
Intelligent Transportation System Strategic Deployment Plan Update – Triangle Region –

FINAL Vision, Goals, and Objectives Report

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Triangle ITS Communications Partners



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March 2010
011494053

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1. VISION, GOALS, AND OBJECTIVES OVERVIEW

The Triangle Region ITS Strategic Deployment Plan Update focuses on the use of technology and systems management to help address the region’s current and forecast transportation system safety and mobility needs. As part of this process, the project Steering Committee has engaged in an effort to establish the vision, goals, and objectives. These will be used to develop and guide the strategies and tactics to outline the short- and long-term components of the Strategic Deployment Plan (SDP).

The vision statement provides a unified guideline for validating future strategic decisions. Goals and objectives address the environment, shortcomings, and needs of the region to achieve the vision. The goals and objectives also are the framework for strategies and tactics. Goals are broader and more abstract than objectives, but they segment the vision into more manageable and tangible statements. The precision of the objectives provides a means of measuring and accomplishing each goal. The objectives are further segmented into different strategies and tactics that are needed to develop specific projects within the SDP. **Figure 1** presents a graphical representation of the relationship between the components of a vision.

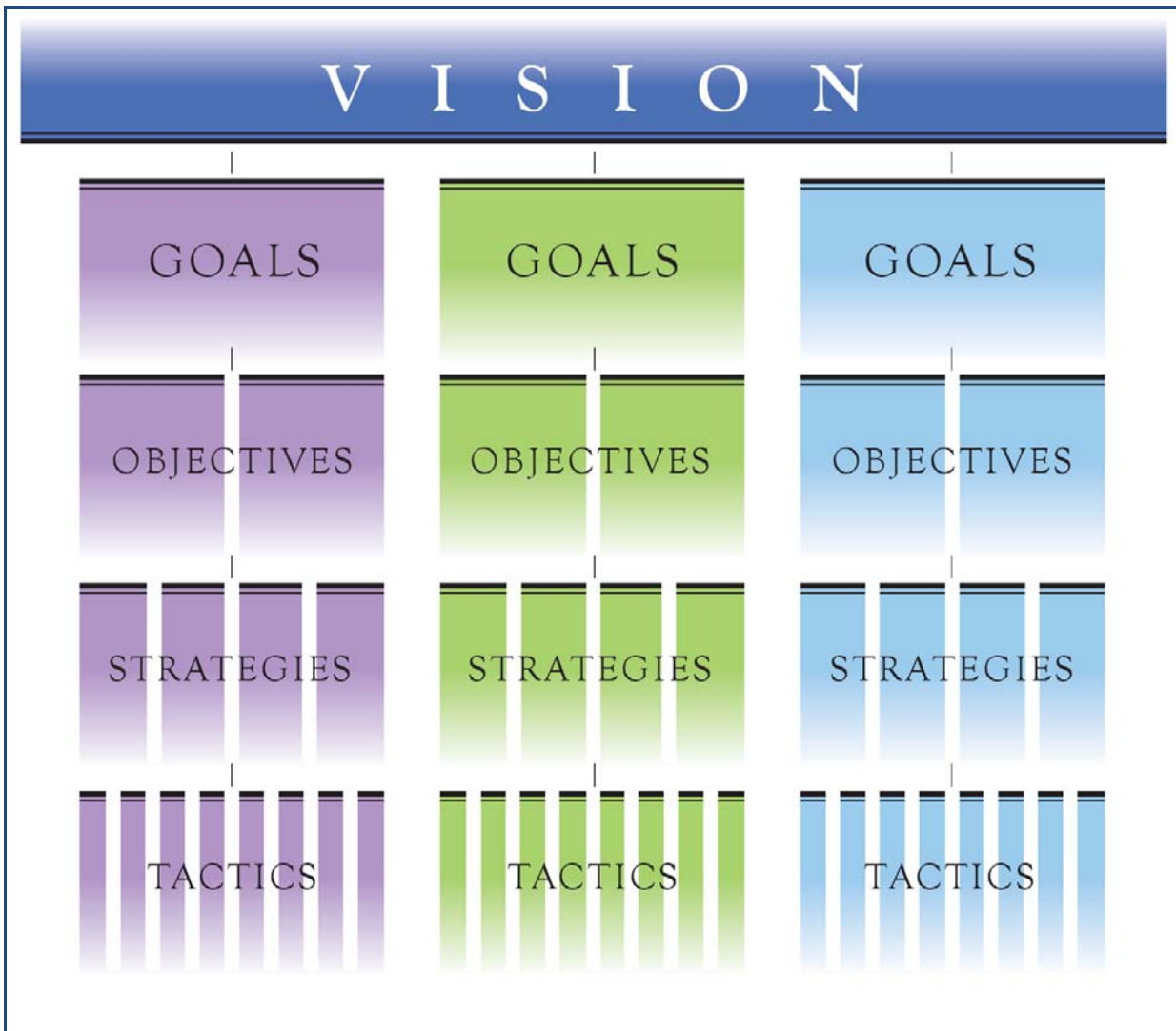


Figure 1. Vision Diagram



1.1 Basis for the Vision, Goals, and Objectives Development

The Triangle ITS Communications Partners are addressing their interest of the overall project by recognizing the needs of the region and the overwhelming desire to update the Strategic Deployment Plan with current and relevant projects.

This effort has been built upon a scan of the vision, goals, and objectives contained in the planning and guidance documents maintained by the agencies represented by the Triangle Communications Partners. The scan was followed by several sessions with the partners to hone the themes and concepts into a cohesive vision with meaningful goals and measurable objectives.

1.2 Foundational Step in the ITS Strategic Deployment Plan

Once the vision, goals, and objectives have been finalized by the Steering Committee and the full committee of stakeholders, they will serve as the foundation for the gap assessment. The gap assessment will highlight the technological and geographic needs to address the regional objectives. The needs will be refined into strategies, which will become the stepping stones to projects for the region.

2. PROCESS

The Triangle Region ITS Strategic Deployment Plan Update involves many stakeholders from several agencies. Each agency has established visions, goals, and objectives that are focused on their mission. As a regional project, the different visions, goals, and objectives need to be sculpted into one effort targeting technological solutions. It is important for the vision, goals, and objectives to be flexible enough to encompass the needs of all the agencies represented. The initial statements for the vision, goals, and objectives were developed by combining insights from several sources. **Figure 2** presents an overview of the process followed during the development of the vision, goals, and objectives. It begins with the review of agency documentation, and continues through integration with the gap analysis.



Figure 2. Vision, Goals, and Objectives Development Process

2.1 Documents Referenced

Various documents were referenced to develop the vision goals and objectives. These include the Long Range Transportation Plans (LRTP) from the area Metropolitan Planning Organizations (MPO), the North Carolina Department of Transportation (NCDOT) 2008 Annual Performance Report, the Federal Highways Administration (FHWA) Strategic Plan, and several of the regional transit agencies' mission documents. Each of the documents addressed the individual agency's vision statement, goals, and objectives.

2.2 Process Used

To begin the process of creating a regional SDP, key terminology had to be identified. Once the key terminology was identified, common phrases were compiled. Common terminology was defined as terminology used at least twice by different agencies or in different documents. Several key terms were then used to develop the vision and goals statements. All of the sources referenced are listed in the **Bibliography**.

After aligning the terminology between the stakeholder agency resources, the draft vision, goals, and objectives were established. The scope of the project and Steering Committee feedback helped finalize each statement to align with the overall goal of the project.

2.2.1 Vision

There were 23 identified themes throughout the documents submitted by the stakeholder agencies. Many of them were used once but several were used more than four times. **Table 1** identifies the phrases common throughout the documents that were provided. The most commonly used phrases in the provided vision statements include:

- Safety
- Mobility
- Growth/economic development
- Environmental sensitivity



Table 1. Common Themes – Vision Development

Common Themes	Occurrences
connecting people	4
connecting places	4
safety	10
efficiency	4
accountability	2
environmental sensitivity	5
multi-modal	2
growth/economic development	5
improves quality of life	4
sustainability	4
mobility	7
convenient	4
affordable	3
supports local land use	2
social interaction (cultural resources/social system)	4
informative	1
innovative	1
reliable	4
reduces congestion/energy use	1
saves money	2
accessible	3
clean	1
responsive	1

A brainstorming session was held to develop a draft vision statement. The draft vision statement includes the four most commonly used terms along with additional phrasing. The vision statement was presented to the Steering Committee for comment. After comments were received and incorporated, an updated statement was submitted to the Steering Committee for finalization. Section 3.1 includes the approved vision statement.

2.2.2 Goals

There were 34 themes identified throughout the reviewed documents. Few themes were used once but most were used in at least two sources as most of the agencies have developed similar goals. **Table 2** summarizes the phrases that were common across the goals listed in the agency documents. For more detail, **Appendix A** references all of the goals identified from the sources provided. The most commonly used phrases for the goals include:



- Efficient infrastructure
- Increase mobility
- Improve reliability
- User satisfaction

Table 2. Common Themes – Goal Development

Common Themes	Occurrences
safer road network	3
move people and goods	2
efficient infrastructure	6
user satisfaction	5
reduce impact	2
provide alternatives	5
improve reliability	3
increase mobility	5
reduce injuries and property damage	1
performance measures	1
employee satisfaction	1

Preliminary goals were developed based on the various documents provided and were drafted during a brainstorming session. The draft goals were then presented to the Steering Committee. The Steering Committee took into account the revised vision statement as they reviewed the draft goals. After careful consideration, they confirmed three goals, which were sent out to the Triangle Regional Stakeholders for comments and confirmation. The final goals are presented in Section 3.2.

2.2.3 Objectives

Once the goals were finalized, a brainstorming session was held to develop draft objectives aligned with each of the three goals. Objectives typically are composed of three components:

- indicator
- target
- date

However, the draft objectives did not include detailed metrics (target or date). The intent was to gain feedback regarding the purpose of the objective prior to defining the specifics of the metrics. The final objectives will include metrics based on available data and base line values of the data.

During the development of the objectives, it became important to consistently define the network relative to each objective. It is understood that transit objectives impact a closed network respective to the established transit routes, but it is important to similarly define the highway network. It was decided that the defined network would be based on FHWA standards and criteria and would be defined as the principle arterial network. The principle arterial network refers to interstates, freeways, and expressways. **Figure 3** illustrates the FHWA functional classifications in relation to the NCDOT strategic network corridors.

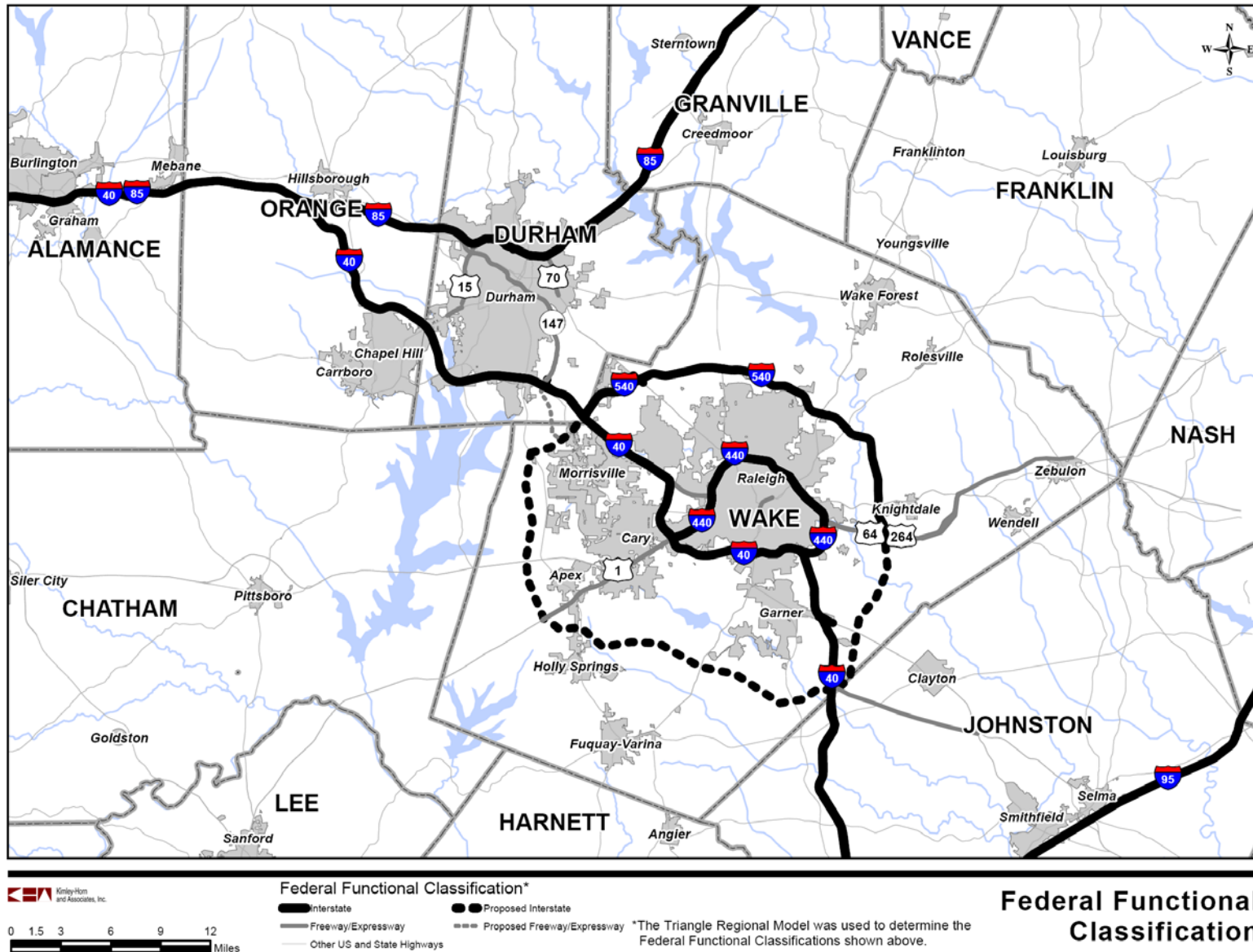


Figure 3. FHWA Functional Classification and NCDOT Strategic Network Corridors

FHWA classifications define principal arterials as facilities with the following characteristics:

- Serve corridor movements having trip length and travel density characteristics indicative of substantial statewide or interstate travel.
- Serve all or virtually all urban areas with populations of 50,000 or greater and a large majority of those with populations of 25,000 or greater.
- Provide an integrated network without stub connections except where unusual geographic or traffic flow conditions dictate otherwise (e.g., international boundary connections and connections to coastal cities).

NCDOT definitions for Comprehensive Transportation Planning further defines freeways and expressways based on functional purpose, posted speed, cross section, multi-modal elements, type of access control, access management, intersection facilities, and driveways, as shown in **Table 3**.

Table 3. NCDOT Definitions for CTP Maps

	Freeways	Expressways
Functional Purpose	high mobility, high volume, high speed	high mobility, high volume, medium-high speed
Posted Speed	55 mph or greater	45 to 60 mph
Cross Section	minimum four lanes with continuous median	minimum four lanes with median
Multi-Modal Elements	High Occupancy Vehicles (HOV)/High Occupancy Transit (HOT) lanes, bus ways, truck lanes, park-and-ride facilities at/near interchanges, adjacent shared use paths (separate from roadway and outside Right of Way (ROW))	HOV lanes, bus ways, very wide paved shoulders (rural), shared use paths (separate from roadway but within Right of Way (ROW))
Type of Access Control	full control of access	limited or partial control of access
Access Management	interchange spacing (urban – one mile; non-urban – three miles); at interchanges on the intersection roadway, full control of access for 1,000' or for 350' plus 650' island or median, use of frontage roads, rear service roads	interchange spacing (urban – one mile; non-urban – three miles); at interchanges on the intersection roadway, full control of access for 1,000' or for 350' plus 650' island or median, use of frontage roads, rear service roads
Intersecting Facilities	interchange or grade separation (no signals or at-grade intersections)	interchange or grade separation (no signals or at-grade intersections)
Driveways	not allowed	right-in/right-out only; direct driveway access via service roads or other alternate connections



The draft objectives were provided to the Steering Committee for comments. After the comments were received, the objectives were revised. Section 3.3 includes the updated objectives identified by the Triangle ITS Communications Partners.

Objectives should contain clear metrics that can be used to evaluate the effectiveness of the strategies and tactics toward achieving the defined objectives. Metrics consist of three components: targets, standards, and a date or time period. As a rule, targets are compared to an identified baseline condition. The date is used in conjunction with milestones, which are progress checkpoints correlated to the strategies and tactics, or individual projects.

For each identified objective, baseline data needs to be collected to validate the parameters of the objective and help to identify a suitable time period for that objective. Baseline data is determined by identifying what needs to be measured such as customer satisfaction, service quality, or rates and then verifying the outputs from processes or performances already operational. These outputs make up the baseline data conditions that are used to compare any improvements of a process.

After considering what improvements are needed for each objective, targets should be established as the aim for improving the process or performance. An improvement can be stated as a reduction, improvement, or increase of the output. It should be determined whether this aim is a yearly, quarterly, or monthly pursuant and at what rate of improvement is adequate to be effective and efficient.



3. VISION, GOALS, AND OBJECTIVES

After several rounds of review and approval, the Triangle region stakeholders finalized the vision and goal statements. Additionally, further refined objectives were developed, reviewed, and confirmed. **Table 4** presents the final Vision, Goals, and Objectives for the Triangle region.

Table 4. The Vision, Goals, and Objectives

Vision	
<i>The proactive use of technology and system operation and management to support a multi-modal system that provides safe, efficient, reliable, and convenient transportation for people and goods while increasing mobility, enhancing economic development, and improving our region's quality of life in an environmentally sustainable manner.</i>	
Goal	1. Advance safe and efficient movement of people and goods throughout the region.
Objectives	1.1. Clear 90% of incidents in 60 minutes or less on the principle arterial network
	1.2. Reduce the number of crashes per 100 million vehicle miles by 10% over a three-year floating average on the principle arterial network
	1.3. Decrease secondary incidents by 10% on the principle arterial network
Goal	2. Improve reliability of transportation systems throughout the region
Objectives	2.1. Report all construction and maintenance activities to the TMC in advance of start date on the principle arterial network
	2.2. Report all planned special events with manual traffic control, attendance greater than 10,000, or requiring road closures to the TMC in advance of start date on the principle arterial network
	2.3. Provide assistance to 90% of disabled vehicles on roadways designated on the network within 15 minutes (the principle arterial network)
	2.4. Provide 85% on-time performance for public transportation on closed networks
	2.5. Increase travel time reliability by 2% per year to improve network performance for all users on the principle arterial network
Goal	3. Enhance mobility choices through accurate, timely, and convenient information
Objectives	3.1. Increase person throughput on the principle arterial network and transit networks by 10% during peak periods
	3.2. Integrate travel information from all public agencies into a single source
	3.3. Post incident information to a single source in less than 10 minutes of incident notification on the principle arterial network
	3.4. Make available real-time transit arrival times on 90% of the transit network
	3.5. Provide traveler information through no less than three clicks or voice commands
	3.6. Nationally accepted data quality standards as outlined in the "Data Processing Procedures and Quality Control" document



4. PERFORMANCE MEASURES AND PROJECT EVALUATION MEASURES

Early in the development of the Strategic Deployment Plan (SDP), it is important to differentiate between Project Evaluation Measures (PEM) and performance measures. These terms can sometimes be confused as their definitions related to evaluation are similar and may be used interchangeably by different agencies. The following descriptions define these terms as they are intended to be used throughout the Triangle Regional ITS SDP documents.

- PEMs are metrics used to evaluate the merits of a project and help prioritize multiple projects during the development of a deployment plan.
- Performance measures are metrics used to evaluate how a corridor or network is operating based on current infrastructure.

Projects selected based on PEMs should cumulatively improve the performance of a system or network and advance the network based on the stated objectives. This consistent, attentive approach to project development and assessment is in-line with NCDOT’s recent transformation to become a “results-based organization that more effectively measures and reports its organizational and individual performance.”

The Department is currently undergoing a shift in the way it measures its performance and the way it determines how it funds its activities including its capital program. This process has important bearing on the development of the Triangle SDP. In recent discussions, the use of the volume/capacity (V/C) ratio has emerged repeatedly. While V/C ratio is presented as an evaluation metric, the manner in which V/C ratio is being used by NCDOT, part of its performance measurement differs from its use in the SDP. The SDP PEMs are looking forward to try and select projects that will contribute to the achievement of the SDP goals, while the performance measures are looking backward to see how the system performed. **Table 5** and **Figure 4** from the *NCDOT Transformation Report, 2008* present this difference.

Table 5. Comparison of Leading vs. Lagging Indicators

Leading Indicator (Input & Output)	Lagging Indicators (Outcomes)
LEADING indicators are metrics that are task specific	LAGGING indicators are <u>reactive</u>
LEADING indicators measure and track performance before a problem area	LAGGING indicators are reflective and measure performance against prior goals
LEADING indicators are <u>proactive</u>	LAGGING indicators indicate what has already happened (past)
LEADING indicators indicate what may happen (future)	
LEADING indicators are a predictor to the ability to meet future goals	

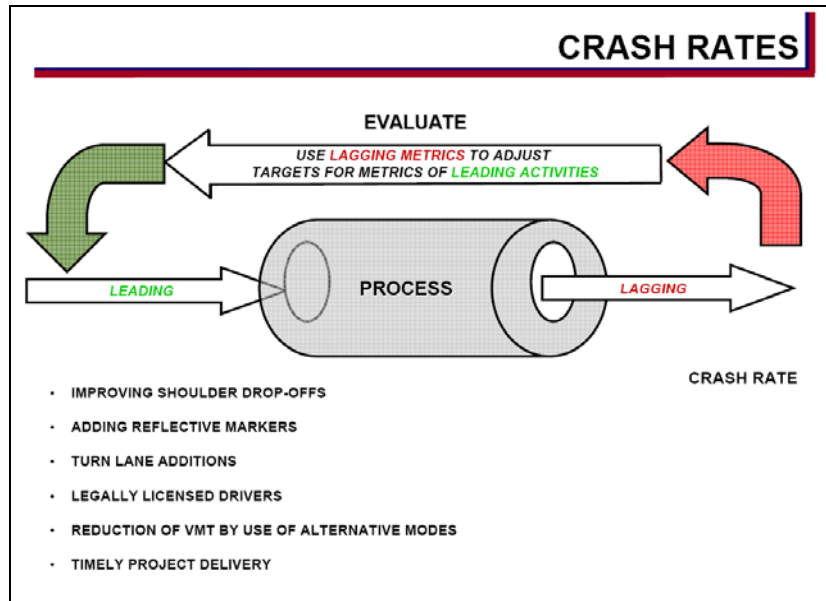


Figure 4. Comparison of Leading vs. Lagging Indicators

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APPENDIX A – SUMMARY OF GOAL STATEMENTS FROM REFERENCE DOCUMENTS



Summary of Goal Statements from Reference Documentation
<i>NCDOT</i>
<i>Make our transportation network safer</i>
<i>Make our transportation network move people and goods more efficiently</i>
<i>Make our infrastructure last longer</i>
<i>Make our organization a place that works well</i>
<i>Make our organization a great place to work</i>
<i>CAMPO</i>
<i>Develop a regional transportation network that improved quality of life and environment</i>
<i>Provide convenient, Safe, reliable, and affordable transportation choices, and provide public education on those choices</i>
<i>Enhance connectivity by developing a multi-modal transportation network that promotes economic growth that is compatible with the environment and land use patterns</i>
<i>Develop an efficient transportation network that is both affordable and reliable for the movement of people and good</i>
<i>DCHC</i>
<i>A safe, sustainable, efficient, attractive, multi-modal transportation system that supports local land use; accommodated trip-making choices; maintains mobility; protects the environment and neighborhoods; and improves the quality of life for urban area residents</i>
<i>An attractive multi-modal street and highway system that allows people and goods to be moved safely, conveniently, and efficiently</i>
<i>A convenient, accessible, and affordable public transportation system, provided by public and private operators, that enhances mobility and economic development</i>
<i>A pedestrian and bicycle system that provides a safe alternative means of transportation; allows greater access to public transit; supports recreational opportunities; and includes off-road trails</i>
<i>A Transportation Plan that is integrated with local land use plans and development policies</i>
<i>A multi-modal transportation system which provides access and mobility to all residents, while protecting the public health, natural environment, cultural resources, and social systems</i>
<i>Continue to improve transportation safety and ensure the security of the transportation system</i>
<i>Improve mobility and accessibility of freight and urban goods movement</i>
<i>FHWA</i>
<i>Lead in developing and advocating solutions to national transportation needs</i>
<i>Ensure programs are effectively and consistently delivered through successful partnerships, value-added stewardship, and risk-based oversight</i>
<i>Provide safe, reliable, effective, and sustainable mobility for all users on the national highway system</i>
<i>Ensure that organizational resources are optimally deployed to meet today's and tomorrow's mission</i>



Summary of Goal Statements from Reference Documentation
<i>ITRE - Triangle Transit</i>
<i>Continue to operate a fiscally responsible public agency utilizing good business principle</i>
<i>Work with cities, counties, Metropolitan Planning Organizations and other interested parties in examining transportation corridors, considering land use, economic activity, population patterns, and connections among the three elements and transportation</i>
<i>To provide safe, secure, and reliable service that protects employees and passengers and minimizes property damage to vehicles and facilities</i>
<i>ITRE - DATA</i>
<i>Identify unmet transit needs in and around the City of Durham for riders and non riders</i>
<i>Provide opportunities and effective ways to capture a larger choice market for the system</i>
<i>Improve service coordination among transit providers in the Triangle area</i>
<i>Enhance service delivery, reliability, convenience, and accessibility of current transit service for all citizens as well as visitors of Durham</i>
<i>Outline operating and capital budget needed to support the plan</i>
<i>Create a service type that is sensitive to Environmental Justice</i>
<i>Position DATA to be an effective regional player in the era of fixed guideway initiative</i>
<i>ITRE - C-TRAN</i>
<i>Maintain affordable door-to-door transit services for seniors and persons with disabilities throughout the town limits for medical, employment, shopping, and social activities and out-of-town services for medical and employment trips on a space available basis</i>
<i>Develop, provide, and maintain highly efficient, effective, and convenient transit services for the general public within the town limits</i>
<i>Design and maintain transit services in a manner that promotes increases system productivity and excellent customer service</i>
<i>Ensure that the system provides local bus service connections with regional bus service and baseline of transit feeder services to the future regional commuter rail system</i>
<i>Ensure that all available federal, state, regional, and other transit grant funding sources are sought and utilized to the maximum extent possible to offset expenses to the Town and its citizens</i>
<i>Ensure that the Town continues to cooperate and participate in regional transit coordination initiatives to enhance the mobility of our citizens and visitors throughout the region</i>
<i>ITRE - CAT</i>
<i>To develop a comprehensive, community-based plan to provide improved and enhanced transit service in the City of Raleigh for all riders for the next five years and beyond</i>
<i>ITRE - Chapel Hill</i>
<i>To be accessible, efficiently operated and supportive of a healthy environment and a sustainable local economy</i>
<i>To connect and coordinate with other transportation means in the Research Triangle area providing an alternative for local and regional travel</i>