

# HILLSBOROUGH COUNTY MPO 2035 LONG RANGE TRANSPORTATION PLAN

## ECONOMIC EVALUATION OF LRTP PLANS



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## INTRODUCTION

Transportation is the backbone of the Hillsborough County economy and a functioning transportation system is a key factor behind economic growth. Every day, Hillsborough County's transportation system moves workers to their jobs, raw materials, and supplies to manufacturers and construction sites, finished goods to retailers, visitors to tourist destinations, business travelers to meetings, and consumers to retail establishments. The network of transportation routes is complex and depends on well-maintained infrastructure. Today and into the future, the economic health of Hillsborough County and its ability to remain competitive in the globalized economy depends on the efficient transport of people and goods.

The objective of the economic impacts analysis is to estimate the benefits that will result from implementing the transportation projects that will be enabled by the funding made available through an increase in the sales tax. This analysis establishes the link between these investments in roadways and transit and economic growth in Hillsborough County through 2035. For comparison purposes, the impacts of the transportation projects that would occur without the sales tax also are included.

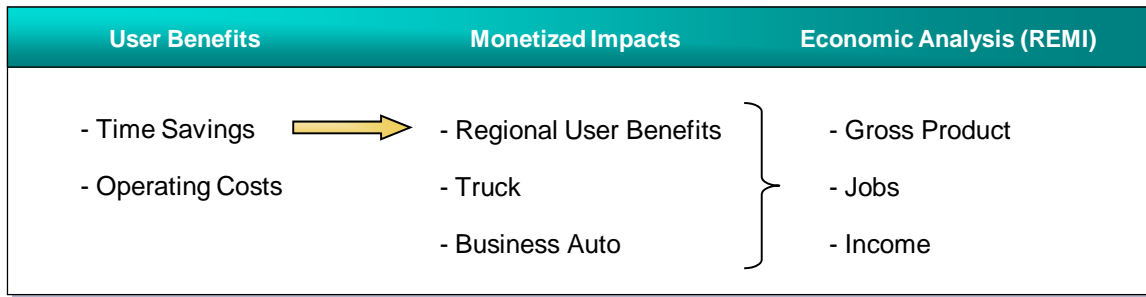
Economic impacts are measured by performance metrics such as employment, value-added (as measured by gross regional product), and personal income. In order to determine accurate projections for these macroeconomic performance measures, user benefits from the transportation improvements are determined first. Some of these benefits then function as inputs to the regional economic model (the Tampa Bay Regional Planning Council's REMI model) used in this study.

Hillsborough County's network of roads and public transportation service has evolved as a result of continuous investment. The improvement and expansion of this system depends on public expenditures on new and improved infrastructure, technology, and services. These investments have both direct and indirect benefits, including travel-time savings for commuters and reduced shipping costs for manufacturers, distributors, and retailers as well as reduced vehicle operating costs, and broader economic impacts. These transportation benefits lead to impacts such as higher employment, increased gross regional product, and more personal income.

## METHODOLOGY

The general analytical framework to estimate and quantify the economic benefits of transportation investments in Hillsborough County is shown in **Figure 1**. Investments in transportation lead to increased efficiency and capacity, such that vehicles have faster relative times between origins and destinations. This increase in efficiency and capacity improves travel conditions for cars and trucks. Roadway capacity and transit improvements contribute by reducing auto trips and vehicle miles traveled (VMT) which, in turn, lowers auto emissions and highway congestion.

**Figure 1. Estimating Long-Term Benefits of Transit Investments**



These user benefits, described above, reduce the costs of doing business and translate to an enhanced economy in terms of improved productivity, economic competitiveness, and greater growth potential. Long-term, the transit investments, and the productivity improvements they engender, result in appreciable increases in income, gross regional product, and jobs in Hillsborough County.

***Models and Data Applied to Estimate Benefits***

The quantitative analysis used to estimate economic impacts, derived from calculations of user benefits, is made possible by the availability of data and transportation and economic models. The data used to generate the direct transportation effects in this study was based on the list of project priorities developed by the HCMPO. These were then used as inputs for the Florida Department of Transportation’s (FDOT) District 7 Office’s travel demand model which captures both transit and highway trips. This study compares a baseline scenario, “Existing + Committed” with data from two future scenarios, one including a sales tax increase and one without the increase:

- Without Sales Tax (Scenario “CAA17”); and
- With Sales Tax (Scenario “CAA18”).

By comparing the two scenarios with the baseline, it is possible to discern the incremental improvement in benefits that would accrue if the transportation projects enabled by the additional sales tax included within Scenario CAA18 were implemented. The travel demand model produces results, including: transit ridership changes; vehicle miles traveled (VMT); and travel time by trip purpose. The benefits occur due to a reduction in VMT, relieving roadway congestion. The results from the travel demand model were then used as inputs into the Highway Economic Requirements System (HERS) to conduct the benefits analysis. The outputs of HERS are transportation efficiency projections (e.g., vehicle miles traveled or “VMT”) and unit cost projections which can be configured as inputs into the Tampa Bay Regional Planning Council’s REMI model to estimate economic impacts.

Concerning transit, the transit improvements included in the two scenarios are expected to result in lower VMT on the highway system, relative to the baseline scenario. This lower VMT will result in reductions in congestion, which will result in benefits for all road users. Also, by virtue of the lower VMT, there will be lower overall user costs associated with highway travel. However, these costs will be at least partially offset by costs associated with transit use not modeled for the analysis. To avoid overstating or double-counting benefit, the approach taken for this study was to use the most accurate VMT projections available to predict unit costs of travel in HERS, and count the congestion reduction that results from transit investment as a benefit. However, transfers from highway to transit (which result in reduction in highway VMT) were not modeled as benefits, for lack of sufficient data concerning the degree to which the reduction in highway-related costs are offset by increased travel time and operating costs associated with transit.

**Regional economic impact analysis.** In addition to user benefits, the regional economic impacts of transit investments in terms of personal income, employment, and gross regional product (GRP) also can be estimated. Investments in transportation have direct effects on the transportation system in terms of travel time, travel cost, and other factors. A portion of these transportation efficiency gains are related to business travel. There are a couple categories of business travel (trucks and business auto) that are incorporated into the estimate of direct economic impacts (the business cost savings that ultimately yield higher productivity and increases in regional competitiveness).

Increases in roadway capacity and transit ridership have a real impact on roadway congestion, and the business portion of highway travel-time savings (trucks and business auto) lead to a direct business cost savings. Reductions in business travel costs resulting from the implementation of projects associated with the 2035 Sales Tax (CAA18) investment scenario lead to direct economic impacts in terms of lower costs of doing business and increased productivity. These direct effects can then be applied as inputs into the TBRPC's REMI model to estimate total regional economic impacts for concepts, including income, employment, and gross regional product (GRP).

## RESULTS AND ANALYSIS

This section describes the impacts of implementing roadway and transit transportation projects enabled by a sales tax increase in Hillsborough County and compares them to the impacts of not implementing the sales tax. The economic impacts are based from the incremental increase in benefits that would result from building an unconstrained improvement scenario (i.e., the collection of projects that would be made possible by the sales tax as represented by "Scenario CAA18") versus building a constrained improvement baseline scenario (i.e., the more limited baseline of projects that would be built without the sales tax increase).

### REMI Economic Impact Analysis

Values for user benefits (from business-related trips) were monetized using the HERS (Highway Economic Requirements System) model and then used as business cost savings inputs into the Tampa Bay Regional Planning Council's REMI model to estimate macroeconomic effects, including employment, income, and gross regional product. Total user benefits for the unconstrained improvement scenario were \$853 million in 2035 (\$156 million for trucks, \$83 million for autos being used for business purposes, and \$614 million for autos being used for nonbusiness purposes). These totals include some benefits that accrue to out-of-county users of Hillsborough County's transportation system. Only the Hillsborough County portion (internal trips and trips going into or from the county) of the business-related user benefits (truck trips and "business auto" trips) are included in the economic impact analysis.

The direct transportation/economic effects for Hillsborough County are captured in **Table 1**, which shows the magnitude of business-related user benefits (in terms of cost savings), separated by trucks and business auto ("on-the-clock") trips for the "with sales tax" investment scenario. For comparison, the business-related user benefits for the "without sales tax" scenario is included in **Table 2**. These tables do not include nonbusiness auto user benefits because only business-related benefits are used as inputs to estimate the overall economic impacts of the transportation improvements. **Figure 2** demonstrates the difference between annual user benefits (trucks plus business auto) for the two investment scenarios. The difference gradually escalates over time, with annual business-related benefits for the "with sales tax" scenario \$36 million higher than the "without sales tax" scenario in 2035. Overall, the annual user benefits with the sales tax are generally about 40 percent higher than those without.

**Table 1: User Benefits With Sales Tax (in Millions of Dollars)**

	2015	2020	2025	2030	2035
Truck	4.0	21.0	51.6	80.3	73.7
Business Auto	2.6	11.3	26.5	41.3	46.7

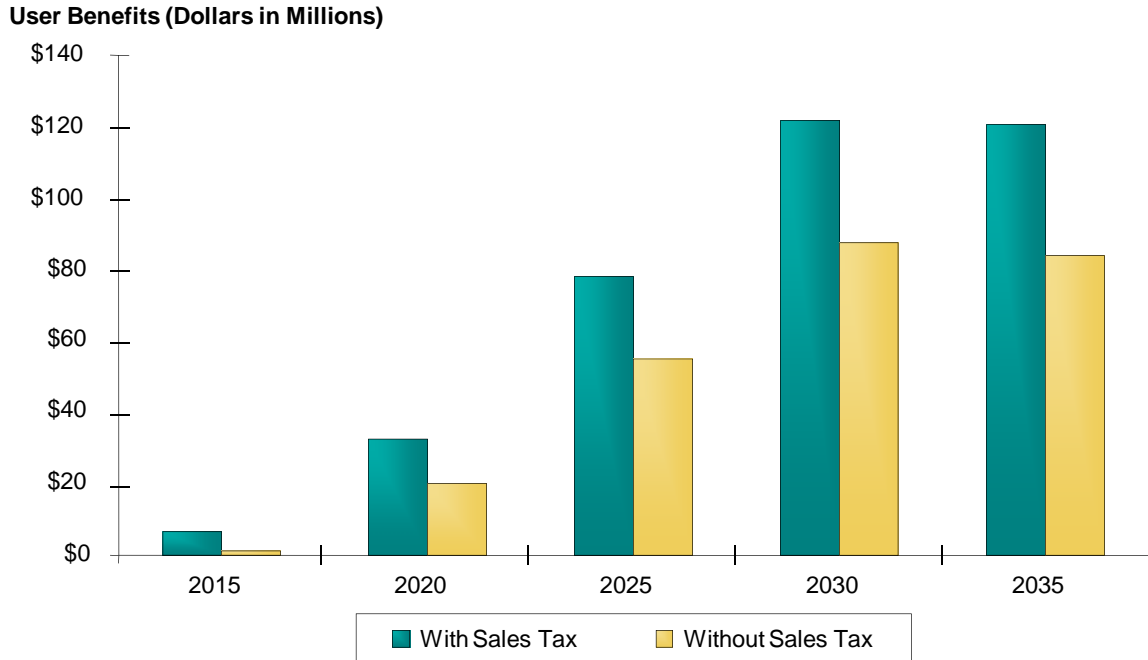
Source: Highway Economics Requirements System (HERS).

**Table 2: User Benefits Without Sales Tax (in Millions of Dollars)**

	2015	2020	2025	2030	2035
Truck	0.9	7.1	36.9	58.9	52.8
Business Auto	0.5	12.7	17.8	28.3	31.2

Source: Highway Economics Requirements System (HERS).

**Figure 2: Annual User Benefits (Truck + Business Auto)  
Comparing “With Sales Tax” and “Without Sales Tax” Scenarios**



Source: Highway Economics Requirements System (HERS).

The results from the REMI analysis are summarized in the two tables and two figures included in this section. The benefits, beginning in 2011, build through 2035. The following example, illustrating the employment benefits, demonstrates how these data need to be interpreted: In the year 2035, Hillsborough County is expected to have an additional 2,102 jobs due to the building of the transportation improvements associated with the “With Sales Tax” scenario compared to what would happen with the building of only the constrained improvements (existing plus committed). These data shown in the tables represent the change for a specific year in time (they are not cumulative measures).

**Economic Impacts of the “With Sales Tax” Scenario.** Due to a reduction in business travel costs and an increase in travel efficiency on the Hillsborough County roadway system resulting from the transit and roadway transportation investments associated with the “With Sales Tax” scenario, the County can expect to have 2,102 more jobs in 2035 than it would have had without those improvements. Hillsborough County’s gross product, a measure of its economic size (the total value of goods and services produced), would increase by \$320 million while real personal income would rise by almost \$343 million (see **Table 3**).



**Table 3: Hillsborough County Economic Impacts With Sales Tax**

	2015	2020	2025	2030	2035
<b>Employment</b>	125	589	1,367	2,077	2,102
<b>Gross Product</b> (in millions of 2008 dollars)	\$12.6	\$65.1	\$167.8	\$283.3	\$319.5
<b>Real Personal Income</b> (in millions of 2008 dollars)	\$6.6	\$40.1	\$121.3	\$244.1	\$342.7

Source: Outputs from the Tampa Bay Regional Planning Council's 70 Sector Version of REMI P.I. +, model year 2009.

**Economic Impacts of the “Without Sales Tax” Scenario.** By most measures of economic impact, the economic impacts of the transportation investments associated with the “Without Sales Tax” scenario are about one-third lower than those generated by the “With Sales Tax” project mix. The reduction in costs and increases in travel efficiency that would result from the implementation of the “Without Sales Tax” transportation investment scenario is expected to result in 1,466 more jobs in Hillsborough County in 2035 than it would have had without those improvements. Hillsborough County’s gross product would increase by \$223 million while real personal income would rise by \$238 million (see **Table 4**).

**Table 4: Hillsborough County Economic Impacts Without Sales Tax**

	2015	2020	2025	2030	2035
<b>Employment</b>	26	351	944	1,477	1,466
<b>Gross Product</b> (in millions of 2008 dollars)	\$2.6	\$38.6	\$115.8	\$201.5	\$223.2
<b>Real Personal Income</b> (in millions of 2008 dollars)	\$1.4	\$23.4	\$82.3	\$172.3	\$238.4

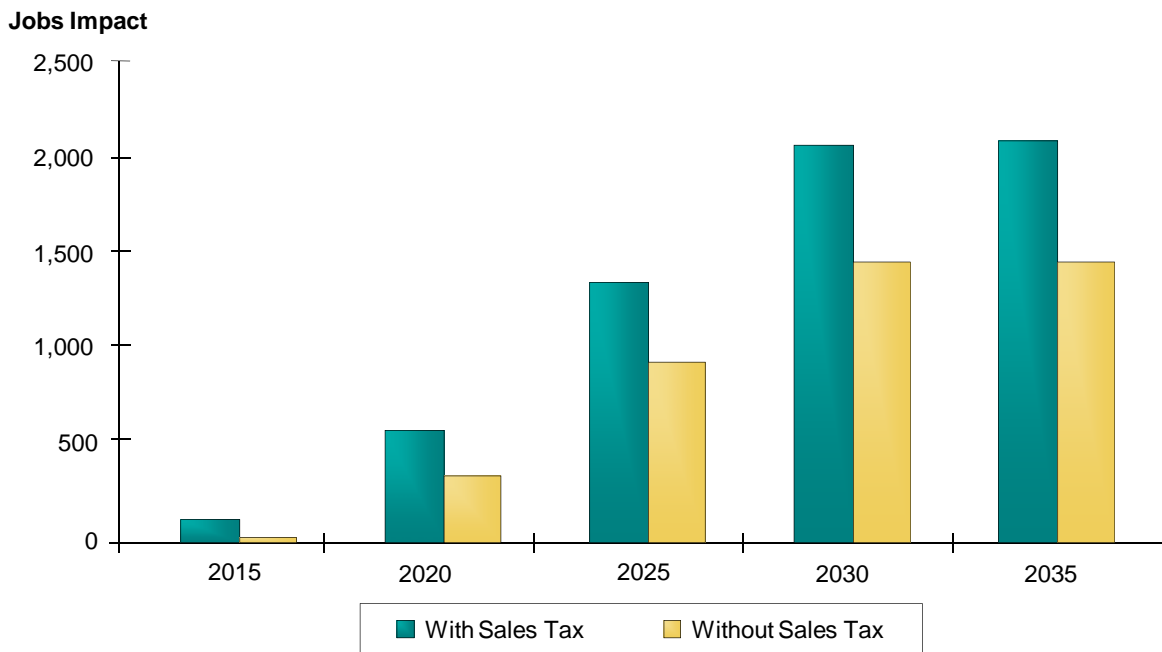
Source: Outputs from the Tampa Bay Regional Planning Council's 70 Sector Version of REMI P.I. +, model year 2009.

**Comparison Between “With Sales Tax” and “Without Sales Tax” Scenarios.** Figures 3 and 4 illustrate the differences in economic impact between the “With Sales Tax” and “Without Sales Tax” transportation investment scenarios in Hillsborough County. The annual jobs impacts resulting from the efficiency improvements due to the transportation improvements associated with the “With Sales Tax” scenario are about 40 to 45 percent higher than the “Without Sales Tax” scenario. The difference in jobs impacts between the two scenarios grows steadily, from 238 in 2020 to 636 in 2030 (see Figure 3). Likewise, the difference in the gross product impacts (the value of goods and services produced)



between the two investment scenarios also widens in future years, increasing from \$26.5 million in 2020 to \$96.3 million in 2035. The increasing gap between the two scenarios is due to the fact that Hillsborough County’s transportation infrastructure in future years will need to handle considerably more people and workers and the “With Sales Tax” scenario is better able to accommodate this growth with relatively lower levels of congestion. This translates to higher user benefits for business-related travel and thus higher economic impacts as evidenced in **Figures 3 and 4**.

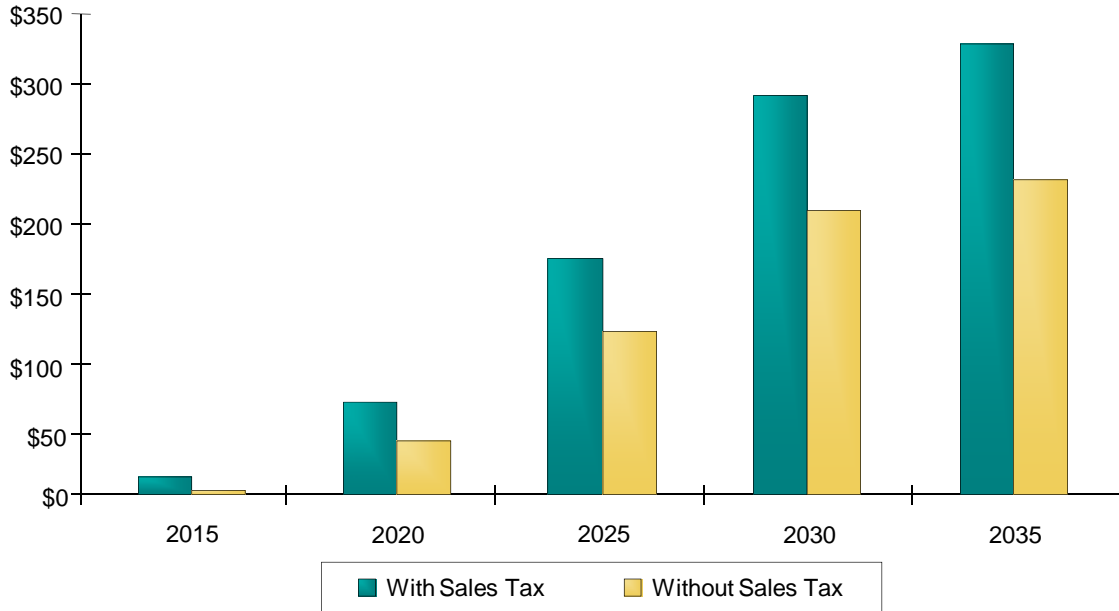
**Figure 3: Annual Jobs Impacts Comparing “With Sales Tax” and “Without Sales Tax” Scenarios**



Source: Outputs from the Tampa Bay Regional Planning Council’s 70 Sector Version of REMI P.I. +, model year 2009.

**Figure 4: Annual Gross Product Impacts Comparing “With Sales Tax” and “Without Sales Tax” Scenarios**

Gross Product Impact (Dollars in Millions)



Source: Outputs from the Tampa Bay Regional Planning Council’s 70 Sector Version of REMI P.I. +, model year 2009.