

Tampa Bay Disaster Resiliency Study



1921 Hurricane - Bayshore Blvd Seawall

November 30, 2011

Tampa Bay Regional Planning Council

in conjunction with

The Economic Development Administration

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Introduction

The Tampa Bay Economic Development District partnered with the Economic Development Administration to analyze the impacts and effects of a natural disaster across the Tampa Bay area. The framework and methodology was developed to be transferable to any area and to any event. The investment was two years in the making and utilized a number of sources for inputs, information, and guidance.

The Tampa Bay Disaster Resiliency Study is an economic study on the impacts of a natural disaster. The study does not explore evacuation, safety, nor response actions. Information regarding evacuation, safety, and response activities are thoroughly studied and widely available.

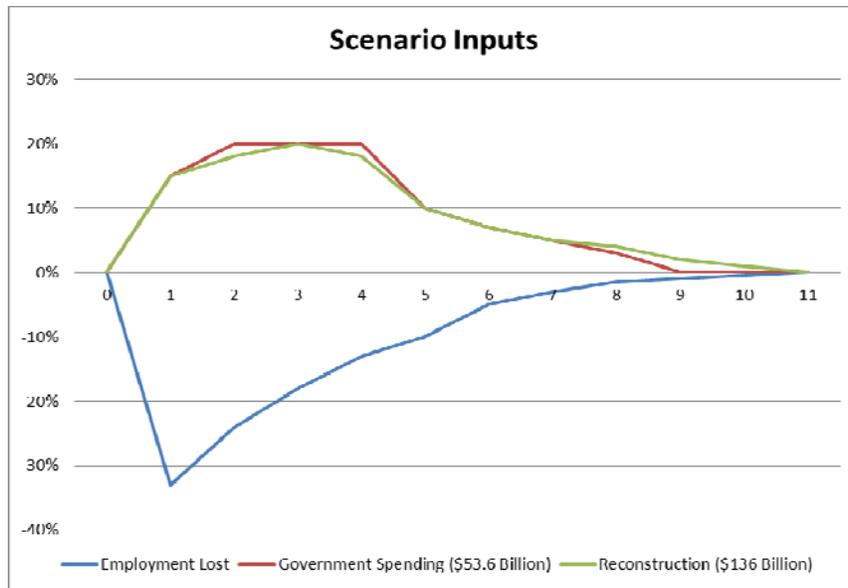


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Executive Summary

Using the catastrophic scenario of Project Phoenix, we were able to test a worst case scenario to the Tampa Bay Region. This category 5 hurricane would go through Pinellas and Hillsborough Counties and be large enough to provide substantial damage to Pasco and Manatee Counties. The doomsday scenario was modeled as a catastrophic planning exercise in 2010. The probability of the exact scenario occurring is extremely low, however the analysis provides scalability and transferability to any hazard. Like most disaster scenarios, only the direct impacts were reported in the Project Phoenix scenario. Our analysis took the direct impacts and then estimated the indirect and induced impacts.

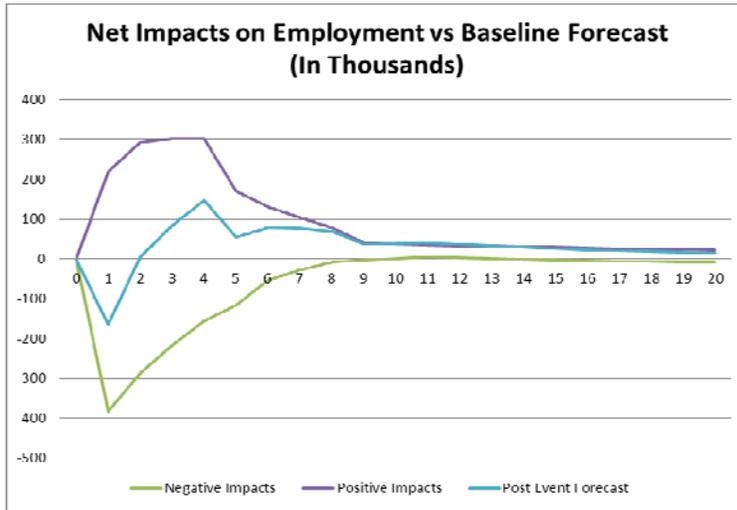
The assumptions and timing of the event and reactions are what drives the results. The main components are split into two main categories, economic losses associated with losing employment and economic gains associated with reconstruction, cleaning, and government spending. The employment losses drive a loss in production and wages due to the employees being unable to actually get to work. The losses are spread over 7 years. The economic gains drive the economy back to positive results and are spread over 10 years, as some home owners wait a long time to rebuild their houses. The shape and distribution of the inputs are shown below in the chart. The blue line shows the direct employment missing by year. The Green line shows the percentage of \$136 Billion each year. The Red Line shows the percentage of \$53.6 Billion in government spending in each year.



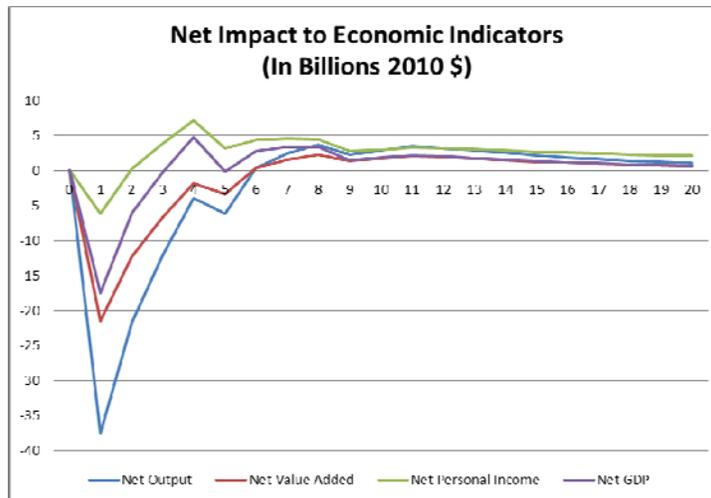
After accounting for the negative losses and positive gains, the results show how significant a loss of employment is to the region. Without government assistance and reconstruction, the region never fully recovers. Additional funds could be input to overcompensate for each year to show what the recovery would be, but the employment that comes along with government spending (contractual, temporary, cleaning, etc) disappears almost as quickly as the funds disappear. These jobs help the region look

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strong while it recovers, but the longer lasting impact is actual employment. The chart below shows the effects on employment of all three scenarios. The Purple Line shows the change in employment from only the positive economic impacts (reconstruction, cleanup, and government spending). The Green Line shows the change in employment change from only the negative economic impacts. The Blue Line shows the change in employment from the net impact (both the negative and positive economic impacts).



The chart below shows the Net Impact of several Economic Indicators. All comparisons are to the baseline forecast. The Green Line shows the impact to the Personal Income. The Purple Line shows the Gross Domestic Product of the Tampa Bay Region. The Red Line charts the change to the Net Value Added. The Blue Line displays the change to the Output.



When looking at how to recover from a catastrophic event, employment was the largest factor in our analysis. If more effort is spent on the prevention or reduction in damage before the storm hits, the employment should be more resilient. Additionally, if some disaster funds or initial tax revenues can be invested in the region to create more

permanent jobs in the future, the economy could actually be in a better position in the long run.

Investing in infrastructure to harden buildings to build stronger, more disaster resilient buildings will help the economy be in better shape next time a disaster occurs by allowing more employees access to their respective workplaces after the event. Investing in economic development activities before and after the event will help retain and attract employment to strengthen the economy. The PDRP (Post Disaster Redevelopment Plan) is a planning process to identify policies, operational strategies, and roles and responsibilities for implementation that will guide decisions that affect long-term recovery and redevelopment of the community after a disaster. Recovery topics include business resumption and economic redevelopment, housing repair and reconstruction, infrastructure restoration and mitigation, short-term recovery actions that affect long-term redevelopment, sustainable land use, environmental restoration, and financial considerations as well as other long-term recovery issues identified by the community.

Despite the fact that the Project Phoenix impacts and the best assumptions based upon previous hurricanes were used in this analysis, the exact scenario is highly unlikely to occur. Instead each county can look at their own situation and disaster to evaluate what needs to happen to return to sustainability. The scenario can even be a completely different hazard. Estimating the damage, workforce displacement, reconstruction, cleanup, and federal assistance will provide any of the counties with a likely estimate of the indirect and induced impacts. If the county can only estimate the damage, they can then determine what level of activity is needed to offset the losses. The appendices detail the exact impact each category creates through each county the region. This level of detail gives users and decision makers the tools and knowledge they need to respond appropriately.

A hypothetical scenario could include a tornado touching down in the Feather Sound area of St. Petersburg in Pinellas County. Local Pinellas County staff would be able to pull out a map of the damage and identify the affected Traffic Evacuation Areas (TEAs). The staff would then find the corresponding TEAs in Section 2 of this document and be able to see how employment exists and in which industries. After examining the building damage, an average of 6 months is the likely estimate until the workers can return to work. Staff would be able to compare Feather Sound's employment to all of Pinellas County to see how many Pinellas workers would be displaced for 6 months. Determining the factor between the tornado displaced employees versus the Project Phoenix displaced employees would allow the staff to quickly divide the Pinellas County Impact to see the negative impacts from the loss of employment. Knowing the negative side of the equation will help the local area determine how much governmental aid and assistance is needed by using the same factor.

Disaster Response

The analysis and information contained in this report took over 2 years to create. Expecting an entity to wait that long to gather the estimates and analyze the impacts before responding isn't likely. With the work and effort of this study, Tampa Bay Regional Planning Council has found a way to streamline the analysis. Using the REMI PI+ Model, and the existing data contained in the report, TBRPC can quickly assess the indirect and induced impacts once the direct impacts are estimated.

TBRPC is developing a Data Collection Template to assist in performing an analysis to estimate the total impacts to the region. The information below is the bare minimum required, additional information would provide a more accurate depiction of the impacts.

Category	At Event
Geographic Location	
Building Stock Damaged	
Total Employment	

Category	Year 1	Year 2	Year 3	Year 4	Year 5
Building Stock Reconstruction					
Clean Up Expenditures					
Government Spending					
Actual Employment Lost					