US ARMY CORPS OF ENGINEERS
STORMPROOFING INTERIOR DRAINAGE PUMP STATIONS IN JEFFERSON PARISH, LOUISIANA
ENVIRONMENTAL ASSESSMENT
EA #475 (REVISED, April 7, 2009)
(AMENDED May 15, 2009

Planters Pump Station in Jefferson Parish, Louisiana (photograph taken on July 9, 2008).

Prepared by:
U.S. Army Corps of Engineers
New Orleans District
Hurricane Protection Office

EA #454 - U.S. Army Corps of Engineers Jefferson Parish Pump Station Stormproofing activities (2007)

IER #2 – Lake Pontchartrain and Vicinity, West Return Floodwall, Jefferson and Orleans Parishes, Louisiana (2008)

IER #3 – Lake Pontchartrain and Vicinity, Lakefront Levee, Jefferson Parish, Louisiana (2008)

IER 12 – Harvey and Algiers Canal Levee and Floodwalls, Jefferson, Orleans and Plaquemines Parishes, Louisiana (2009)

IER #14 – Lake Pontchartrain and Vicinity, Westwego to Harvey Levee, Jefferson Parish, Louisiana (2008)

IER #15 – Lake Cataouatche Levee, Jefferson Parish, Louisiana (2008)

IER #17 – Company Canal Floodwall, Jefferson Parish, Louisiana (2009)

5. PUBLIC CONCERNS

The greatest area of public concern is related to the importance of reducing the risk of hurricane, storm, and flood damage to businesses and residences, and providing for public safety during major storm events. Additionally, Jefferson Parish is responsible for the safety of pump operators during major tropical storm events. Without the appropriate stormproofing measures at manned pump stations, pump station operators must be evacuated to a location that would help ensure their safety during and immediately following the storm event.

6. DESCRIPTION OF THE PROPOSED ACTION

This proposed project consists of stormproofing up to a total of 21 existing pump stations and associated structures within the Hurricane Protection System (HPS) in Jefferson Parish. Each pump station is slightly different and thus different stormproofing activities are proposed for each site. Table 1 contains a summary of the proposed actions for each pump station. The following paragraphs provide a detailed description of each of the proposed actions. A detailed breakdown of the proposed action at each pump station is described in Appendix A.

6.1 Frame, Walls, and Roofs – The frames, walls and roofs of some pump stations would be strengthened to resist wind speeds up to 140 mph (Figure 4). This work involves: upgrading the steel frame, retrofitting the insulated metal panel walls, and retrofitting the steel joists with corrugated metal deck roofing. If the pump station has a flood control perimeter wall, it would be assessed for water tightness. Work to strengthen components to resist wind speeds up to 156 mph may involve the features discussed above in addition to some or all of the following: a structural analysis of the reinforced and precast/prestressed frame, upgrading the steel frame, raising the flood control perimeter wall, reinforcing masonry or precast concrete walls, retrofitting the steel joists with acoustical metal deck roofing, and retrofitting the roof material (Figure 4).

protected against flooding (Fig. 9).

6.16 Climber Screens - Climber screens, fully automated trash rakes that remove most debris that stacks up against pump intakes during operation, would be added. Without climber screens, pump operators must manually remove debris and debris jams from machinery. Debris removal maintains pumping efficiency and keeps pumps from failing from overheating. The order of construction of the climber screens scheduled for installation at the pump stations will be constructed sequentially until the programs funds are expended.

6.17 Construction Sequence - In order to minimize the impact on the drainage pumping capacity, the following projects would be built in a phased construction approach. These projects would probably be awarded sequentially beginning at the top of the proposed list and proceeding until all appropriated funds have been expended. During the execution of the stormproofing program, this construction sequence plan may be adjusted if operational, engineering, or funding concerns developed. Within the projects currently programmed to be within available funding amounts, adjustments to bidding schedules may occur.

The 4th and 6th Supplementals provided discrete funding amounts. Most of the stormproofing measures indentified for Jefferson Parish are likely to be constructed given these funding amounts. The current budget includes costs for planning, engineering, project management, and construction as well as an allowance for escalation, inflation and unforeseen construction issues. These projects have also been sized to create projects that will appeal to more contractors in order to develop more interest and competition with the goal of achieving lower construction costs. These projects have also been sequenced in order to build as much of the Jefferson Parish identified stormproofing needs to the greatest extent possible within the funding constraints of the 4th and 6th Supplementals.

The proposed Construction Plan and associated sequencing was coordinated and developed in detail with the Jefferson Parish Drainage Department. The following is the proposed Construction Plan for the remaining Jefferson Parish stormproofing program in the order that these projects would be awarded and constructed.

Projects JSP-02, JSP-05, JSP-06, and JSP-07 provides stormproofing to the majority of the larger stations on both the on the West Bank and the East Bank. These four stormproofing projects account for approximately 56% of the total pumping capacity in Jefferson Parish (see pump station capacities below).

JSP-02: Stormproofing Mount Kennedy Pump Station

JSP-05: Stormproofing Westwego No. 2, Estelle No. 2, Hero, Cataouatche, and Planters Pump Stations

JSP-06: Stormproofing Ames and Duncan Pump Stations

JSP-07: Stormproofing Bonnabel and Suburban Pump Stations

Projects JSP-08, JSP-09, JSP-10, and JSP-11 provides stormproofing to the remaining larger stations on both the on the West Bank and the East Bank. These four stormproofing projects account for approximately 41% of the total pumping capacity in Jefferson Parish (see pump station capacities below).

JSP-08: Stormproofing Cousins and Elmwood Pump Stations

JSP-09: Stormproofing Bayou Segnette and Whitney Barataria Pump Stations

JSP-10: Stormproofing Westminster and Parish Line Pump Stations

JSP-11: Stormproofing Canal Pump Station and Climber Screen

Projects JSP-12, JSP-13, JSP-14, and JSP-15 are the final pump station stormproofing projects on the list. All four stations are on the West Bank and except for Highway 90 pump station, are within drainage basin areas that have pump stations that have been stormproofed earlier in the program. These four stormproofing projects account for only 3% of the total pumping capacity in Jefferson Parish (See pump station capacities below).

JSP-12: Stormproofing Highway 90 Pump Station

JSP-13: Stormproofing Estelle No. 1 Pump Station

JSP-14: Stormproofing Harvey Pump Station, and Climber Screen

JSP-15: Stormproofing Westwego No. 1 Pump Station and Climber Screen: This project provides for stormproofing the Westwego No. 1 pump station and providing climber screens. The climber screens are needed because this station has no operator during a storm event. However, Westwego No. 1 is one of two pump stations that serve the Westwego drainage basin area and provides a relatively small portion of the total pumping capacity for the area. Flow that normally goes to this station can be diverted to Westwego No. 2 and therefore the need to stormproof this station is less. If construction costs do not escalate and the bidding environment is favorable this project can be constructed within the available funding. However, if actual costs come in above the current estimates, funding may not be available to complete this project.

The last project (JSP-16) in the program provides for climber trash screens to be added to a number of the previously stormproofed stations for operational improvement and operator safety. Based on current projection of project construction costs, JSP-16 appears to be beyond the current available project funding. Therefore, these stations may continue to require the removal of trash from the intake basins through current means rather than automated trash screens. For this project, these stations either have operator presence at the station, operator presence at an adjacent station, or are remotely controlled, therefore making the installation of these climber screens less necessary for the pump station to operate during and after storm events.

JSP-16: Climber Screens Projects:

This project provides for installing climber screens at the following pump stations:

Ames
Bonnabel
Cousins
Elmwood No. 1
Hero
Planters
Westwego No. 2
Bayou Segnette
Cataouatche
Duncan
Estelle No. 2
Mount Kennedy
Suburban No. 1

Jefferson Parish Pump Stations – Capacities				
Basin No.	Basin Name	Basin Capacity (cfs)	Pump Station	Pump Station Capacity (cfs)
East Bank Total Pumping Capacity 20,250 cfs				
1	Bonnabel	3910	Bonnabel	3750
			Canal St.	160
2	Suburban	5040	Suburban	5040
3	Elmwood	5600	Elmwood	5600
4	Duncan	5700	Duncan	4800
			Parish Line	900
West Bank Total Pumping Capacity 25,495 cfs				
5	District No. 9	9362	Hero	3852
			Planters	2360
			Whitney Barataria	3150
6	Harvey	6620	Cousins	5660
			Harvey	960
7	Estelle	1240	Estelle No. 1	100
			Estelle No. 2	1140
8	Ames	3631	Ames	1930
			Westminster	1200
			Mount Kennedy	501
9	Westwego	1236	Westwego No. 2	936
			Westwego No. 1	300
10	Bayou Segnette	2156	Bayou Segnette	2156
11	Avondale	1100	Cataouatche	1100
12	Waggaman	150	Highway 90	150
Jefferson Parish Total Drainage Pumping System Capacity 45,745 cfs				

approximately 1 hour weekly for testing and when the main power source goes out. Therefore, direct impacts on ambient air quality would be expected to be minor.

8.13 Social and Economic Resources

Compliance with Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations, is institutionally important. Evaluating all actions to determine if they disproportionately affect low income or minority populations is technically important. The displacement of substantial numbers of existing housing or people is publicly important.

8.13.1 Existing Conditions

Population and Demographics

In July 2005, just prior to Hurricane Katrina, the population of Jefferson Parish was estimated at 448,578 (Greater New Orleans Community Data Center 2007). The population estimate for Jefferson Parish dropped to 411,305 after Hurricane Katrina. By August 2006, the population grew to 434,666 (Greater New Orleans Community Data Center 2007). The 2005 racial mix of Jefferson Parish, prior to Hurricane Katrina, was 66.2 percent Caucasian, 26.7 percent African-American and 3.4 percent Asian, with the remaining 3.7 percent split between American Indians, Alaskan Natives, Native Hawaiians, other Pacific Islanders, and other races (U.S. Census Bureau 2007a). The 2006 data places Jefferson Parish population at approximately 423,520 with a racial mix of 65.7 percent Caucasian, 26.2 percent African-American and 3.6 percent Asian, with the remaining 4.5 percent split between American Indians, Alaskan Natives, Native Hawaiians, other Pacific Islanders, and other races (U.S. Census Bureau 2005-2007 American Community Survey). Jefferson parish challenged this estimate and the U.S. Census Bureau recently concurred that parish population for 2007 had reached 431,350 and with 34.3% comprised of minorities.

Table 4.
Demographics of Jefferson Parish

Year	Total Population	White (%)	African-American (%)	Asian (%)	Other (%)
2005	448,578	66.2	26.7	3.4	3.7
2006	423,520	65.7	26.2	3.6	4.5
2007 **	431,350	65.7	26.2	0.1	4.1

Source: U.S. Census 2008;. **Estimates.

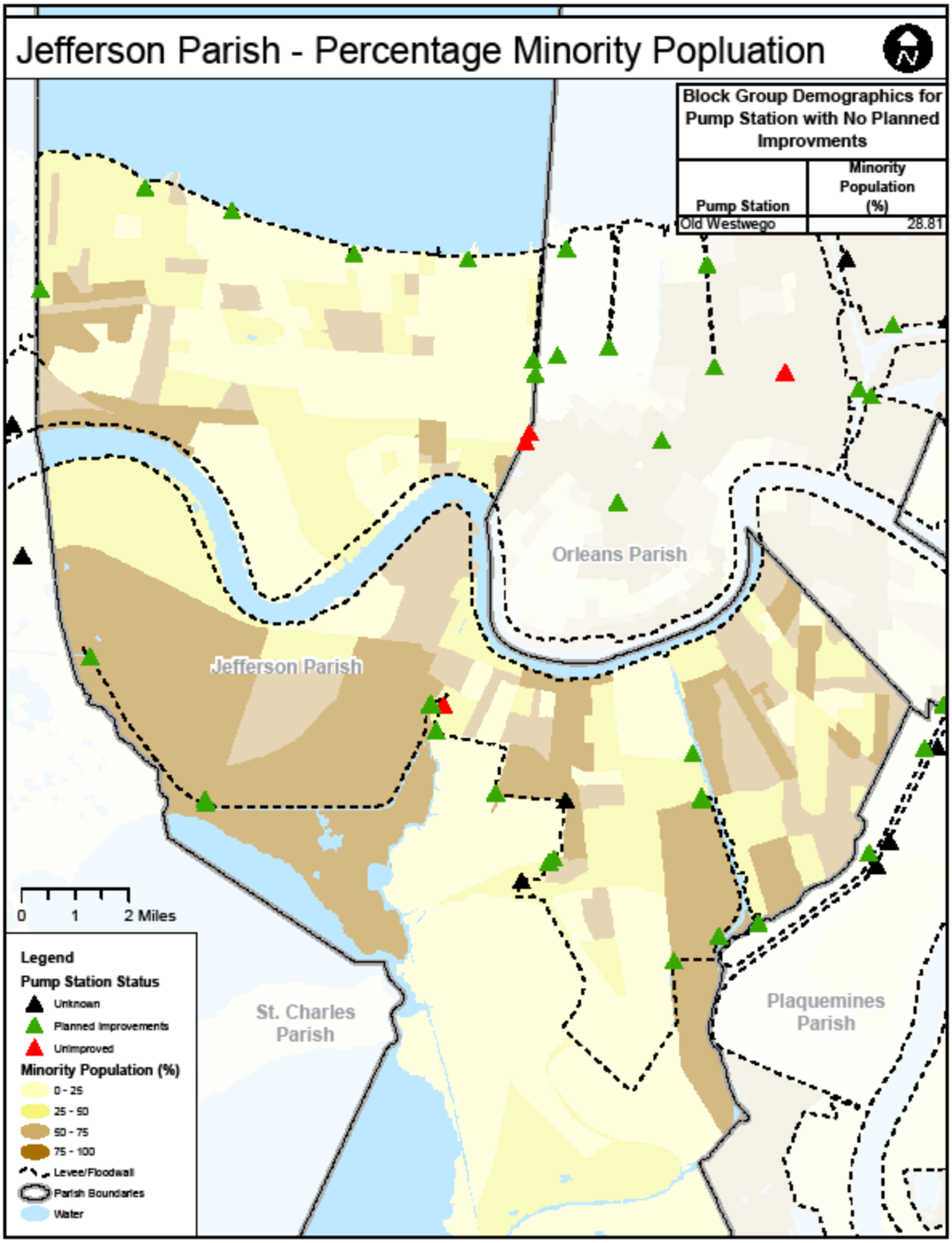

Figure 11. Jefferson Parish Polders and Demographics

Economics

In 2004, 65 percent (231,173 persons) of the total population of Jefferson Parish was in the labor force. In 2004, Jefferson Parish had a per capita personal income (PCPI) of $32,156. This PCPI ranked second in the state of Louisiana, and was 11.8 percent above the state average of $27,297, and 3 percent below the National average of $33,050. The average annual growth rate of PCPI from 1994 to 2004 was 4.3 percent. This average annual growth rate was higher than that for the state (4.0 percent) and the Nation (4.1 percent). In 2004, Jefferson Parish had a Total Personal Income (TPI) of $14.6 billion. This TPI ranked 1st in the state and accounted for 11.8 percent of the state total. The 2004 TPI reflected an increase of 5.7 percent from 2003, which was lower than 2003-2004 state change of 5.9 percent and the National change of 6.0 percent (Bureau of Economic Analysis 2007).

In the 2005-2007 demographic estimates from the Census Bureau, Jefferson Parish had a median household income of $46,498 and a median family income of $57,207. The Census Bureau reports that the 2007 poverty threshold for a family of four is $21,200. The percent of individuals below that poverty level in 2007 was 15.0 percent. These are the most recent economic estimates for the parish.

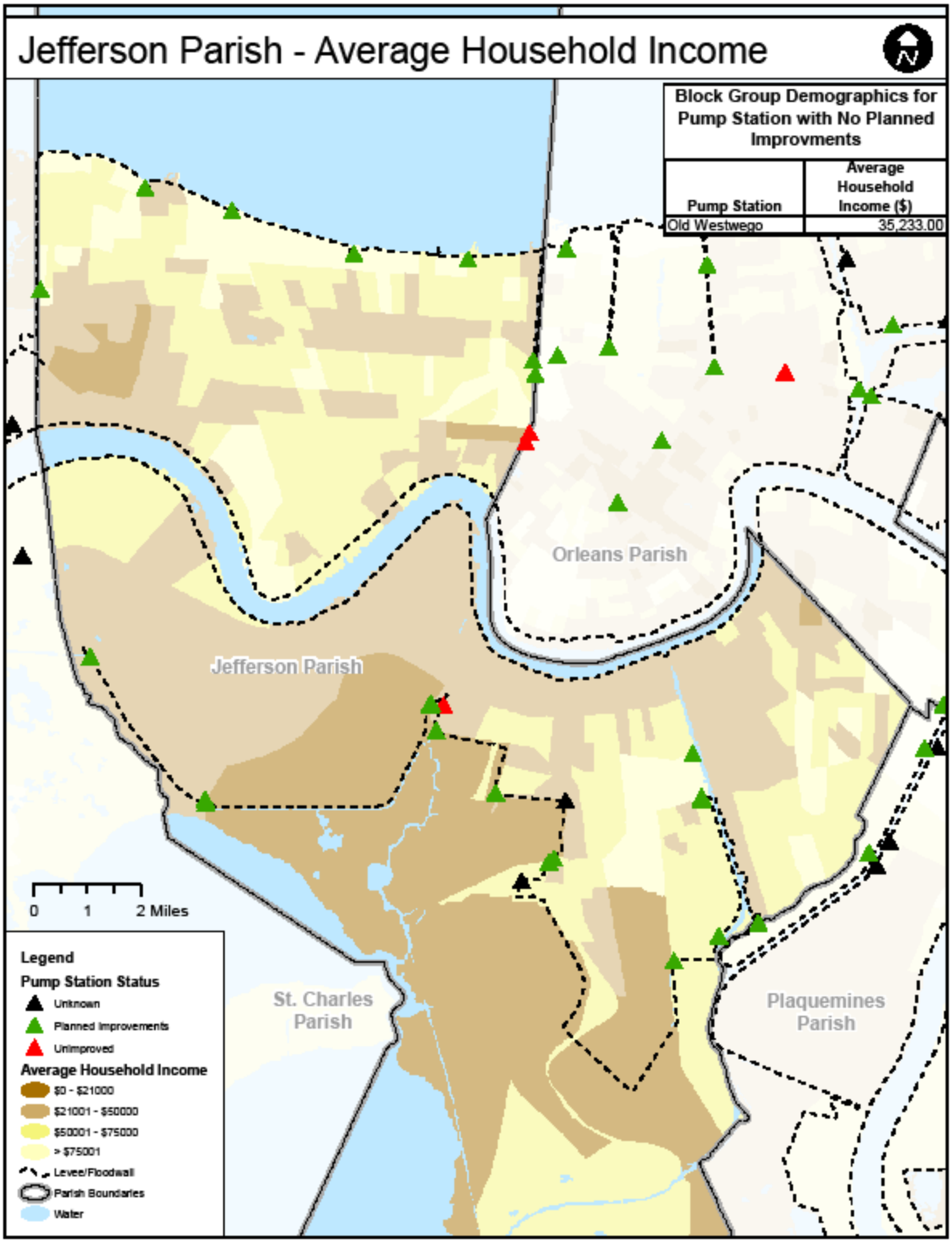

Figure 12. Jefferson Parish Polders and Income.

Housing - Jefferson Parish had a total of 176,234 housing units according to the 2000 U.S. Census Bureau, and an estimated 192,373 housing units in 2005 (U.S. Department of Housing and Urban Development 2006; U.S. Census Bureau 2007a). An estimated 93,872 occupied housing units, 53.3 percent of the total occupied houses, in Jefferson Parish, experienced some damage from Hurricane Katrina.

Environmental Justice

This resource is important because of Executive Order 12898 of 1994 and the Department of Defense's Strategy on Environmental Justice of 1995, which direct Federal agencies to identify and address any disproportionately high adverse human health or environmental effects of Federal actions to minority and/or low-income populations. The Environmental Protection Agency (EPA) defines Environmental Justice as the fair and equitable treatment (fair treatment and meaningful involvement) of all people with respect to environmental and human health consequences of federal laws, regulations, policies, and actions.

In 2007, 34.8 percent of the total population of Jefferson Parish was comprised of minorities. Of the 2007 total population of Jefferson Parish, an estimated 15.0 percent were living at or below poverty levels (U.S. Census Bureau 2007b). Based on the low percentage of low-income and/or minority populations in the parish, the likelihood of disproportionately impacting those citizens is low.

According to the November 2005 CRS Report for Congress, *Hurricane Katrina: Social-Demographic Characteristics of Impacted Areas*, Hurricane Katrina disproportionately impacted poor and minorities, mostly African-Americans, across the three states it impacted (Gabe *et al*. 2005). A total of 272,000 African-Americans were displaced by flooding or damage, accounting for 73 percent of the population affected by the storm (Gabe *et. al*. 2005). Because of the USACE's commitment to fair and equitable treatment this current proposed action has been evaluated for consistency with Executive Order 12898.

The pumps within Jefferson Parish affect a greater basin area than the immediate community block group in which they are located. The impacts that would occur due to pump station failure due to inadequate stormproofing are compared at a basin or polder level for this analysis. Information on the names and locations of these stations are detailed in table 5.

8.13.2 Future Conditions with No Action

Under the No Action Alternative, no additional stormproofing would be undertaken. A total of 15 pump stations could be operated during severe storms because 13 have safe rooms and 2 have remote operation capabilities. Six pump stations would need to be evacuated during a severe storm event and would be inoperable. Of the 21 pump stations, 17 could become inoperable if flood waters reached critical electrical equipment. Therefore, without implementation of the proposed action, the status quo would remain in Jefferson Parish in regards to flood risks.

8.13.3 Future Conditions with the Proposed Action

With the implementation of the proposed action, short-term, direct beneficial economic impacts would occur from construction activities and material purchases during installation of storm proofing features and fiber optic lines. The storm proofing, climber screens, and automation would

provide a better chance for the pump stations to be operated throughout a tropical storm event and would reduce the risk of large-scale flooding in Jefferson Parish. As a result, an indirect impact in the form of a reduction in flood damage costs could be expected from the implementation of the proposed action.

The stormproofing work in the Jefferson Parish area that may not occur due to funding constraints is discussed in sections 6.16 and 6.17 of this document. In summary, stormproofing of Westwego No. 1 pump station and climber screens for Westwego, Ames, Bonnabel, Cousins, Elmwood, Hero, Planters, Westwego No. 2, Bayou Segnette, Cataouatche 1 and 2, Duncan, Estelle No. 2, Mount Kennedy, and Suburban may be beyond current available project funding.

The rationale for sequencing these projects last is that Westwego No. 1 pump station handles only 300 cfs of the 1236 cfs basin capacity, and is within a basin that contains pump stations (i.e. Westwego No. 2) that have been stormproofed earlier in the program. Drainage for the basin would still occur even if Westwego No. 1 was offline during a storm event.

The climber screens would be added to a number of the previously stormproofed pump stations. The screens assist with debris removal that could be manually accomplished by pump operators that are able to stay in adjacent or nearby safe houses during the severe storm time period. Of the thirteen basins served by pump stations that will be stormproofed but may not receive any climber screens only five (Avondale, Bayou Segnette, Estelle, Bonnabel, and Duncan) contain residents living below the poverty threshold. Of those five, three will receive climber screens for other pump stations within the basin. Seven of the basins that may not receive climber screens contain significant minority populations. Of those seven, five will receive climber screens for other existing pump stations.

Please see table 5 for detailed demographic information on the basins served by these pump stations.

The pumping capacity of the pump stations in basins with low-income or minority residents is not negatively impacted by the storm proofing options outlined in this document. The proposed action as discussed in this EA would not disproportionately negatively impact minority or low-income populations in Jefferson Parish.

Table 5. Environmental Justice Storm Proofing Data

Zip Code	Minority Community (25%+)	Low-Income Community (to $21K)	Polder	PS Name	Improved?	Basin	Design Capacity (cfs)
70002			Jefferson East Bank	Bonnabel (1)	Conditional CS	Bonnabel	3750
70005		x	Jefferson East Bank	Canal	Yes	Bonnabel	160
70065	x		Jefferson East Bank	Duncan (4)	Conditional CS	Duncan	4800
70065		x	Jefferson East Bank	Parish Line	Yes	Duncan	900
70003			Jefferson East Bank	Elmwood (3)	Conditional CS	Elmwood	5600
70006			Jefferson East Bank	Suburban (2)	Conditional CS	Suburban	5040
70037	x		Harvey Algiers	Hero	Conditional CS	District 9	3852
70037			Harvey Algiers	Planters 1	Yes	District 9	2360
70037			Harvey Algiers	Planters 2	Yes	District 9	2360
70037			Harvey Algiers	Whitney Barataria	Yes	District 9	3150
70072			Westwego Harvey	Ames	Conditional CS	Ames	1930
70072	x		Westwego Harvey	Mt Kennedy	Conditional CS	Ames	501
70072	x	x	Westwego Harvey	Westminster	Yes	Ames	1200
70094	x	x	Westwego Harvey	Lake Cat 1	Conditional CS	Avondale	1100
70094	x	x	Westwego Harvey	Lake Cat 2	Conditional CS	Avondale	0
70094	x	x	Westwego Harvey	Bayou Segnette	Conditional CS	Bayou Segnette	2156
70058			Westwego Harvey	Estelle 1	Yes	Estelle	100
70058	x	x	Westwego Harvey	Estelle 2	Conditional CS	Estelle	1140
70058			Westwego Harvey	Cousins	Conditional CS	Harvey	5660
70058			Westwego Harvey	Harvey	Yes	Harvey	960
70094	x		Westwego Harvey	Hwy 90	Yes	Waggaman	150
70094			Westwego Harvey	Old Westwego	Conditional	Westwego	300
70094			Westwego Harvey	Westwego 2	Yes	Westwego	936

8.14 Transportation

8.14.1 Existing Conditions – Construction access to the pump station sites is provided by Interstate 10 (I-10) on the east bank and the West Bank Expressway (U.S. 90) on the west bank. Both I-10 and U.S. 90 are limited access, divided highways. Secondary roads, such as Williams Boulevard and Clearview Parkway on the east bank, and Lapalco Boulevard on the west bank provide access between I-10 and US 90. Local 2-lane street networks provide access to the pump stations. Generally, the level of service for 1-10 and U.S. 90, as well as secondary multi-lane roads, includes large volumes of traffic with a high density of vehicles during peak commuting hours.