

Maintaining the Civil Infrastructure in South East Texas

Mr. Terry F. Bautista, P.E.

U.S. Army Corps of Engineers, Galveston, TX, 77553

E-mail: terry.f.bautista@swg02.usace.army.mil

Introduction

The U.S Army Corps of Engineers consists of approximately 35,000 civilian and military engineers performing a wide variety of military and civil works programs and projects. We provide support to the military and the nation. The Corps maintains offices throughout the world in 94 different countries. We are divided into nine distinct Divisions and each division consists of 4 or 5 districts each. Galveston District is part of the Southwest Division, and essentially covers the coastal region of Texas.

Overall the Corps maintains 300 large commercial harbors that serve as the gateway for 98 percent of our foreign trade. Of these 13 are military strategic ports assisting the movement of military equipment for overseas deployment. The Corps is also responsible for 600 smaller harbors that provide recreational as well as commercial benefits.

Galveston District comprises the entire Texas coast from Louisiana to Mexico and is about 50,000 sq. miles. The District has provided 125 years of service to Texas and is currently staffed by approximately 400 dedicated professionals. We partner with Non-Federal Sponsors for strong Navigation, Flood Control and Environmental programs.

The bulk of our work in Galveston District is to maintain the civil infrastructure in South East Texas. Specifically, the civil infrastructure related to navigation support and flood damage reduction. The Texas coast has a number of ports and waterways that provide economic prosperity to Texas and the rest of the nation.

The Galveston District annually spends almost half of its multi-million dollar budget on maintaining and modernizing the more than 1,000 miles of deep and shallow draft shipping channels along the Texas gulf coast which transports 650 million tons of commerce annually. The District is home to 28 ports (12 deep draft, 16 shallow draft) handling more than 630 million tons of commerce annually. The Gulf Intercoastal Waterway (GIWW) alone provides 145,000 jobs in Texas, pumps \$20 billion annually into the national economy and is a major influence on the Texas economy. Texas now ranks #1 in total waterborne tonnage by state. Texas also ranks #1 in foreign tonnage, more than the next two states (Louisiana and California) COMBINED!

Port of Houston

The Port of Houston is the largest port in the United States based on international tonnage and it exists within the Galveston District. (Louisiana is the largest in Domestic Tonnage) Texas has three other ports (Beaumont, Corpus Christi, and Texas City) in the

top ten in the Nation. The Port of Houston continues to sponsor improvements to its channel. The Houston Navigation channel has been recently enlarged to 45' X 530', and the Entrance Channel to 47' X 800'. Work still remaining to be performed includes the Galveston Channel enlargement to 45' x 650' and the Environmental Restoration features of Houston Ship Channel,

There are four (4) other major port access routes with plans for expansion. One of them is the Sabine-Neches Waterway, leading to the port at Beaumont. The other three that are working towards deepening and widening the ship channels are the Ports of Brownsville, Corpus Christi and Freeport. With more than 630 million tons of cargo passing through Texas ports each year, there exists a need for adequate infrastructure to meet the growing demands of international trade.

Gulf Intracoastal Waterway (GIWW)

Across the U.S., the Corps has built an intracoastal and inland navigation network which includes 12,000 miles of commercial navigation channels with over 200 locks and dams. In Texas, the Gulf Intracoastal Waterway (GIWW), along the coast, provides multi-purpose benefits for navigation. It extends 423 miles from Port Arthur to Port Isabel, and includes the Colorado River Locks and Brazos River Floodgates.

The Colorado River Locks and Brazos River Floodgates contain two outdated and antiquated locks that, unless rehabilitated or improved, will continue to deteriorate. The Colorado River Locks and the Brazos Floodgates were built in the 1940's and have exceeded their 50-year design lives. Colorado River locks may eventually have to be shut down, due to increased maintainance needs. Texas cannot afford increased delays and safety hazards on the aging inland waterway system.

Flood Damage Reduction

Galveston District's flood damage reduction projects span the entire district from South Main Channel in south Texas to Beaumont and Port Arthur in eastern Texas. We are involved in multiple studies to investigate alternatives to reduce flood damages in and around the city of Houston and other areas prone to flooding. Nearly a billion dollars in flood control projects are in the construction stage or are being planned for metropolitan Houston. Working with sponsors such as the Harris County Flood Control District, the Corps is protecting citizens and property through such projects as the Sims Bayou Flood Control Project, which is currently under construction.

Challenges

The total volume of domestic and international marine trade is expected to double by 2020 to more than 4 billion tons of cargo per year. Inland traffic movements are projected to increase from **630** million tons today to 830 million tons by 2020. It is

estimated the for every \$1 invested to improve navigation infrastructure, US Gross Domestic Product rises more than \$3.

The nation's inland waterways contain a series of outdated and antiquated locks and dams. Unless they are adequately rehabilitated or improved they will continue to deteriorate and hinder the movement of critical resources such as petrochemicals, coal, grain, bulk products. Forty percent (40 %) of the lock chambers on the inland waterway system have exceeded their 50-year design lives.

It is estimated that we will need \$3.5 billion to meet this challenge. Currently investing is at a pace that sees us falling farther behind in modernization of our locks & dams. Expected growth of commerce will put increased pressure on waterways. Without modernization and/or replacement of locks, as use increases, delays will also increase.

“The American waterway infrastructure is underfunded, overworked, and out-of-date and could be incapable of handling sea-borne commerce within the next 20 years.” (quote from ASCE report: Report Card for America's Infrastructure, 2001)

Conclusion

Throughout our nation's history, economic growth, prosperity and opportunity have followed investments in the nation's infrastructure. The nation's failure to adequately restore and maintain the integrity of its waterways can have a devastating effect on the economy. Increased investment in infrastructure has far-reaching impacts on the quality of life in a community, on the local and national economy and our ability to compete in the world marketplace. Unfortunately, despite the importance to both our economy and the quality of life in our communities, many of our Nation's infrastructure needs are going unmet.

The general public and the Local sponsors need to communicate infrastructure needs to their elected officials. As engineers, we should also voice our concerns, and once funding is obtained, we will utilize our engineering skills to ensure that our nations infrastructure will continue to serve the people and the nation.