

**SUMMARY INFORMATION
FOR
POTENTIAL AT-GRADE CROSSING CLOSURE
LOCATIONS**

Biloxi, Mississippi

**PREPARED IN CONJUNCTION WITH
ENVIRONMENTAL DOCUMENTATION
FOR THE EXTENSION OF POPP'S FERRY ROAD
FROM PASS ROAD TO U. S. HIGHWAY 90 (BEACH BOULEVARD)**

**PROJECT NO. DHP-9376-00(009)LPA/106253-801000
CITY OF BILOXI PROJECT NO. 913**

HARRISON COUNTY, MISSISSIPPI

PREPARED BY



October 2014

BILOXI AT-GRADE RAILROAD CROSSING INVENTORY AND ANALYSIS:

POTENTIAL CROSSING CLOSURE AND PROTECTION LOCATIONS

PURPOSE

The work effort described below was undertaken in order to identify at-grade highway-railroad crossings in Biloxi that could be closed, in accordance with CSX Transportation (CSXT) policy, in order to secure permission for the construction of a new crossing of the railroad right-of-way required for the extension of Popp's Ferry Road from Pass Road to Beach Boulevard (U. S. Highway 90). CSXT policy calls for three existing crossings to be closed prior to installation of a new crossing.

STUDY AREA

The CSX railroad runs east and west across Biloxi from the western city limit in the vicinity of DeBuys Road to the bridge crossing the Back Bay of Biloxi. There are 29 public at-grade crossings located along this stretch of the CSX line spanning approximately 8.6 miles. Eight of those crossings are located along the five miles of track from White Avenue, the main entrance to Keesler Air Force Base, to Eisenhower Drive, the westernmost crossing in Biloxi (see Figure 1). The other 21 are located in a stretch barely half as long (2.6 miles) from White Avenue to Oak Street, the easternmost crossing in Biloxi (see Figure 2).

METHODOLOGY

The methodology employed for the work effort described herein involved initially the assembly of relevant data for the 29 public grade crossings in Biloxi. This information was acquired from the Federal Railroad Administration (FRA) national inventory of grade crossings, Mississippi Department of Transportation (MDOT) maps and reports, traffic estimates developed by Gulf Regional Planning Commission (GRPC) and field observation undertaken by Neel-Schaffer, Inc. on behalf of the City of Biloxi. Neel-Schaffer then made a determination which crossings were potentially eligible for closure by eliminating from consideration the following:

- Functionally classified major streets, i.e., arterials and collectors
- Other heavily traveled streets having average daily traffic volumes in excess of 5,000 vehicles
- Streets providing access to public facilities

The remaining crossings were then evaluated on the basis of two criteria: Travel distance to alternative crossings and the level of existing crossing protection. Eligible crossings were ranked within each of these categories, and the results were then combined to derive an overall ranking for each (see Exhibit 1). The best candidates for closure were selected on the basis of this ranking. Alternatives were identified on the basis of both rank and proximity to the selected crossings.

The selection of crossings for improved protection was based on information from the Mississippi State Rail Plan, taking into consideration data regarding existing facilities and safety measures assembled for the present evaluation.

INVENTORY

Information assembled and tabulated for this study included relevant physical characteristics and operating data for all crossings. These included the following:

- FRA crossing ID
- Street name
- Railroad milepost
- Nearest alternative crossing
- Distance to nearest alternative crossing
- Track distance to alternative crossing locations (each direction, i.e., east and west)
- Travel distance to nearest alternative crossing (each direction, i.e., for both northbound and southbound travel)
- Roadway functional classification
- Number of lanes
- Estimated average daily traffic (ADT) volume
- Existing crossing protection (signs, pavement markings, gates, flashing lights, bells, traffic signal preemption)

ANALYSIS

The application of eligibility criteria disqualifying major streets, other heavily traveled routes and those providing access to public facilities, resulted in 13 candidates for possible closure. These were then ranked on the basis of travel distance to an alternative crossing and the existing level of protection afforded motorists driving across the rail line. Travel distance was measured along the route a driver, traveling in either direction (north or south), would have to take in order to get from the closed crossing to one that remained open. The longer of the northbound and southbound routes was treated as the relevant distance. Crossings were then ranked in inverse order of the measured trip length: The crossing with the shortest travel distance to an alternative crossing was ranked first; the one with the longest travel distance to an alternative crossing was ranked last.

The evaluation of existing protection made use of data from the FRA inventory, supplemented by field surveillance, regarding the presence or absence of crossbuck warning signs; pavement markings intended to alert motorists approaching a crossing; automatic gates, flashing lights and warning bells activated by the approach of a train; and traffic signal preemption equipment. Crossings were ranked inversely on the basis of how many of these measures are currently present, with the location having the fewest ranking first and the one having the most ranking last. The two rankings were then combined to yield an average rank for each crossing, and these were used to prioritize the locations evaluated from 1 to 13.

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RECOMMENDATIONS

The following crossings are recommended for closure in the indicated order:

1. Nixon Street
2. Holley Street
3. Iroquois Street

Based on the results of the evaluation, and taking into consideration their proximity to the recommended closure locations, the following crossings are presented as potential alternatives for closure:

- Keller Avenue
- Dorries Street
- ~~Seal Avenue~~
- ~~Benachi Avenue~~
- Querens Avenue

The first two are located on either side of Holley Street; the other three form a cluster bracketing Iroquois Street (see Figure 3).

The Mississippi State Rail Plan identifies four crossings in Biloxi programmed for the installation of warning signals and automatic gates: Iroquois Avenue, Seal Avenue, Magnolia Avenue and Nixon Street. Since Iroquois, Seal and Nixon are among the leading candidates for closure, it is recommended that Magnolia be designated for improved protection by the installation of automatic gates and flashing lights. In addition, it is recommended that Delauney Street, another street lacking any protection other than crossbucks, also be designated for the same safety improvements. Both of these streets were not considered eligible for closure because they provide access to public facilities.

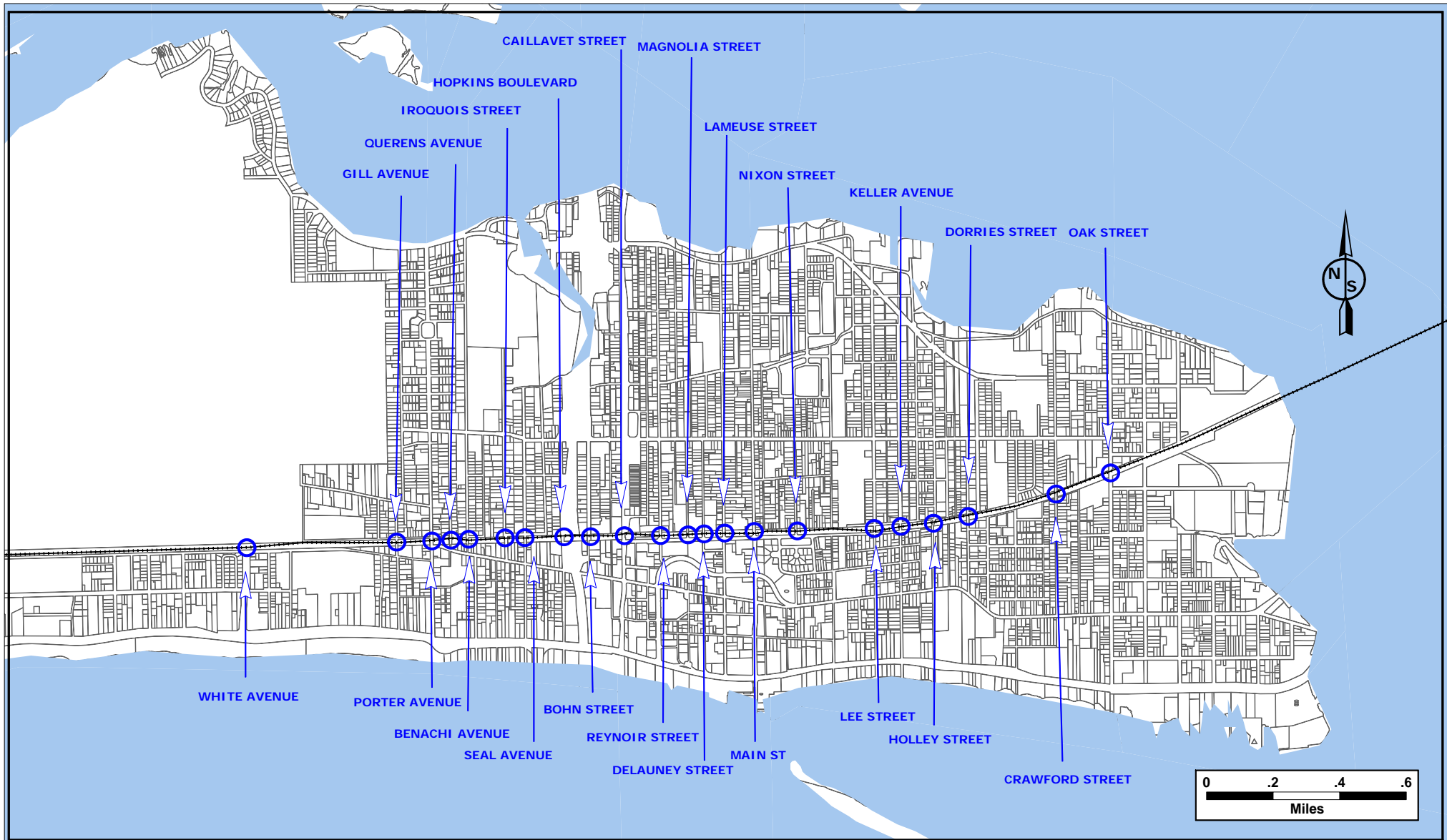


Figure 1:
PUBLIC AT-GRADE RAILROAD CROSSING LOCATIONS IN EAST BILOXI



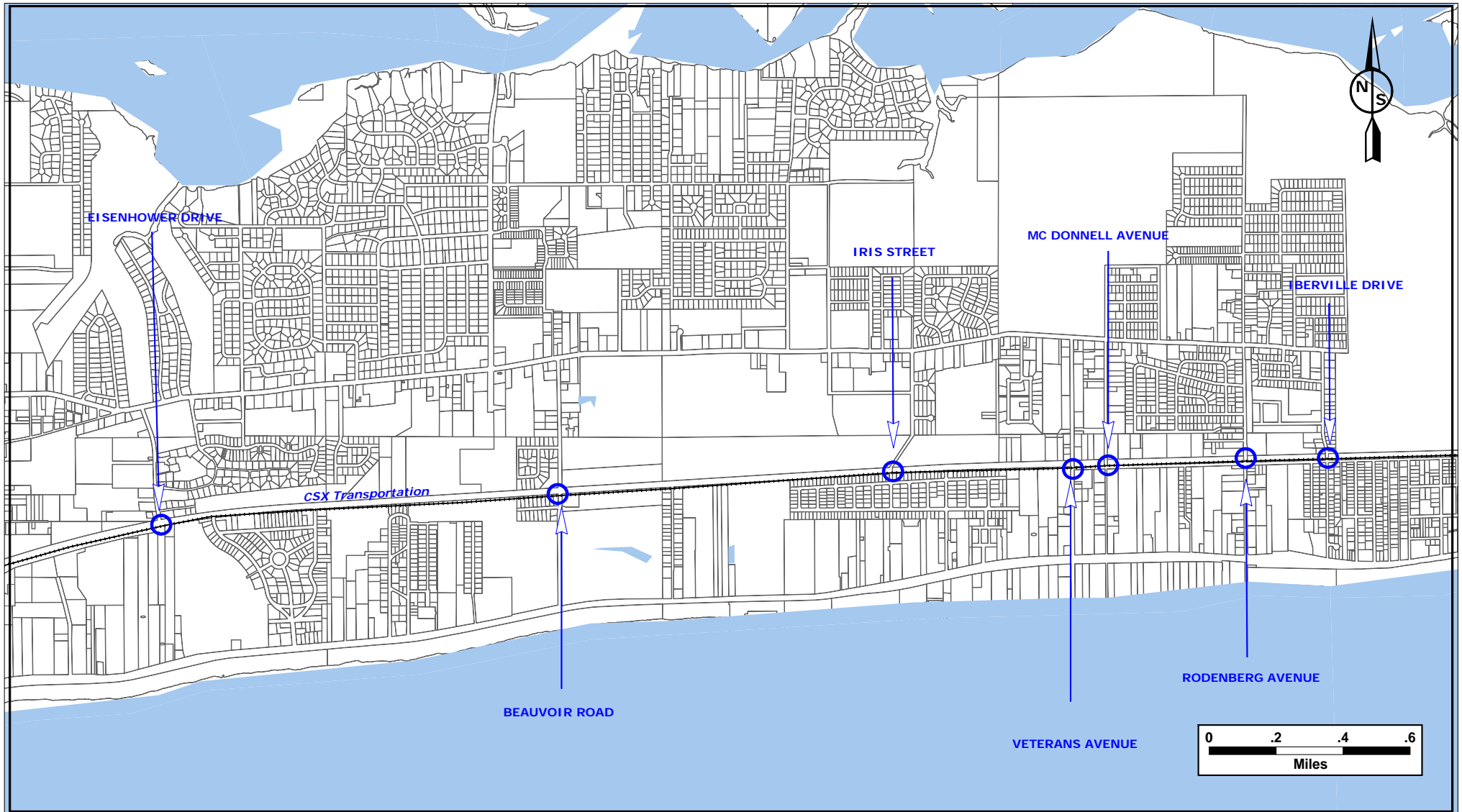
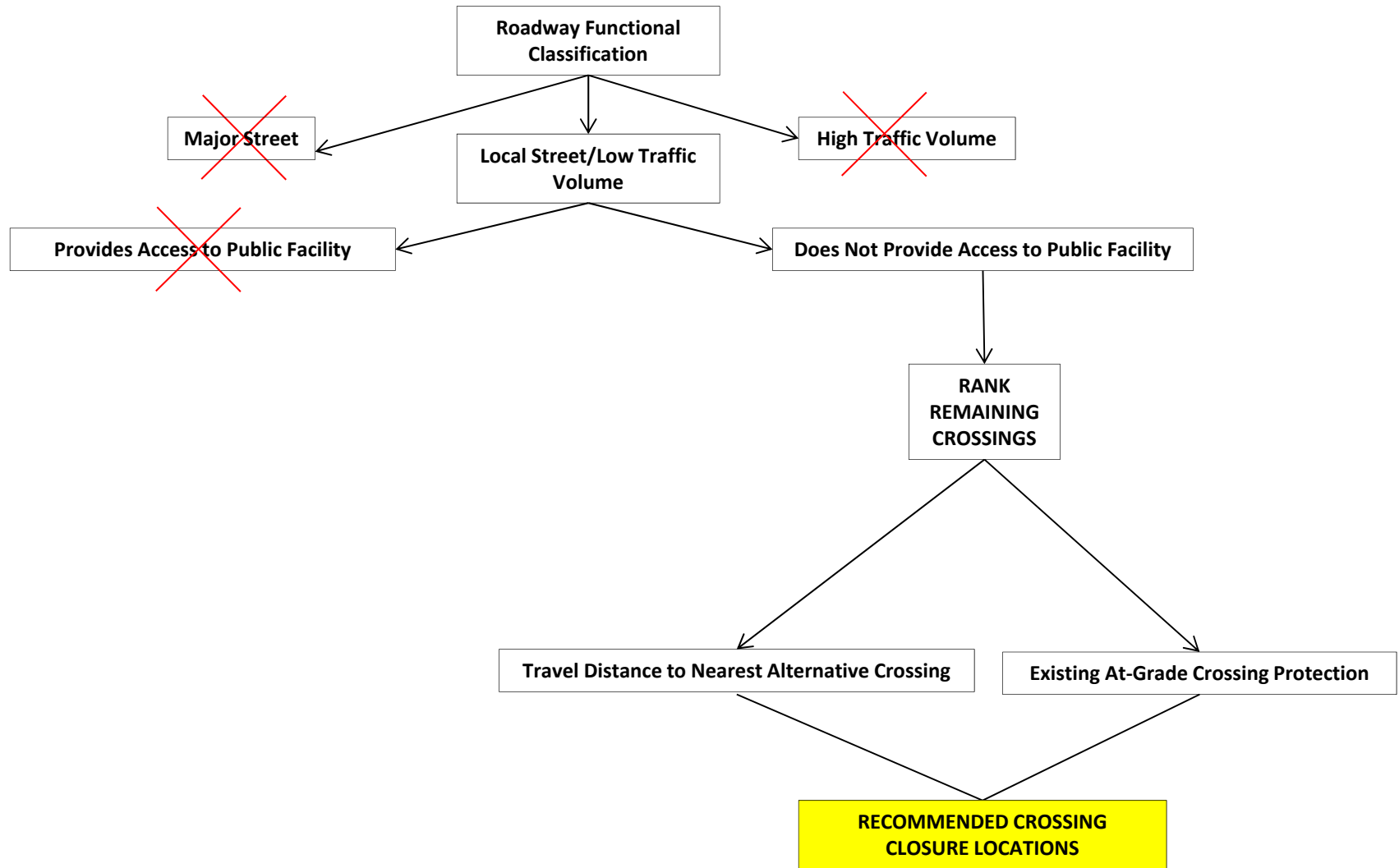


Figure 2:
PUBLIC AT-GRADE RAILROAD CROSSING LOCATIONS IN WEST BILOXI



Exhibit 1:
BILOXI AT-GRADE RAILROAD CROSSINGS ELIGIBILITY DETERMINATION FLOWCHART



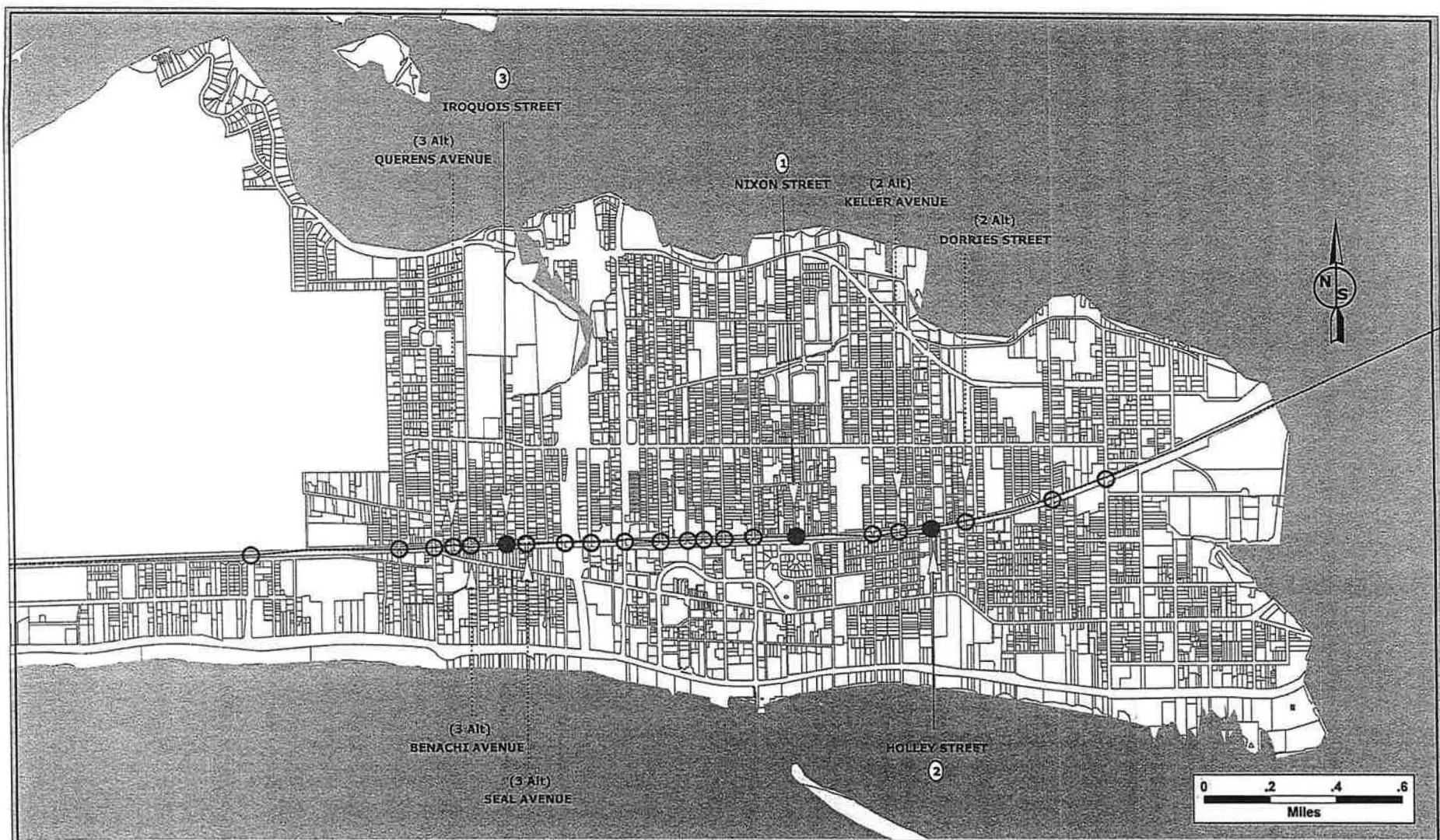


Figure 3:
RECOMMENDED RAILROAD CROSSING CLOSURE LOCATIONS



Table 1:
BILOXI PUBLIC AT-GRADE RAILROAD CROSSINGS ON THE CSX TRANSPORTATION LINE

NO	CROSSING ID	LOCATION	MILE-POST	NEAREST ALTERNATIVE CROSSING	DISTANCE TO NEAREST ALT CROSSING	TRACK DISTANCE TO ALTERNATIVE CROSSING		TRAVEL DISTANCE TO NEAREST ALT CROSSING		FUNCTIONAL CLASS	NUMBER OF LANES	EST AADT	EXISTING CROSSING PROTECTION (Yes/No)					
						EAST (MI)	WEST (MI)	NB (MI)	SB (MI)				X	PM	G	FL	B	SP
1	340177E	Oak Street	725.52	Crawford	0.17	--	0.17	0.49	0.17	Minor Arterial	2	7600	N	Y	Y	Y	Y	Y
2	340178L	Crawford Street	725.69	Oak	0.17	0.17	0.28	0.49	0.17	Local Street	2	1001	N	Y	N	Y	Y	N
3	340179T	Dorries Street	725.97	Holley	0.11	0.28	0.11	0.49	0.11	Local Street	2	1001	Y	N	N	N	N	N
4	340180M	Holley Street	726.08	Dorries	0.09	0.11	0.09	0.12	0.11	Local Street	2	1001	Y	N	N	N	N	N
5	340181U	Keller Avenue	726.17	Lee	0.08	0.09	0.08	0.10	0.10	Local Street	2	1001	N	N	N	N	Y	N
6	340182B	Lee Street	726.25	Keller	0.08	0.08	0.25	0.10	0.10	Collector	2	3000	N	Y	Y	Y	Y	N
7	340183H	Nixon Street	726.50	Main	0.11	0.25	0.11	0.11	0.11	Local Street	2	1001	Y	N	N	N	N	N
8	340185W	Main Street	726.61	Lameuse	0.09	0.11	0.09	0.09	0.09	Minor Arterial	2	2300	Y	Y	N	Y	Y	N
9	340186D	Lameuse Street	726.70	Delauney	0.07	0.09	0.07	0.07	0.07	Collector	2	3000	Y	N	N	Y	Y	N
10	340187K	Delauney Street	726.77	Magnolia	0.04	0.07	0.04	0.05	0.05	Local Street	2	1001	Y	N	N	N	N	N
11	340189Y	Magnolia Street	726.81	Delauney	0.04	0.04	0.08	0.05	0.05	Local Street	2	1001	Y	N	N	N	N	N
12	340190T	Reynoldr Street	726.89	Magnolia	0.08	0.08	0.12	0.08	0.08	Local Street	2	6300	N	N	Y	Y	Y	N
13	340191A	Caillavet Street	727.01	Reynoir	0.10	0.12	0.10	0.11	0.20	Minor Arterial	5	10000	N	N	Y	Y	Y	N
14	340193N	Bohn Street	727.11	Hopkins	0.08	0.10	0.08	0.08	0.69	Local Street	2	1001	N	N	Y	N	Y	N
15	340194V	Hopkins Boulevard	727.19	Bohn	0.08	0.08	0.11	0.08	0.49	Local Street	2	190	Y	Y	Y	Y	Y	N
16	340195C	Seal Avenue	727.30	Iroquois	0.06	0.11	0.06	0.19	0.09	Local Street	2	1426	Y	Y	N	N	N	N
17	340196J	Iroquois Street	727.36	Seal	0.06	0.06	0.12	0.19	0.09	Local Street	2	1426	Y	N	N	N	N	N
18	340197R	Benachi Avenue	727.48	Querens	0.05	0.12	0.05	0.12	0.70	Local Street	2	1500	Y	N	N	N	N	N
19	340198X	Querens Avenue	727.53	Benachi	0.05	0.05	0.05	0.12	0.70	Local Street	2	1426	Y	N	N	N	N	N
20	340199E	Porter Avenue	727.58	Querens	0.05	0.05	0.11	0.10	0.72	Minor Arterial	2	5207	Y	N	Y	Y	Y	N
21	340200W	Gill Avenue	727.69	Porter	0.11	0.11	0.45	0.20	0.13	Local Street	2	1426	Y	Y	N	Y	Y	N
22	340202K	White Avenue	728.14	Gill	0.45	0.45	1.39	0.49	0.77	Minor Arterial	5	8200	Y	N	N	Y	Y	Y
23	340204Y	Iberville Drive	729.53	Rodenberg	0.25	1.39	0.25	0.25	0.44	Minor Arterial	2	7916	Y	N	Y	Y	Y	N
24	340205F	Rodenberg Ave	729.78	Iberville	0.25	0.25	0.41	0.25	0.44	Minor Arterial	3	6008	N	N	N	Y	Y	N
25	340206M	McDonnell Avenue	730.19	Veterans	0.10	0.41	0.10	0.13	0.85	Local Street	2	1001	N	N	N	Y	Y	Y
26	340207U	Veterans Avenue	730.29	McDonnell	0.10	0.10	0.52	0.13	0.85	Minor Arterial	2	6910	Y	Y	Y	Y	Y	N
27	340208B	Iris Street	730.81	Veterans	0.52	0.52	1.04	1.15	1.24	Local Street	2	1426	Y	N	Y	Y	Y	N
28	340209H	Beauvoir Road	731.85	Eisenhower	1.04	1.04	1.17	1.96	1.99	Minor Arterial	4	8200	Y	Y	Y	Y	Y	N
29	340210C	Eisenhower Drive	733.02	DeBuys	0.52	1.17	0.52	1.28	1.31	Minor Arterial	3	15000	N	Y	Y	Y	Y	Y

Travel Distance to Nearest Alternative Crossing - Distance from centerpoint of one crossing to centerpoint of the other via the shortest available vehicular travel route.

Existing Crossing Protection - Pavement Markings (PM), Crossbucks (X), Gates (G), Flashing Lights (FL), Bells (B), Simultaneous Traffic Signal Preemption (SP).

Table 2:

BILOXI PUBLIC AT-GRADE RAILROAD CROSSING CLOSURE ELIGIBILITY DETERMINATION AND SUITABILITY RANKING

CROSSING ID	CROSSING LOCATION	MAXIMUM TRAVEL DISTANCE TO ALTERNATIVE CROSSING		EXISTING CROSSING PROTECTION (1=Yes / 0=No)								AVERAGE RANK	OVERALL RANK
		Distance (Mi)	Rank	X	PM	G	FL	B	SP	Total	Rank		
340178L	Crawford Street	0.49	8	0	1	0	1	1	0	3	10.5	9.25	11
340179T	Dorries Street	0.49	8	1	0	0	0	0	0	1	3.5	5.75	5
340180M	Holley Street	0.12	3	1	0	0	0	0	0	1	3.5	3.25	2
340181U	Keller Avenue	0.11	1.5	0	0	0	1	1	0	2	8	4.75	4
340183H	Nixon Street	0.11	1.5	1	0	0	0	0	0	1	3.5	2.50	1
340193N	Bohn Street	0.69	10	0	0	1	0	1	0	2	8	9.00	9.5
340194V	Hopkins Boulevard	0.49	8	1	1	1	1	1	0	5	13	10.50	12
340195C	Seal Avenue	0.19	4.5	1	1	0	0	0	0	2	8	6.25	6
340196J	Iroquois Street	0.19	4.5	1	0	0	0	0	0	1	3.5	4.00	3
340197R	Benachi Avenue	0.70	11.5	1	0	0	0	0	0	1	3.5	7.50	7.5
340198X	Querens Avenue	0.70	11.5	1	0	0	0	0	0	1	3.5	7.50	7.5
340200W	Gill Avenue	0.22	6	1	1	0	1	1	0	4	12	9.00	9.5
340206M	McDonnell Avenue	0.85	13	0	0	0	1	1	1	3	10.5	11.75	13

NOTES

Existing Crossing Protection - Pavement Markings (PM), Crossbucks (X), Gates (G), Flashing Lights (FL), Bells (B), Simultaneous Traffic Signal Preemption (SP).

RR Crossings Recommended for Closure by CSX

Devices	Street Name	Incidents	Reason
Flashing lights and gates	CRAWFORD ST*		Redundant
Crossbucks only	HOLLEY ST*		Redundant and drop off
Flashing lights and crossbucks	KELLER AVE*		Redundant
Crossbucks only	NIXON STREET*	3	Redundant
Crossbucks only	MAGNOLIA ST.		Redundant
Crossbucks only	SEAL AVE		Redundant crossing, Restricted View and dropoff
Crossbucks only	IROQUOIS AVENUE*	1	Redundant crossing, Restricted View
Flashing lights and gates	QUERENS AVENUE*		Redundant crossing, Restricted View, and tight roadways
Flashing lights and gates	IRIS ST*		No through street

Devices	Street Name	Incidents
Flashing lights and gates	DORRIES ST	Redundant
Crossbucks only	DELAUNEY STREET	1 Redundant
Flashing lights and gates	BENACHI AVE	Redundant

Street Name	2012-2016 Crossing Accidents
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OAK STREET	1
CRAWFORD ST	
DORRIES ST	
HOLLEY ST	
KELLER AVE	
LEE ST	
NIXON STREET	3
MAIN ST	1
LAMEUSE ST	
DELAUNEY STREET	1
MAGNOLIA ST.	
REYNOIR ST	1
CAILLAVET ST	1
BOHN ST	
HOPKINS BLVD	1
SEAL AVE	
IROQUOIS AVENUE	1
BENACHI AVE	
QUERENS AVENUE	
PORTER AVE	
GILL AVENUE	
WHITE AVENUE	1
IBERVILLE DR.	
RODENBURG AVE	
MCDONNEL AVE	
VETERANS AVE	
IRIS ST	
BEAUVOIR RD	
EISENHOWER DR	

City of Biloxi Recommendations for CSX Crossing Closure

Cross Closure Ranking	Street Name
1	Nixon
2	Holley
3	Iroquois
4	Keller
5	Dorries
6	Querens