

# Henri Boulet, Executive Director LA 1 Coalition

# Securing Louisiana Highway 1 during Accelerated Coastal Change

LA 1 Project calls for 19 miles of Elevated Highway from the Levee southward to Port Fourchon .



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# LA 1 is the nation's Poster-Child for Critical, At-Risk Infrastructure.





# LA 1 During Hurricane Isaac, looking South from the Golden Meadow Lock .





Road Closures lengths have intensified. Tropical Storm Hermine - (September 1998) Tropical Storm Helena - (September 2000) Tropical Storm Allison - (June 2001) Tropical Storm Barry - August 1, 2001 Hurricane Lilly - September 21, 2202 Hurricane Isidore - September 26, 2002 Tropical Storm Bill - June 30, 2003 Hurricane Ivan - September 15, 2004 Tropical Storm Matthew - October 10, 2004 Hurricane Cindy - July 5, 2005 Hurricane Dennis - July 13, 2005 Hurricane Katrina - August 29, 2005 (4 day closure) Hurricane Rita - September 26, 2005 (5 day closure Hurricane Gustav – August 31, 2008 (5 day closure) Hurricane Ike – September 11, 2008 (6 day closure) Tropical Storm Lee – Friday, September 16, 2011 (3 day closure) Hurricane Issac – Tuesday, August 28, 2012 (4 day closure)

### LA 1 south of Port Fourchon after Hurricane Isaac. LA 1 to Fourchon had shoulder damage, but no road washout.





### LA 1 south of Port Fourchon after Hurricane Isaac. This damage could have easily happened North of Port Fourchon.

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# Port Fourchon service bases rely on LA 1 as their sole highway access for supplies.





#### **REBUILDING BARATARIA COASTLINE**

Corps releases construction recommendations for Barataria Basin Barrier Shoreline Restoration project, which calls for restoration of beach, dunes and backbay wetlands along the Caminada shoreline south of Port Fourchon and replacement of Shell Island barrier island at a proposed cost of \$446 million



Partner with relative agencies on other projects which enhance coastal resilience. Local agencies & NGO's in Lafourche Parish support a 13 milelong sand headland comprising of 880 acres that will help protect Port Fourchon.

THE TIMES-PICAYUNE

#### Grand Isle residents, tourists, seafood sheds & shorebases utilize the Lafourche Ridge road to access the island.



U.S.D.H.S. performed an Assessment of Consequences of Disruptions to LA 1 in 2011. \$7.8 billion of loss GDP is at rsk





National Infrastructure Simulation and Analysis Center Risk Development and Modeling Branch Homeland Infrastructure Threat and Risk Analysis Center Office of Infrastructure Protection

In Collaboration with

The National Incident Management Systems and Advanced Technologies Institute at The University of Louisiana at Lafayette

Louisiana Highway 1/Port Fourchon Study

July 15, 2011



### **USDHS Assessment Findings:**



- Estimates up to \$7.8 Billion in Loss GDP with a 90 day outage of LA 1
- Estimates reduction in 160 millions of barrels of oil and 320 billions of cubic feet of natural gas over 10 yr. with an outage of LA 1 which coincides with OCS damage from a major hurricane.
- Estimates 25% capability of substitution port facilities fulfilling national need

#### The elevation of LA-1 will become increasingly inundated even if the present day relative sea level rise (RSLR) remains constant in the future.

Estimated Effects of RSLR on Frequency and Duration of Inundation for Leeville, LA using observations 1987-1990 and then projecting this 4-year time period forward using present rate of sea level rise

Using "5%" LA-1 elevation of 0.78m NAVD88 (1993) Occurrences of Inundation Duration of Inundation Elevation Rise (over 4-years) (over 4- years) Above 1990 MSL (hours (percent of total **RSLR** rate **4-yr Time Period** mm/yr) (# of tides) time)) (meters) 0 (0%) 1987-1990 9.24 0 2027-2030 9.24 124 960(6%) 0.3 2047-2050 9.24 1127 19163(55%) 0.6 33699(96%) 1.0 2097-2100 9.24 1334



Using the GPS Surveying Equipment and the Louisiana State University C4G Real Time Network, this mark and the surrounding area lost over 1 foot of elevation in just 20 years.

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•Intensified storms

•Subsidence 1.0 m by 2100

Source: Entergy Gulf Coast Adaptation Study, October 2010





•Rise in sea surface temperature 3°C;

and storm surge





# Weak Tropical Storms at Port Fourchon will Inundate LA 1 to the point of closure.



#### Good News: Of 19 miles of needed bridge, 1/2 built.





# \$165 million Leeville Bridge designed to withstand 100 yr. storm opened in 2009



### \$153 million Port Fourchon to Leeville Elevated Highway opened in December.





# The elevated highway (background) will replace the existing at-grade highway.





# LA 1 Toll Road Source of Funds

Project Funding Summary	
SOURCE OF FUNDS	Expended as of 3/20/2011*
Bonds / TIFIA Loan	\$ 140,489,780
Federal Earmarks	\$ 59,042,453
Federal Formula Funds	\$ 62,470,440
State TTF	\$ 6,749,106
State General Fund Surplus	\$ 63,706,255
State GO Bonds	\$ 60,000
CIAP / Local / NOAA Funds	<u>\$ 36,165,432</u>
TOTAL	\$ 368,683,466

Port Fourchon contributed \$3.5 million for dredging and mitigation (not included in total)

Citizens supported tolling themselves for 31 years in order to secure \$134 million in loan and bond revenues for initial construction.



# Segmenting Phase II into 3 Projects for \$60million, \$215 million, & \$45 million.

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# Most of Phase II will be built with the environmentally-friendly end-on construction method.







LA 1 Project Funding Sources being pursued:

- State Capital OutlayCorporate Contributions
- Restore Act funds
- •U.S.D.O.T. PNRS Grant Funds
- •OCS Royalty Sharing funds
- •Energy & Jobs Act Bills



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Raising a rare Republican concern over climate change, Sen. Lisa Murkowski discusses the costs and time in trying to raise Louisiana Highway 1,

"This is something we need to look critically at. We've got an obligation here with energy infrastructure that we've committed to, and yet we've got one way in and it's truly at a risk."



As climate changes, Louisiana seeks to lift a highway By <u>Juliet Eilperin</u>, Published: March 18

<u>Nancy Sutley</u>, chair of the White House Council on Environmental Quality, who is spearheading the administration's federal adaptation strategy said "It's about how do we incorporate planning for a future that may look very different from the way the world looks today," said.

#### **Davis Pond Structure Facts**

- •Flood Control Act 1965 and WRDA 1974
- •Constructed by USACE, operated by LDNR
- \* Online in 2002
- \* 4-14 ft<sup>2</sup> culverts
- \* Discharge = 10,650 cfs
- \* Operational oversight by DPAC
- \* Cost \$120 million
- \* 33,000 acres preserved
- \* 777,000 acres benefited





Davis Pond basin with pre/post 5 and 15 ppt lines.

#### **PROPOSED PROJECT FEATURES**

- Enlarge Bayou Pelton to 120' x 10'
- Dredge 3200' conveyance channel (100' x 8')
- Install a Primary Water Control structure of six 10' x 10' box culverts on conveyance channel
- **Rebuild Highway 57 on top of the Primary Water Control Structure**
- Install a Secondary Water Control Structure of 8' x 2.5' flap-gated weir in the conveyance channel
- Install 2 outfall management structures (boat bay structure and earthen plug) on Bayou Butler
- Construction of a South Forced Drainage Levee and Construction/Elevation of a North Forced Drainage Levee

