December 1, 2017

Colonel Craig S. Baumgartner, Commander
Rock Island District
U.S. Army Corps of Engineers
Clock Tower Building
P.O. Box 2004
Rock Island, Illinois 61204

RE: U.S. Army Corps of Engineers GLMRIS-Brandon Road Draft Integrated Feasibility Study and Environmental Impact Statement

Dear Colonel Baumgartner and the members of the U.S. Army Corps of Engineers Brandon Road Lock & Dam Project:

The Illinois Department of Transportation (“IDOT”) submits the following comments on the GLMRIS – Brandon Road Draft Integrated Feasibility Study and Environmental Impact Statement (“Brandon Road Study”) and the Tentatively Selected Plan (“TSP”) set forth therein that was published by the U.S. Army Corps of Engineers, Rock Island District, (“USACE”) on August 7, 2017.

IDOT notes that these comments are provided in the context of the entirety of the State of Illinois’ comments, which are additionally provided, pursuant to the letter by Illinois Lieutenant Governor Evelyn Sanguinetti dated December 6, 2017, by the Illinois Department of Natural Resources, Office of Resource Conservation, the Illinois Department of Natural Resources, Office of Water Resources, the Illinois Environmental Protection Agency and the Illinois Department of Commerce and Economic Opportunity.

Further, IDOT notes that these comments are not exhaustive and Illinois does not waive future additional comments, concerns or objections, whether on factual, policy or legal issues.

The IDOT comments on the USACE Brandon Road Study and TSP are as follows: For the reasons below, IDOT urges the USACE to revise the Brandon Road Study and TSP to remove the TSP electric barrier component, to include construction of a modern 1200 ft. lock instead of an engineered channel, and to address, minimize, mitigate and remedy the negative impacts that will be caused by the potential Brandon Road Project.
I. Introduction

The objective of the Brandon Road Project is to reduce the risk of the transfer of Aquatic Nuisance Species, particularly Asian Carp, from the Mississippi River basin upstream via the Illinois Waterway system to the Great Lakes.

The Illinois Waterway system, our waterways and ports, support more than 1.7 million jobs and $102.5 billion in wages. Ensuring that commercial navigation remains fully supported and a viable option for the various industries that rely upon our inland waterways is imperative. Likewise, ensuring that recreational navigation is open and available in our inland waterways by the public is also a vital commitment that we have at IDOT.

Based on our review of the Brandon Road Study and the TSP, IDOT’s position is that the Nonstructural Alternative is the most cost-effective approach to achieving the purpose of Asian Carp migration risk reduction. The Nonstructural Alternative is also the only alternative that yields no negative effects upon the navigability of Illinois inland waterways. As such, IDOT supports the Nonstructural Alternative.

It appears, however, that the selection of the TSP is based on minimizing the risk of Asian Carp migration to the fullest extent practical while providing for navigational use of the Brandon Road Lock rather than cost-effectiveness. As such, IDOT provides the following comments in the context of analyzing the TSP in terms of protecting the navigational use of the Brandon Road Lock.

II. The TSP electric barrier component raises significant dangers to public safety.

IDOT is concerned that the TSP electric barrier component, whether operated continuously or intermittently as described in the Brandon Road Study, will negatively affect public safety, both during construction and, particularly, during post-construction. Indeed, the TSP electric barrier component will have the greatest negative impact to commercial and recreational navigation and to public safety of any TSP component.

A. Public Safety

Regarding the issue of public safety, the Brandon Road Study itself rates the TSP as having a “high life safety risk”. The construction of the TSP would increase the likelihood of injury or even mortality due to the operation of the electric barrier, which would create an elevated field area in the water and stray current on land. Such a chance of injuries exists because at times during construction, vessels would be permitted to move through the lock.

While IDOT is familiar with the situation in public works projects that significant safety issues are present during project construction phases; IDOT’s experience is that such projects are designed to operate post-construction to produce reasonably low safety risks to the public. This situation does not appear to be the case for the potential Brandon Road Project, as the TSP creates an equally significant post-construction risk to life and safety.

With a continuous electric barrier, the barrier would produce an elevated electric field in the surrounding water, possibly producing stray current onto adjacent objects and lands. (Brandon Road Study, Ch. 6, Sec. 6.9.3, p. 252.) More than that, however, is the risk to life in a man-overboard situation. A person who falls overboard may be electrocuted, suffer ventricular fibrillation and due to involuntary muscular contraction, would be unable to grab onto a personal flotation device. (Brandon Road Study, Ch. 6, Sec. 6.9.3, p. 252; Ch. 7, Sec. 7.4.4, p. 326.) Horrifically, those on vessels or dry land would be unable to assist the man overboard out of risk of electric shock to themselves if they reach into the water to retrieve the person. (Brandon Road Study, Ch. 6, Sec. 6.9.3, p. 252.)

B. Operational Safety

Regarding the issue of commercial navigation operation, the Brandon Road Study recognizes that barges tow a variety of different commodities, such as chemicals, coal and coke products, crude petroleum, grain, steel products, metallic ores and minerals and other petroleum products. (Brandon Road Study, Appx. D, p. D-47.) IDOT, however, is very concerned with the potential hazards when the transportation of certain commodities is subjected to the electric barrier component of the TSP.

For example, anecdotally, barges tow dangerous chemicals, including such chemicals as acetone, which is an extremely flammable liquid and vapor, per its Material Safety Data Sheet. Were acetone to be exposed to static electricity, or other sources of ignition, there may be an explosion, causing death or injury. Moving such products through electric barriers, whether continuous or intermittent, is dangerous at best and life threatening at worst. Currently, barges that carry acetone as cargo do not pose such safety risks, even going through the electric barrier at Romeoville, because there is no need to reconfigure the barge to traverse barrier.

However, should the electric barrier remain a component of the TSP at the Brandon Road Lock and Dam, barges reconfiguring in order to traverse the lock would expose workers and the surrounding environment to the possibility of acetone interacting with electricity. The tows may have to make multiple cuts to transit a lock, increasing the risk to worker and public safety, especially if the barge were carrying any other toxic or flammable cargo. (Brandon Road Study, Appx. D, p. D-42.)
III. The Brandon Road Study fails to adequately address the efficiency of reconstructing the current 600 ft. Brandon Road Lock to a modern 1200 ft. lock during the proposed TSP construction activity.

While acknowledging USACE’s unparalleled expertise on public works navigation projects, IDOT is also very experienced in constructing significant public works projects. Per IDOT’s experience, the most cost-efficient and time-efficient opportunity to repair, replace or rehabilitate a significant public works project is while there is already construction work to be done on the project. Such additional work added to originally scheduled work can avoid the expense of redundant construction, avoid the extra time for two construction projects rather than one and can result in a final project improved from the original partial project.

Regarding the Brandon Road Lock, the Brandon Road Study documents the fact that the lock is over 80 years old. Per the Brandon Road Study, the Brandon Road Lock was placed into operation in 1933. (Brandon Road Study, Ch. 4, Sec. 4.2, p. 49.) Brandon Road Lock has been the subject of the following significant repair, replacement or rehabilitation: (1) 1967, lock walls resurfaced, (2) 1969, lock valve machinery replaced with hydraulic operators, (3) 1980, dam stabilized and scour protection completed, (4) 1984, lock walls resurfaced, (5) 1985, resurfacing and stabilization of the lower guidewalls; lock electrical and lighting replacement; miter gate machinery replacement; and closure of eight head gates, six sluice gates, and small overflow section, (6) 1986, tainter gate rehabilitation and replacement and tainter gate machinery and electrical replacement, and (7) 1995, downstream miter gates replaced. (Brandon Road Study, Ch. 4, Sec. 4.2, pp. 50-51.) Per the USACE Lockmaster, the lock’s upstream miter gates have never been replaced. Finally, USACE already appears to be planning a major rehabilitation of the Brandon Road Lock in 2030 that is estimated to close the lock for 30 days. (Brandon Road Study, Ch. 6, Sec. 6.11.7, Table 6-37, Footnote b, p. 276.)

Based on the age and apparent condition of Brandon Road Lock, it is reasonable to expect and surely reasonable to plan for significant, if not total, repair, replacement or rehabilitation over the next 50 years, which is the project life of the TSP. To wit, USACE already has a major rehabilitation of the Brandon Road Lock planned for 2030 that is estimated to close the lock for 30 days. Therefore, such repair, replacement or rehabilitation should be considered to be accomplished during construction of the proposed Brandon Road Project. IDOT suggests that such consideration use the alternative of reconstructing the current 600 ft. Brandon Road Lock to a modern 1200 ft. lock. Such alternative would (1) avoid the expense of redundant construction, repair, replacement or rehabilitation on the old lock, (2) avoid the expense of redundant construction on the engineered channel which could be eliminated in favor of a 1200 ft. lock, (3) avoid the extra time for two or more significant construction, repair, replacement or rehabilitation projects on the old lock, and (4) result in a final project of a modern 1200 ft. lock that is a significant improvement from the 600 ft. 80 year old lock of the TSP.
Based on the foregoing, IDOT respectfully requests USACE to revisit the TSP to consider the efficiencies of reconstructing the current 600 ft. Brandon Road Lock to a modern 1200 ft. lock instead of the engineered channel component of the TSP, in addition to all other recognized benefits to navigation provided by a modern 1200 ft. lock at Brandon Road.

IV. The TSP creates unacceptable negative economic impacts to commercial navigation industry.

Commercial navigation on inland waterways, including the Des Plaines River portion of the Illinois Waterway at Brandon Road Lock and Dam, is an indispensable part of commerce in Illinois. Commercial navigation on the Illinois Waterway currently facilitates the transport of commodities for the iron and steel industry and the petroleum industry. (Brandon Road Study, Appx. D, p. D-46.) Commercial navigation on the Illinois Waterway supports the petroleum industry's supply chain and is key to ensuring low energy prices for diesel and gas. (Brandon Road Study, Appx D, p. D-46.) Commercial navigation on the Illinois Waterway also supports the construction industry by allowing for the low-cost transport of aggregates needed for ready mix concrete and the low-cost transport of the steel and scrap products. (Brandon Road Study, Appx. D, p. D-46.) Brandon Road Lock and Dam, as part of the public works projects creating the Illinois Waterway, is a significant factor in the commercial navigation industry and the above-described commercial navigation related industries. The transportation stoppages and delays that will be caused by TSP’s proposed changes to Brandon Road Lock create unacceptable negative economic impacts to the commercial navigation industry, which will then cause negative impacts on commercial navigation related industries.

A. Construction Delays

The transportation stoppage associated with the construction of the TSP will have extremely significant, but at least short term, negative effects on the commercial navigation industry and on commercial navigation related industries. At certain times during construction of the TSP, the Brandon Road Lock would be unavailable, creating a transportation stoppage halting all commercial navigation and requiring commercial navigation related industries to use alternative, overland routes. (Brandon Road Study, Ch. 6, Sec. 6.6.6, p. 231; Appx. D, D-39.) For example, TSP construction is estimated to take approximately 3 years to complete (Brandon Road Study, Ch. 6, Sec. 6.11.6, p. 274.). During this construction, Brandon Road Lock would require a 24 hour a day, 40-day closure for flushing lock implementation. (Brandon Road Study, Ch. 6, Sec. 6.11.7, p. 275.) Subsequent to this 40-day closure, Brandon Road Lock will be closed for 12 hours per day for 30 days and for 8 hours per day for 45 days, so that construction crews can complete the engineered channel near the lock. (Brandon Road Study, Ch. 6, Sec. 6.11.7, p. 275.) There would be additional closures of 8 hours a day for 45 days for construction of the complex noise component. (Brandon Road Study, Ch. 6, Sec. 6.11.7, p. 275.) Separately, there would be additional closures during construction of the electrode and parasitic placement for the electric barrier component of 8 hours per day for 5 days a week for 22 days. (Brandon Road Study, Appx. D, p. D-46.)
Study, Ch. 6, Sec. 6.11.7, p. 275) All total, the TSP is estimated to create 40 days of 24-hour transportation stoppage and 142 days of 8-12 hour lock closures.

IDOT notes that USACE plans to conduct an additional design and engineering study with the goal of reducing the duration of construction impacts on navigation. (Brandon Road Study, Ch. 6, Sec. 6.11.7, Footnote a, p. 275)

In terms of time, the TSP will cause transit time to increase during construction by between 30 minutes to 2 hours and 15 minutes depending on the stages of construction. (Brandon Road Study, Ch. 6, Sec. 6.11.7, p. 277)

**B. Post-Construction Maintenance, Repair, Rehabilitation, and/or Replacement Delays**

Post-construction, the TSP is estimated to require additional scheduled closures of the Brandon Road Lock for future Maintenance, Repair, Rehabilitation, and/or Replacement. Estimated times for such closures are 60 days for 8 hours per day over the first 25 years after TSP construction. (Brandon Road Study, Ch. 6, Sec. 6.11.7, p. 276.)

Beyond these temporary, scheduled lock closures, under the TSP, unscheduled closures can still occur. (Brandon Road Study, Appx. D., D-71.) The Brandon Road Study also notes that every year, there would be a 1 in 3 chance of a single 5-day closure for ANS emergency response procedures. (Brandon Road Study, Ch. 6, Sec. 6.11.7, Footnote b, p. 276.)

**C. Post-Construction Operation Delays**

Aside from the lock closures, the TSP is expected to require many commercial vessel operators to make multiple cuts to transit the Brandon Road Lock, increasing the transit time. (Brandon Road Study, Appx. D., D-42.) In terms of time, the TSP will cause transit time to increase post-construction by 2 hours and 26 minutes. (Brandon Road Study, Ch. 6, Sec. 6.11.7, p. 277.)

The costs to industry were not adequately studied. The Brandon Road Lock, using an average of 2012-2014 numbers, transported approximately 1.5 million average tons of Coal and Coke products; 1.6 million average tons of petroleum products, and approximately 1.164 million average tons of chemicals. According to the report, “The Impacts of Unscheduled Lock Outages,” the closure of the LaGrange Lock and Dam would avert, in 2014 numbers, 443,288 tons of coal products; approximately 5.6 million tons of petroleum products, and 4.8 million tons of chemicals.\(^2\) Comparing the dollar amounts averted should the LaGrange Lock be closed to the dollar amounts averted should there be a closure of the Brandon Road Lock and Dam, there would be $70.3 million worth of coal and coke

\(^2\) “The Impacts of Unscheduled Lock Outages Prepared for the National Waterways Foundation and The U.S. Maritime Administration” by the Center for Transportation Research, The University of Tennessee, Vanderbilt Engineering Center for Transportation and Operational Resiliency, Vanderbilt University, October 2017.
products averted; $52.9 million worth of petroleum products averted; and $59.9 million worth of chemicals averted. (Brandon Road Study, Appx. D., D-67.)

D. Total TSP Delay Costs

Because of the foregoing lock closures and transit time delays, the TSP will significantly reduce efficiency of moving commodities, increase transportation costs, and result in a loss of competitive advantage for the commercial navigation industry and commercial navigation related industries. (Brandon Road Study, Ch. 6, Sec. 6.6.6, p. 234.) The average annual increase in transportation costs directly caused by the TSP is estimated to be $26,200,000. (Brandon Road Study, Ch. 6, Sec. 6.11.7, p. 275.) This yearly cost results in a total increase in transportation costs directly caused by the TSP over its 50-year project life of $1,310,000,000. This impact on the commercial navigation industry and commercial navigation related industries is not acceptable. IDOT respectfully requests USACE to address these impacts to the commercial navigation industry and to fully minimize, mitigate and remedy said impacts as a part of the project cost for the Brandon Road Project.

V. The TSP will create significant negative impacts to the extent commercial navigation traffic is rerouted to land-based transportation infrastructure.

Barges transport 60% of the nation’s grain exports, 22% of domestic petroleum and petroleum products and 20% of the coal used in electricity generation. Inland waterway commercial navigation not only moves more products than rail or semi-truck, such navigation has less negative effects upon the environment, public infrastructure and worker safety. For example, one 15-barge tow can carry the same amount of product as 216 rail cars requiring six locomotives or 1,050 large semi tractor-trailers. Said differently, when comparing the different modes of transport, assuming a 108-car unit train with a carrying capacity of 11,880 tons, and a large semi-tractor trailer with an assumed carrying capacity of 25 tons, a 15-barge tow has a carrying capacity of 26,250 tons. (Brandon Road Study, Appx. D., D-94.)

Given the length of time estimated for lock closures and lock transit delays caused by the TSP, the commerce ordinarily conducted by barge may have to be rerouted to other modalities, namely rail and semi-tractor trailer trucks. IDOT has significant concerns that such rerouting would increase traffic upon Chicago and surrounding Chicago area roadways and railways, increasing risks to public safety, increasing negative environmental impacts, and increasing highway repair costs and traffic congestion.

A. Rerouting barge traffic to land-based modalities would negatively affect the State of Illinois by increasing risks to public safety.

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Under 2014 numbers, total fatalities in large truck accidents was 3,903 per 279,132,000,000 vehicle miles traveled; 111,000 non-fatal accidents per 279,132,000,000 vehicle miles traveled, and 326,000 property damage accidents per 279,132,000,000 vehicle miles traveled. (Brandon Road Study, Appx. D, p. D-91.) With respect to rail, total fatalities in train accidents in 2014 were 767 per 765,966,997 miles traveled; total non-fatal accidents were 8,702 per 765,966,997 miles traveled; and in 2012 property damage accidents totaled $221,830,000 per 740,337,156 miles traveled. (Brandon Road Study, Appx. D, p. D-92.) These numbers cannot be overstated in comparison to the numbers related to waterway travel. For example, total fatalities in 2014 were 4 for 496,300,000 miles traveled; non-fatal accidents were 1,797 for 496,300,000 miles traveled; and in 2011, property damage totaled $64,600,000 per 486,000,000 miles traveled. (Brandon Road Study, Appx. D, p. D-93.)

These numbers very clearly demonstrate that commercial navigation by waterway is a far safer and efficient method of commercial travel. Should such travel be diverted to other modalities, namely rail and semi-tractor trailer, these savings to public safety would all but be lost.

B. Rerouting barge traffic to land-based modalities would negatively affect the State of Illinois by increasing environmental damage.

Any emissions increase by rail or by semi-tractor trailer would significantly worsen the air quality around the Chicago-land area and detrimentally affect public health and safety. This is particularly important in this case, because Chicago and much of northeast Illinois is already a non-attainment area for both lead and ozone.

Regarding this situation, semi-tractor trailer fuel efficiency is estimated to be at a rate of 6.2 miles per gallon and can travel approximately 155 ton-miles per gallon of gasoline. Railcars are the next most efficient mode of commercial transportation, travelling approximately 413 ton-miles per gallon of gasoline. Inland towing on barges is the most efficient mode of commercial transportation, travelling approximately 576 ton-miles per gallon of gasoline. Redirecting inland commercial navigation traffic onto roads and railways will increase gasoline consumption and increase emissions, of which semi-tractor trailers are the worst offenders.

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5 Texas Transportation Institute, Center for Ports and Waterways, “A Modal Comparison of Domestic Freight Transportation effects on the General Public, November 2007”.
As described, a 15-barge tow can transport the equivalent of 1,050 large semi-tractor trailers, which equals 26,250 tons; 875,000 bushels or 17,325,000 gallons of liquid goods. “With 100 million tons of goods traveling the Illinois waterways each year, this is the equivalent to taking more than 4 million additional semi-trucks off the roads each year.”

The Brandon Road Study fails to adequately account for negative impacts to the environment and to public health and safety of rerouting barge traffic to roads and railways. “To move an identical amount of cargo by rail creates 30% more carbon dioxide emissions than by barge; a truck creates 1000% more carbon dioxide than a barge.”

C. Rerouting barge traffic to land-based modalities would negatively affect the State of Illinois by increasing highway repair costs and traffic congestion.

Inland commercial navigation helps avoid the addition of 58 million truck trips to the nation’s highway system. The Brandon Road Study fails to adequately address

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whether the Chicago-land infrastructure can adequately support the commercial traffic that would be re-routed from the waterways.

Re-routing commercial traffic from Brandon Road onto Illinois roads would require nearly 445,000 trucks to move 11,124,905 tons. Based on 2005 numbers, if waterway ton-miles are diverted to semi-tractor trailers, the ton-miles per intercity trucks climbs to 1,505,108.122 million. “In other words, the hypothetical diversion of current waterway freight traffic would add 1,160 combination trucks per day per lane on a typical rural interstate.”

The increase to rail would average 774 thousand ton miles per trip, while the increase to commercial travel via truck would increase 48.7 million ton miles per trip. (Brandon Road Study, Appx. D, p. D-94.) According to Illinois ASCE, Illinois’ roadways already lead the nation in congestion, second only to Los Angeles, which costs the economy approximately $6.2 billion. In fact, congestion already costs Illinois and the Chicago area approximately $4.2 billion in losses because of delays. Moreover, TRIP, a national transportation research group found that 42% of Illinois’ major roads were in poor or mediocre conditions, costing motorists $3.6 billion a year in extra vehicle repairs and operating costs. The economic losses related to motor vehicle crashes cost Illinois residents $9 billion annually.

Not only were the economic losses resulting from increased traffic not studied, the costs to repair and support the additional traffic were not analyzed in the Brandon Road Study. It bears emphasizing that, “higher levels of heavy truck traffic typically require significant capital expenditure on bridges, ramps, . . . as well as higher routine maintenance costs.”

To provide a comparison of barge capability as to rail and semi-tractor trailer capability, according to the Texas Transportation Institute and Center for Ports and Waterways, seventy (70) semi-tractor trailers or sixteen (16) rail cars would be needed to replace what one barge tow of 1750 short tons of dry cargo. For 27,500 BBL of liquid cargo, 144 semi-tractor trailers or 46 rail cars would be needed to replace what one barge tow. Looking at the amount of commercial traffic conducted on inland waterways writ large, diverting commercial river traffic from the inland river system would add 25% more tonnage to the national rail system.

D. Summary
The TSP will create significant negative impacts to the extent commercial navigation traffic is rerouted to land-based transportation infrastructure. IDOT is

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8 Texas Transportation Institute, Center for Ports and Waterways, “A Modal Comparison of Domestic Freight Transportation Effects on the General Public, November 2007.
14 Texas Transportation Institute, Center for Ports and Waterways, “A Modal Comparison of Domestic Freight Transportation Effects on the General Public, November 2007”.
concerned that the Brandon Road Study’s selection of the TSP fails to adequately consider impacts to public health and safety, the costs to Illinois roads and railways, the losses of economic activity resulting from congestion to the roads, and the harmful effects of the pollution associated with land-based transportation should such commercial traffic be re-routed to Illinois roads and railways.

V. Conclusion

Based on the foregoing comments and the other comments submitted by the State of Illinois, IDOT supports the non-structural alternative of the Brandon Road Study. If a structural alternative is to be constructed, IDOT respectfully requests the USACE to revise the Brandon Road Study and TSP to remove the TSP electric barrier component, to include construction of a modern 1200 ft. lock instead of an engineered channel, and to address, minimize, mitigate and remedy the negative impacts that will be caused to the State of Illinois by the potential Brandon Road Project.15

Thank you for the opportunity to provide the foregoing Illinois Department of Transportation comments. For any questions or discussion regarding these comments, please do not hesitate to contact Erin Aleman, Director of Planning and Programming at 217/557-5432.

Sincerely,

Randall S. Blankenhorn
Secretary

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15 See IDNR-OWR Comments.