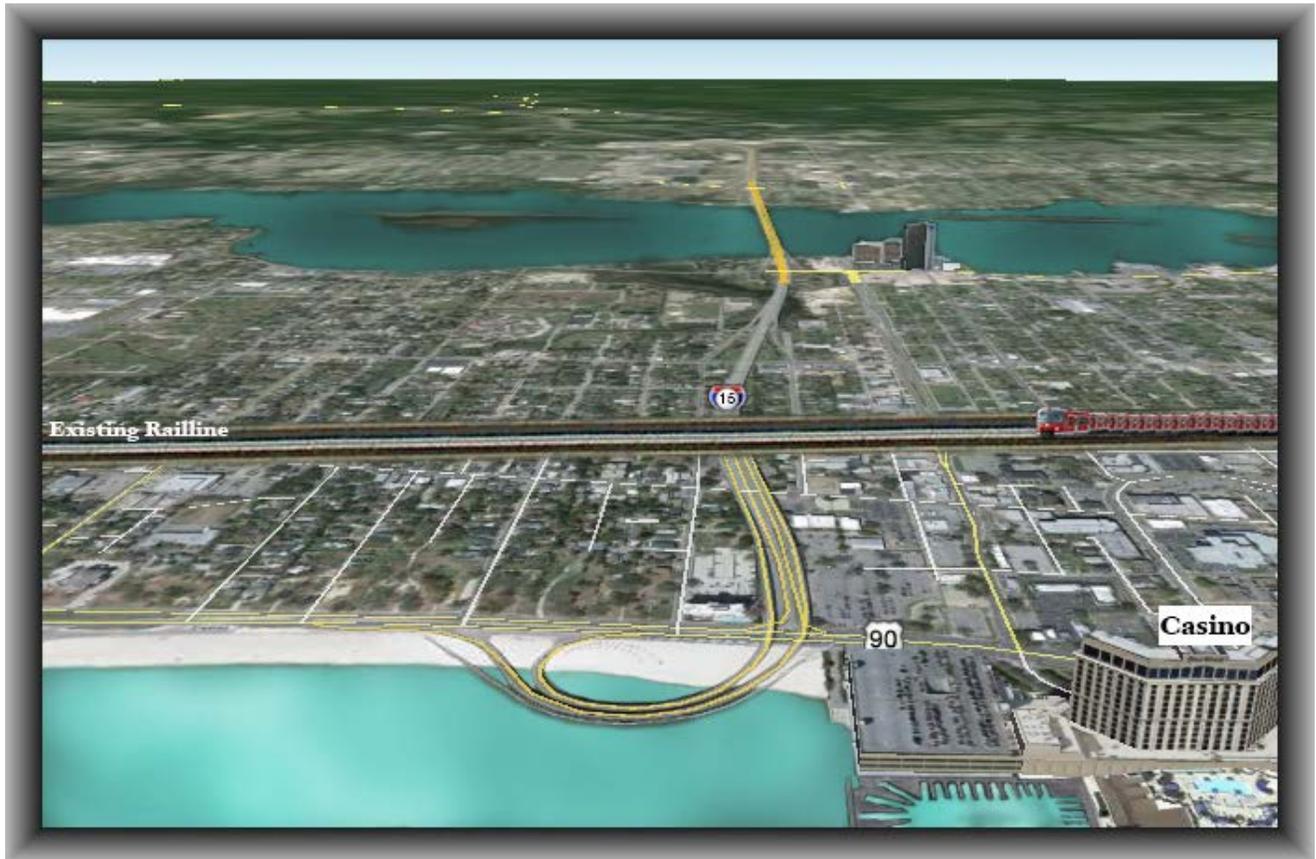


Economic Viability of Mississippi Gulf Coast Rail Service Revival



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WHITE PAPER

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Background and Research Needs:

Major problems with Mississippi Gulf Coast cities include the following: high congestion on highways during peak hours, increased volume of commercial traffic and safety risks to other auto motor traffic, high level of vehicle emissions, and lack of public transportation options for the underserved. Coastal communities face extreme traffic congestion during hurricane evacuations, which is a major hurdle for federal, state and local emergency management agencies. The ultimate long-term solution for these major problems of the Mississippi Gulf Coast is to implement an efficient rail system, which can reduce auto traffic on roads, traffic congestion on major highways, safety risks, and vehicle emissions. The primary objective of this project and white paper is to propose sustainable rail strategies for serving commuters transportation to major employers and patrons/visitors to casinos, beaches, and other places of tourist attraction within the coastal highway corridors. The recommended passenger rail strategies are intended to maximize their benefits and efficiencies compared to the current highways and roads, which are the only means of mobility in the Mississippi Gulf Coast cities. This project focuses on passenger mobility needs of Mississippi Gulf Coast cities, surrounding communities, and government and private employers. The proposed commuter rail framework integrates passenger rail service for commuters in the Gulf Coast counties and visitors with local economies.

According to the 2012 Census data for Mississippi, about 82% of auto traffic is reported in the Gulf Coast counties and 11-13% of person-trips by car/van pool. Transit bus trip share per county was 0.02% in Hancock, 0.89% in Harrison, and 0.32% in Jackson County. The existing Coastal Transit Authority (CTA) operates its fleet of 29 buses mostly in Harrison County. Typically over 49,000 vehicles travel daily on I-10 just east of the Mississippi state line and similarly over 46,000 vehicles per day traffic volume is reported at the western state line. Daily traffic volume swells to over 57,000 on I-10 in Harrison County and over 125,000 combined on I-10, I-110, and US-90 highways in Harrison County. This indicates the large number of trips made within the three coastal counties. Using a utility function of trip shares for auto versus commuter rail, it is estimated that 10% vehicle trips or up to 34,000 vehicle users in these counties can potentially use commuter rail service at competitive fare costs. The Mississippi DOT's strategic planning reports indicate that most of the Interstate-10 corridor through these counties has average speeds (in both directions) at or below 55 mph (88 kmph) that is 21% lower than the posted speed of 70 mph (112 kmph). The report indicates significant traffic congestion during rush hours. This leads to fuel wastage and increased travel time by auto road users, as well as driving stress and public health hazards associated with harmful vehicle emissions. Commuters using rail service will not worry about road congestion and driving stress.

The Amtrak sunset service from Miami to Los Angeles through New Orleans served the Mississippi Gulf Coast triweekly during nighttime hours. The Amtrak sunset service was first interrupted in 1993 after the worst rail disaster in Amtrak history. The Amtrak passenger rail service was suspended during the 2005 Hurricane Katrina disaster due to destruction of the rail infrastructure. This nightly service served 53,300 passengers annually or about 1,025 passengers per week. It did not serve regular commuters similar to the daily commuter rail services operated between NY-NJ/DC, Detroit-Chicago, and counties around Chicago. Currently, Amtrak coastal rail is not operational through Alabama and Mississippi, therefore taking away a valuable public transportation mode for the underserved and/or vacationers to casinos and beaches. Next, technical feasibility and economic competitiveness evaluation are presented for alternative strategies of passenger/commuter rail service in East-West (E-W) Coastal corridor south of I-10 and North-South (N-S) Corridor along east of US-49. These rail

corridors already exist and are used by freight train lines. The commuter rail service will be implementable through shared used agreements with the freight rail operators.

Key Results and Recommendations:

A detailed review was undertaken for the existing rail and bus transit technologies being used in several U.S. cities. The study revealed that trams and street rail cars, bus rapid transit (BRT), high-cost light rail transit (LRT) and high-speed rail (HSR) modes are not feasible for the rural area on the Mississippi Gulf Coast due to degradation of highway traffic capacity from lane occupancy and rail track intrusion, as well as added safety risks of mixed multimodal traffic. Consequently, these modes are not technically feasible from value engineering perspectives of functional and safety requirements. Further analysis showed that a dedicated E-W monorail line on elevated guide track infrastructure between I-10 and US-90 highway corridors serving casinos from Biloxi to Gulfport is feasible technically and economically viable in the long term. However, the monorail line is not recommended due to very high initial capita cost. The final recommended passenger rail strategies include: (1) a commuter rail “*Casino Train*” in E-W corridor of the existing CSX rail from New Orleans to Mobile and (2) a second commuter rail line “*Beach Train*” in N-S corridor of the existing KCS rail from Hattiesburg to Gulfport in Mississippi. The two proposed rail services will operate at 60 mph (96 kmph) under agreements with the existing freight rail lines and preferably with rail electrification system. The commuter rail service will have daily operations at each hour during morning and evening peak hours and every two hours in between until midnight. Additional trains will be operated on weekends starting Friday evening to serve casino patrons all the way from New Orleans in the west to Mobile in the east. These recommended rail strategies are intended to reduce auto traffic by up to 34,000 vehicles daily on major highways serving Mississippi Gulf Coast cities.

Table 1 shows other salient features of the value engineering analysis of life cycle costs and benefits of each rail line. There will be one maintenance yard for maintenance and storage, which is included in the cost of E-W commuter rail. The study analyzed county and city commuter data, highway traffic data, capital costs, annual operation and maintenance cost, revenues from fares and advertising, and additional revenue from concessions on stations and shuttle service providers. Other benefits include an increase in income from casino patrons and tourists/visitors, additional gaming and sales tax revenues, and fuel cost savings as a result of moving a significant number of auto commuters to rail lines. Economic development impacts will create total 500 jobs, which can absorb 427 jobs expected to be lost due to the closure of Gulfport shipyard. Table 1 considers only rail related jobs created for each alternative and does not calculate the boost to the state economy by future attracted casino/tourist traffic and potential manufacturing of train stock. The combined capital cost is \$562 million and the benefit-cost ratio is one after one year of full operation considering all revenues and economic benefits. Considering direct revenues only (fare, advertising on train and stations, annual fee charges to concessions on stations and shuttle service operators), the breakeven period is 6 to 9 years until the commuter rail service will become financially self-sustaining.

It is estimated that this capital sustainable mobility project will boost Gulf Coast economy because infrastructure spending generally adds up to twice the dollar amount in the region’s economy. Figure 1 shows the existing transportation infrastructure and Figure 2 shows the two commuter rail lines serving employers in the region and casinos on the coast. The success of the Gulf Coast rail service lies in integrating passenger/commuter rail with the auto traffic for reasonable daily ridership which can ease auto travel demand on the existing highway corridors, offer economically competitive and safer travel, and reduce air pollution. An average commuter makes the decision of modal choice by comparing the out-of-pocket costs and travel time to destination. Therefore, it will be essential to provide intermodal connectivity by shuttle bus service and employer incentives to use the rail service. Additionally, it will

be crucial to have the support of all cities, the Gulf Coast Planning Commission, Gulfport Port, Mississippi DOT and other public agencies, casino industry, convention and tourism centers, and other employers on the Gulf Coast. States of Alabama and Louisiana will be other stakeholders.

Table 1. Value engineering analysis of life cycle benefits and costs for Gulf Coast rail lines

NCITEC 2013-33: Mississippi Gulf Coast Rail Restoration Study (5% Annual Discount Rate Assumed)				
Rail Alternative	Commuter Rail E-W		Commuter Rail N-S	
CL Length; Track	200 km; CSX rail track		110 km; KCS rail track	
Rail Infrastructure	6 train stocks; 10 stations		4 train stocks; 3 stations	
Initial Infrastructure Cost	\$335.2 Million		\$226.9 Million	
Riders per Day	20,000		10,000	
Present Worth Cost-Benefit Analysis	Cost	Benefit	Cost	Benefit
1-Year Present Worth Analysis, \$ Million	344	344	230	247.1
5-Year Present Worth Analysis, \$ Million	375	1,489	247	1,030
10-Year Present Worth Analysis, \$ Million	407	2,656	263	2,110
20-Year Present Worth Analysis, \$ Million	450	4,287	286	2,907
50-Year Present Worth Analysis, \$ Million	504	6,279	313	5,049
Breakeven Year	Year 1		Year 1	
(Using all revenue sources, fuel saving, and economic benefits)				
Benefit/Cost Ratio	1.0		1.1	
<i>Breakeven Year (considering only direct revenues)</i>	<i>Year 6</i>		<i>Year 9</i>	
CO ₂ Emission reduction (due to less cars on highways):	2,397	Tons per Year	1,253	Tons per Year
Added Sales Tax Revenue Assumed:	Annual 5%		Annual 2.5%	
Annual 10% Added Casino Patrons & Visitors/Tourists:	1.48 Million		(added boost to state economy)	
Total Jobs created from commuter rails:	500		(added economic benefits)	
Data sources: U.S. Census Bureau, American Community Survey 2012; National Transit Database; Mississippi DOT				

The project viability is evident from the key results of the economic impact study (Table 1) where the commuter rail lines can operate on profit within two years of full operation. Considering only direct revenues of fare and concessions/advertisement the commuter rail alternatives for both corridors can reach breakeven within 9 years (Table 1 and Figure 3). Additional benefits include providing safe driving alternatives of “*Casino Train*” to casino patrons on the Mississippi Gulf Coast which accounted for 14.8 million patrons in 2012 and 52% of all gaming associated revenue in Mississippi. The recommended “*Casino Train*” in E-W corridor rail will enhance highway safety by reducing number of autos and save lives considering the reduction in alcohol related driving accidents since the rejuvenation of the coast nightlife and casino business. Moreover, the state and local emergency management agencies and the Mississippi DOT would be able to use the North-South “*Beach Train*” rail for safe mass evacuation of coastal communities in case of a coastal hurricane disaster.

Furthermore, a public-private-partnership (PPP) model of financing and worldwide bid invitation will lead to a new train manufacturing industry in Mississippi. The results of this can be extended to the entire Gulf Coast, from Florida to Louisiana, using the historical demographic and economic data of the region. Reduction of carbon dioxide (CO₂) from reduced number of autos on the area roads and highways will enhance the sustainable operation of passenger rail service on the Gulf Coast. The current effort to establish a high-speed train service in the eastern Atlantic corridor from New York to Jacksonville, Florida will provide access to train passengers in Southern Alabama, Mississippi Gulf Coast and Louisiana. This is possible if Florida extends the commuter rail service from Jacksonville to

Panama City and connects to Mobile, the eastern terminal of the proposed commuter rail service. Similarly, train passengers from Chicago and St. Louis to New Orleans on the existing Amtrak line will have easy train access to the Mississippi Gulf Coast, Alabama, and Florida. The proposed Gulf Coast rail revival will increase the Amtrak ridership too. Active solicitation of the Federal Rail Administration (FRA) funding should be pursued by the states of Mississippi, Alabama, Florida and Louisiana to accomplish the revival of this E-W coastal rail network from Panama City to New Orleans, which will increase economic benefits to all four Gulf Coast states.



Figure 1. Existing transportation infrastructure on Mississippi Gulf Coast (GoogleEarth image)



Figure 2. Proposed E-W “Casino Train” and N-S “Beach Train” commuter rail lines

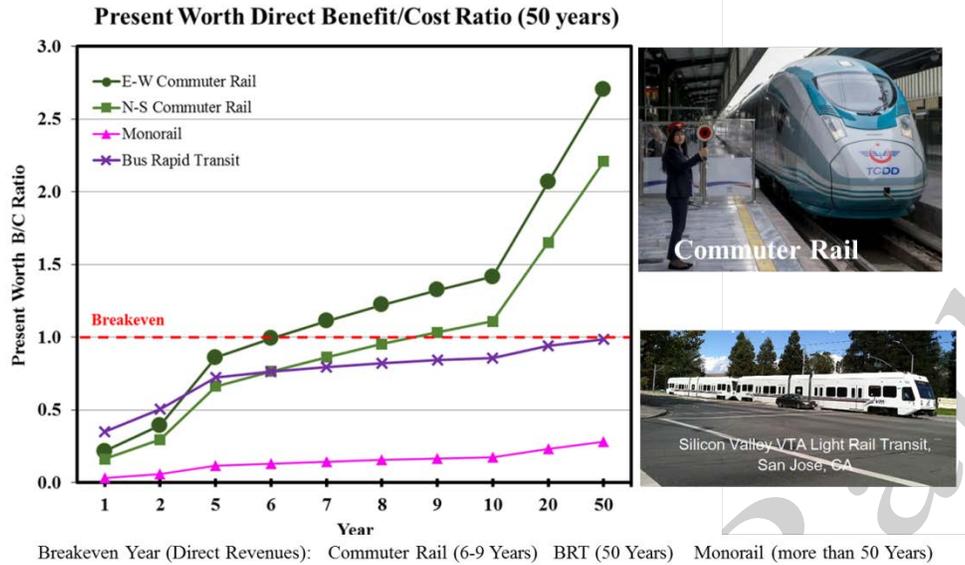


Figure 3. Life cycle economic analysis of breakeven years using mass transit alternatives for Mississippi Gulf Coast

Highlights of Gulf Coast Commuter Rail Revival:

The commuter rail service will be financially self-sustaining in 6 to 9 years based on annual direct revenues.

<i>Casino Train, E-W</i>	<i>Beach Train, N-S</i>
<ul style="list-style-type: none"> • “Casino Train” in E-W corridor of the existing CSX rail from New Orleans to Mobile • Sustainable mobility for up to 34,000 vehicle users • Reduction in traffic congestion on I-10 & US-90 • Safe travel alternatives for casino patrons from within the coastal counties, New Orleans, and Mobile • Increase of 1.48 million casino patrons & revenue 	<ul style="list-style-type: none"> • “Beach Train” in N-S corridor of the existing KCS rail from Hattiesburg to Gulfport • Service for coastal residents to employers in north • Reduction in emissions and public health hazards • Safe mass evacuation of coastal communities in case of a coastal hurricane disaster • Total 500 new jobs and boost to regional economy



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