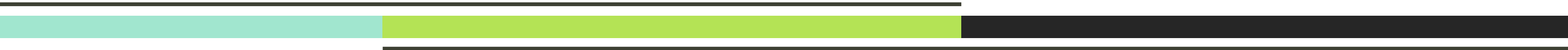# Chapter 3:

## Plan Development Process

# Chapter 3: Plan Development Process

## INTRODUCTION

This chapter provides an overview of the plan development process that was used to facilitate the development of the 2035 LRTP Update. This includes a summary of the overall approach, tools, and assumptions made to guide the preparation of the plan. Other important issues to the plan development process also are highlighted.

## KEY PLANNING TOOLS

Several tools were used throughout the Needs Plan and Cost Affordable Plan development process. These tools were used to forecast traffic conditions in the future, analyze those traffic conditions based on the improvements, and display the results using maps to convey information in a format fit for general understanding. **Figure 3-1** illustrates how each tool was applied in the evaluation process. These tools include:

- The Tampa Bay Regional Planning Model, Version 7 (TBRPM 7), a districtwide travel demand forecasting model used to forecast roadway conditions in the future. This model is based on the Florida Standard Urban Transportation Model Structure (FSUTMS) in a CUBE environment. Please see the Technical Support Appendix for more documentation on TBRPM . Chapter 3 of the Technical Appendix has more information about the model.

- ArcMap Geographic Information Systems (GIS) software, used to create maps and perform calculations based on geographic features such as length, acreage, and complex spatial overlay calculations.

- The Visual Transportation Inventory Management and Analysis Software, or vTIMAS, a multi-function GIS tool previously developed by TOA that was used to analyze forecasted roadway conditions and project roadway improvement costs.

## KEY PLANNING ASSUMPTIONS

Selected key planning assumptions are highlighted below, along with references where more detailed information and data are available.

## Transportation and Land Use

The 2035 LRTP update was based on an extensive analysis of existing land uses, build-out densities and intensities, and developable vacant land by land use plan code. Additionally, this analysis considered the impact of approved developments of regional impact (DRIs) and other major developments, as well as future population and employment projections for Pasco County.

The sources for future population and employment projections were the Bureau of Economic and Business Research (BEBR) at the University of Florida and the Florida Department of Labor and Employment Services. The result of this work effort is a set of socioeconomic data that reflects the use of vacant developable land in Pasco County, along with the associated land uses that can be built on this vacant land. This was accomplished through the use of a land use allocation model. The development of socioeconomic data for Pasco County and the use of the Pasco County Land Use Allocation Model are documented in Chapter 4 of this Plan.

## Development of Roadway Network Alternatives

The development of the final 2035 and 2025 Cost Affordable Plan Networks reflects several iterations and refinements of various network alternatives. The following network alternatives were developed and evaluated, using vTIMAS, as part of the plan development process:

- Base Year (2006) Network
- Existing (2009) Network
- Existing plus Committed (2014) Network
- 2035 Needs Plan Networks
- 2035 Cost Affordable Plan Networks
- 2025 Interim Cost Affordable Plan Networks

The future networks were developed cooperatively with guidance from the Technical Advisory Committee (TAC), the Citizens Advisory Committee (CAC), and the MPO Board. In addition, several public workshops and discussion groups were held to obtain input from citizens of Pasco County throughout
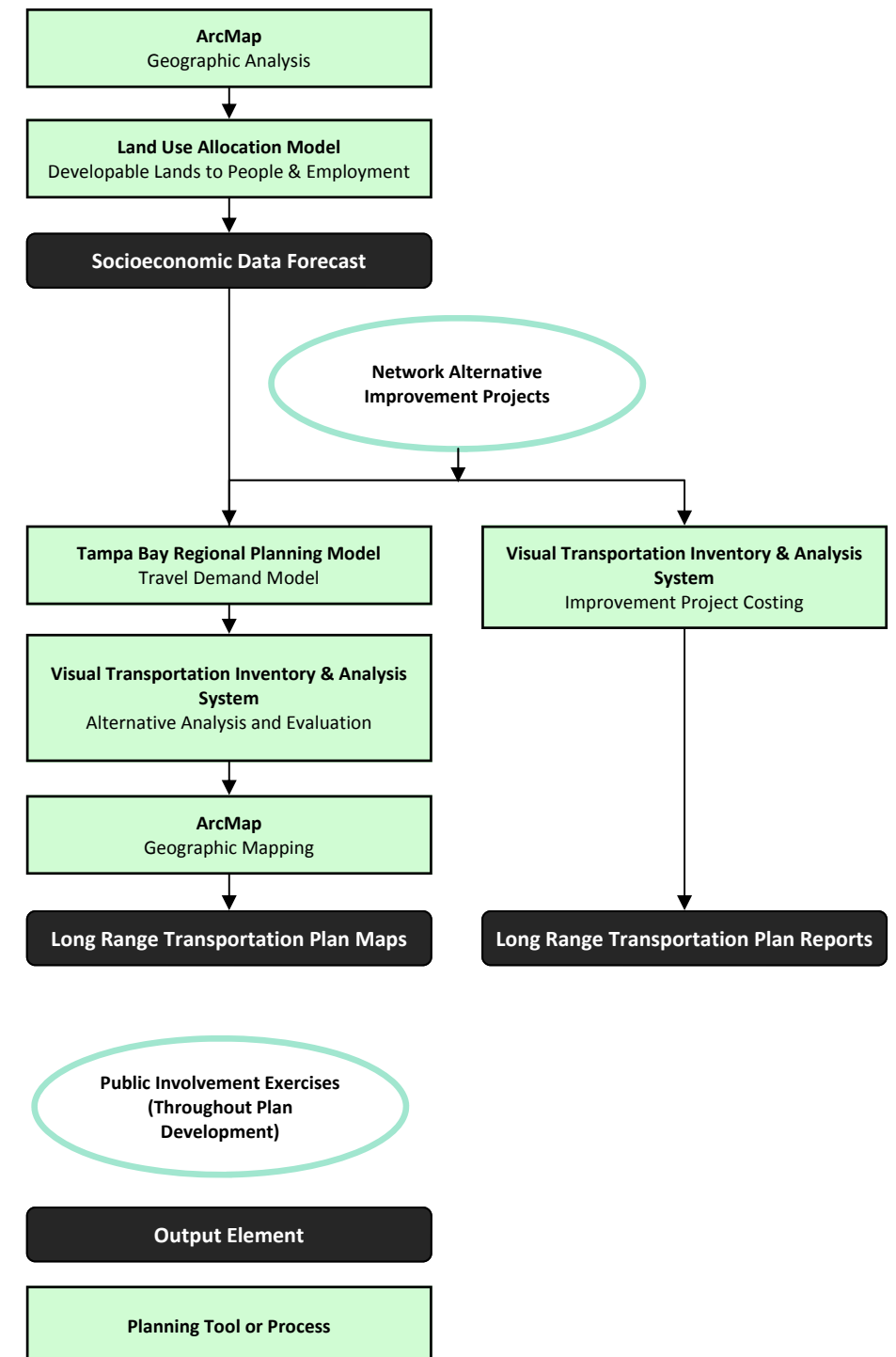


*Figure 3-1: Planning Tool Applications*

the plan development process. The public participation process is summarized in Chapter 10.

**Linking and Importing Model Volumes and Adjustment Process**

The testing and development of the Transportation Plan were performed as part of a five-county regional planning process coordinated by the District 7 Office of the FDOT. This process included two key components:

- using the Regional Transportation Analysis (RTA) model to project traffic volumes throughout the region, and
- coordinating the development and testing of alternatives through regular meetings of the Technical Review Team, a regional coordination committee led by District 7 of the Florida Department of Transportation (FDOT).

This cooperative multi-county approach ensures that travel demand modeling across county boundaries is performed in a consistent manner and that the impact of land use and transportation changes in adjacent counties is considered.

One of the most significant processes in vTIMAS is called FSUTMS Volumes Input, or FVolsIn. This process links the output of a FSUTMS model to vTIMAS and imports the raw model volumes. In Pasco County, traffic volumes were reviewed and adjusted or "smoothed" to correct for imperfections in the model validation process. These adjustments were made using an accepted methodology published by the Transportation Research Board in Technical Report #255.

Seven "smoothing" methodologies were used to make adjustments as appropriate, including:

- Future Model Volume Adjusted to Average Annual Daily Traffic (AADT) = C
- Difference Method (D) = (A - B) + C
- Ratio Method (E) = (A / B) x C

- Average Method $(F) = (D + E) / 2$
- Exponential Method $(G) = B \, [1 + (FGR / 100)] \, (AY - AB)$
- Straight Line Method $(H) = B \, [1 + ((AY - BY) \, (FGR / 100))]$
- User Select (U) = User Defined AADT

where:

A = Base Year AADT
B = Base Year Model Volume adjusted to AADT
C = Future Model Volume adjusted to AADT
FGR = Future Growth Rate
AY = Analysis Year
BY = Base Year

Once adjusted volumes are developed using one of the above procedures, an additional manual review is conducted for reasonableness.

**Level of Service Analysis**

The vTIMAS System was designed to accept inputs and perform generalized and conceptual LOS. The generalized LOS uses the FDOT Generalized Volume Tables to identify the LOS for a roadway segment and facility. The software also has the ability to run conceptual (Art-Plan) level of service analysis; however, this type of analysis was not performed as a part of this LRTP, except for the Congestion Management Process.

## Cost and Revenue Projections

Significant efforts were devoted to the development of standard and reasonable assumptions for the projections of costs and revenues. The vTIMAS software can calculate the roadway costs for right-of-way, design, construction, and unique costs through calculations based on length, total lane miles, added lane miles, or percent of another cost (such as percent of construction cost). The module also accommodates alternative costing methods such as the use of manual costs.

Cost and revenues projections were prepared for all elements of the LRTP, including:

- Highways
- Public transportation
- Bicycle and pedestrian facilities
- Multi-use trail facilities
- Intelligent Transportation Systems (ITS)
- Intersection improvements
- Transportation Demand Management (TDM)
- Advance right-of-way acquisition

More information on unit cost assumptions and non-roadway costs used in this LRTP can be found in Chapter 5.

## OVERVIEW OF THE PLAN DEVELOPMENT PROCESS

This LRTP includes the 2009 and 2014 Existing + Committed networks that were used as a base for modeling and costing purposes. Several tools were used to develop assumptions, evaluate transportation conditions, and display roadway network alternatives for the 2035 Needs, 2025 Interim Cost Affordable, and the 2035 Cost Affordable Plans.

This plan was developed using technical analysis, public involvement, and the expertise of County staff and MPO Consultant. The multimodal improvements identified in the plan aim to increase the transportation quality for all of Pasco County.