement dollars spent in State Strategy Spending Areas. • Access to jobs for target communities (number of employment opportunities within 15 minutes for target communities). • Transit time from target communities to major job centers. • Vehicle emissions per capita.

Principles/Objectives	Potential Performance Measures/Indicators
Economic Development and Growth **"Provide transportation opportunities that support economic development and growth"**	• Number of extended "breakdowns" in flow of the State's freeways, by time period (e.g., month). • Average number of jobs within 15 minutes of home. • Identification of designated truck routes and levels of congestion/Travel time reliability for freight. • % growth in freight originating in Delaware (tonnage or $$). • Cost per mile for freight.
Planning and Coordination **"Maintain planning and coordination as an integral part of our activities"**	• % of CTP implemented each year ($) versus Level of Service improvements. • % of Departmental Action Plan items completed. • Number of opportunities for public input. • Consistency of MPO and County Plans.

Section 3.3 Prioritization System

Many transportation agencies utilize performance measures to help screen or prioritize projects in the development of the Transportation Improvement Program (TIP). The previously outlined performance measures can be used to help guide resource allocation decisions at the program level for the system planning and programming process. DelDOT utilizes the following assessment and prioritization systems in the context of Better Delaware's State Policies and Strategies for Spending using Investment Levels to prioritize projects and programming:

- Traffic Safety Index;
- Bridge Health Index;
- International Roadway Roughness Index; and
- Pedestrian Accessibility Prioritization System.

Section 3.4 Monitoring and Feedback

Monitoring and feedback is a critical component of performance-based planning that includes the ongoing monitoring of system performance and the appropriate feedback to the planning and decision-making processes. This step of the planning process is completed with observed data of actual system conditions and performance. DelDOT has several mechanisms in place for monitoring and feedback such as several key items listed below and reported in the annual Fact Book.

- Customer Satisfaction Survey;
- Bridge Inspection;
- Pedestrian Facilities Inventory; and
- Roadway Index.

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Transit

Pedestrian

Water Transport

Bicycle

Commuter

Rail

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Policy Plan

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