

## Improving Congestion & Safety thru Reasonable, Affordable, and Expedited Cross-River Accessibility

Congestion and safety are two of the top priorities for building the Ohio River Bridges Project (ORBP). With a cost of \$4.1 billion and tolls to pay for it, there is some question as to whether the resulting project is worth this dramatic magnitude of a 'fix' or if there is another viable alternative to achieve the same goals.

Provided below are several possibilities that could offer a reasonable, affordable, and expedited approach to addressing these strategic issues of congestion and safety:

### Congestion

There are two questions to be considered. First: how serious is the congestion in Spaghetti Junction? And, second: does such congestion necessitate a \$2 billion complete make-over, which will require tolls to pay for it?

One recent ranking indicates Spaghetti Junction is the "11<sup>th</sup> Worst Bottleneck" in the country (This ranking was by a narrowly-focused, special interest group). Another more widely-recognized ranking system (INRIX) does not list Spaghetti Junction in the top 100 worst bottlenecks. Regardless which ranking one deems relevant, there is no debate that Spaghetti Junction does require some level of improvement.

A recent analysis was conducted of rush-hour congestion created by Spaghetti Junction (refer to this study at the end of this report). Of the 22 workdays studied in June, 2010, only one incident actually occurred within the junction which created a major traffic back-up. This was a jack-knifed semi on I-65 SB at Main Street overpass which would have blocked even the expanded Junction lane configuration.

Most of the other congestions were the result of incidents outside of the Junction which then domino'd into it. Thus, a 'new and improved' Junction would not have lessened the congestion. And, the notorious 'hospital curve' on I-65 will still remain as the most dangerous part of this section of downtown interstate after any reconstruction effort.

Other regional cities with similar logistics have addressed their congestion issue by providing more options that allow motorists to avoid problems. Cincinnati has 8 bridges and St. Louis has 7 bridges. By allowing alternative access routes, trucks, cars, etc., can choose different methods to circumvent tie-ups and inci-

dents. St. Louis also has an integral system-wide notification network of electronic message signs which keep drivers informed as to incidents, delays, etc.

## Safety

Besides alleviating congestion, safety is another top priority for the Bridges project. There are several proposed design features to improve safety of the bridges and interstates. These include providing emergency pull-off lanes on the access ramps and new bridges. The Kennedy Bridge once had space for emergency pull-off lanes, but this 'buffer' width was removed when an extra north-bound lane was added.

A study was conducted of bridges along Interstate 64 from Frankfort to Kansas City. And, none of the major bridges over rivers had emergency pull-off lanes. Likewise, the interstate bridges over rivers between Louisville and Cincinnati did not contain any emergency pull-off lanes.

A near-term solution for this safety issue is to build the East End Bridge. This will divert volume off the Kennedy, which will allow the emergency pull-off lanes to be re-installed. Additional traffic mitigation can be achieved by building one to two local access bridges, thereby reducing volumes on the interstates.

Another method to lessen traffic volumes from Spaghetti Junction is to build a new gateway connector to the east downtown district from I-71 and I-64. Such connector would allow motorists to exit prior to entering the Junction.

Additional mitigation measures involve using reverse-flow lanes on the Clark Bridge as well as separating I-65 southbound and northbound at the I-71 / I-64 merger. Refer to more descriptive data on these options at the conclusion of this report.

## Summary

Doubling or tripling the size of Spaghetti Junction will not solve this congestion – safety situation, and may in fact make for an even worst situation.

The best approach is to provide a variety of alternate route options such as building the East End Bridge, creating local access bridges, offering egress prior to entering Spaghetti Junction, and other basic improvements.

These realistic solutions can be implemented by 2016 that will alleviate congestion, facilitate economic development, and improve safety for motorists in the metro Louisville region.

## Interstate Bridge Survey of Emergency / Safety Lanes

A survey of interstate bridges was conducted in July, 2010. The purpose of this survey was to determine if interstate bridges contained emergency pull-off lanes. Of the seven bridges surveyed, none contained emergency pull-off lanes.



I-71 / I-75 SB Bridge  
over Ohio River at  
Cincinnati  
(Brent Spence Bridge)

No emergency pull-off  
Lanes



I-71 NB at Kentucky River

No emergency pull-off Lanes



I-64 EB at Ohio River  
(Sherman Minton Bridge)

No emergency pull-off  
Lanes



I-64 WB at Kentucky River

No emergency pull-off  
Lanes



I-64 EB at Wabash River

No emergency pull-off  
Lanes



I-64 EB at Mississippi River,  
St. Louis—Below: I-64 WB

No emergency pull-off  
Lanes



I-64 EB at Missouri River

No emergency pull-off  
Lanes



## Rush Hour Congestion – Spaghetti Junction

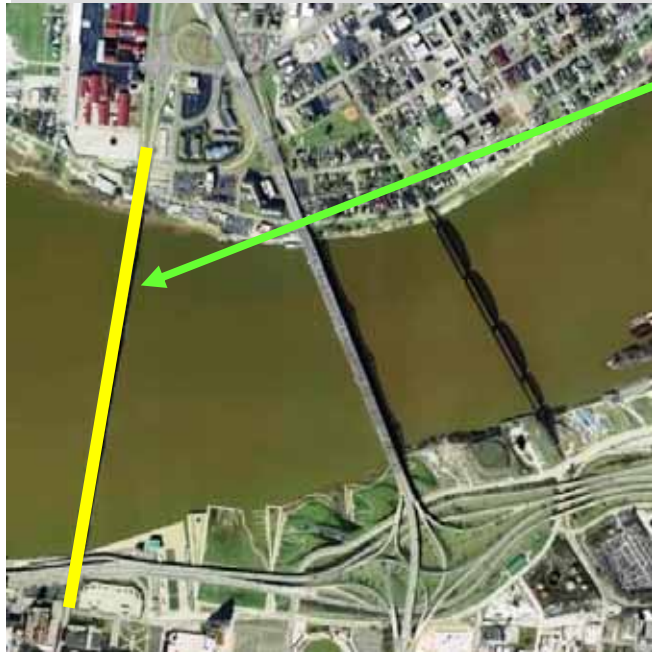
The following information was obtained from radio traffic reports and TRI-MARC traffic cameras. The term 'incident' is used since that is word the media uses in its reports, instead of accident. The study was conducted by Steve Wiser during June, 2010. He can be reached by emailing [WiserAIA@Hotmail.com](mailto:WiserAIA@Hotmail.com)

- June 1: Morning: Incident on I-65 in Indiana near mile marker 0;  
Afternoon: Incident on I-64 near Story Avenue exit
- June 2: Most of day: overturned semi on I-65 in Indiana at mile marker 9;  
Morning: cars broken down, I-64 near Story and I-71 near Zorn
- June 3: Morning: jack-knifed semi at Jefferson St exit, removed by 7 am;  
8 am: incident on I-64 near 3rd St exit ramp, back up to tunnels
- June 4: Afternoon: car broken down I-65N at Brook St exit
- June 7: Morning: report of semi disabled over Market St. on I-65. No info on Trimarc nor traffic cams showing any back-up. Thus, may not be a significant problem at rush hour.  
Afternoon: incident I-65S at Arthur Street that backs up into Spaghetti Junction; observed truck-car in median on ramp from I-65S to I-71/64E. Traffic was able to use both lanes to bypass these vehicles. There were no traffic radio reports nor TRIMARC report.
- June 8: Morning: car broke down at 64W at Ninth street. Afternoon: no reports.
- June 9<sup>th</sup>: Morning: no reports.  
Afternoon: incident I-64E at Grinstead which backs up into the Junction.
- June 10<sup>th</sup> Morning: no issues reported.  
Afternoon: I-65N at Brook exit incident. Congestion reported.
- June 11<sup>th</sup> Morning: I-65S at Stansifer incident, backing up traffic  
Afternoon: no incidents reported
- June 14<sup>th</sup> Morning: no incidents reported;  
Afternoon: no incidents reported in junction.

- June 15<sup>th</sup>: Morning: incident on I-71 east bound exit ramp from I-64;  
Afternoon: no incidents, but slow moving traffic
- June 16<sup>th</sup> Morning: no incidents reported;  
Afternoon: no incidents reported
- June 17<sup>th</sup> Morning: traffic flowing well  
Afternoon: no incidents
- June 18<sup>th</sup>: Morning: incident reported I-65 SB at Brook exit, but TRIMARC  
cameras show traffic moving well in this area.  
Afternoon: traffic flowed smoothly
- June 21<sup>st</sup>: Morning: traffic flowing smoothly  
Afternoon: no incidents
- June 22<sup>nd</sup>: Morning: incident at I-71 / Zorn  
Afternoon: no incidents
- June 23<sup>rd</sup> Morning: incident at I-65 northbound at Arthur Street  
Afternoon: incident I-64W at story exit
- June 24<sup>th</sup>: Morning: no incidents in downtown (one at I-65N at the horse  
barns)  
Afternoon: no incidents
- June 25<sup>th</sup>: Morning: I-65S at Kennedy Bridge (after rush hour)  
Afternoon: No incidents
- June 28<sup>th</sup>: Morning: incident at I-65N at St. Catherine  
Afternoon: no incidents
- June 29<sup>th</sup>: Morning: no incidents  
Afternoon: I-65S hospital curve to St. Catherine is heavy; I-64W  
from Grinstead to Junction is heavy
- June 30<sup>th</sup>: Morning: no incidents  
Afternoon: I-65S at Main Street overpass, truck jack-knifed, traffic  
disrupted for 4 hours

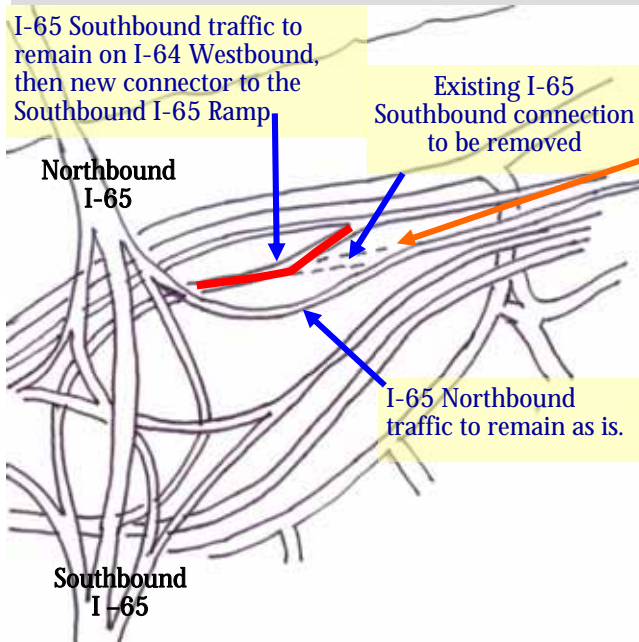
There are several simple, quick fixes to greatly ease congestion in Spaghetti Junction. Provided below and on the next page are these proposals.

Of note: These great ideas were offered by various individuals and these graphics were created help those in decision-making positions to better understand how these would work and function.



Install 'Reverse Flow' Lane Signage on the Clark Memorial Bridge. This would be similar to the Bardstown Road 'reverse' flow center lane.

This would allow rush hour traffic 3 lanes on the Clark, instead of just two. This can be easily, simply, and affordably implemented—NOW!



Separate the I-65 Southbound traffic and the I-65 Northbound traffic before entering Spaghetti Junction! In other words, untangle this Spaghetti!

Southbound traffic should remain on westbound I-64, and then connect over to I-65 southbound ramp AFTER the I-65 Northbound ramp. I-65 Northbound would maintain its current travel path. Refer to illustration to the left that diagrams how this would function. This is a very easy, simple, and affordable solution that can be implemented—NOW!

More Traffic Congestion signage is needed to warn motorists as they approach Louisville of any long delays. While there are large TRIMARC signs at the perimeter of the metro area, there needs to be more to emphasize and avoid any possibility that a driver might miss one of these.

Thus, there should be at least 2 large signs prior to the Snyder Freeway / I-265 outer beltway. These would warn of heavy congestion and suggest alternate routes such as around downtown via the Minton Bridge / Watterson Expressway.

Also: in St. Louis they have a network of smaller signs that are placed regularly around their interstate system that give traffic information.

**Right:**  
There are TRIMARC traffic notification signage, but only one each at the strategic gateway points of I-65, I-64, and I-71. There should be at least two such signs at each major gateway so as to avoid any possibility of motorists missing important congestion messages.



**Left:**

The St. Louis metro area has smaller traffic notification signs positioned regularly on their interstates which provide updates and info.

Louisville should have a similar smaller network of such signs along I-65, I-71, and I-64, as well as the Watterson Expressway.

Low frequency radio broadcasts, as well as over-the-air commercial radio can also assist in lessening the bottleneck and congestion in downtown.

Provided below are how these two radio networks would be implemented:

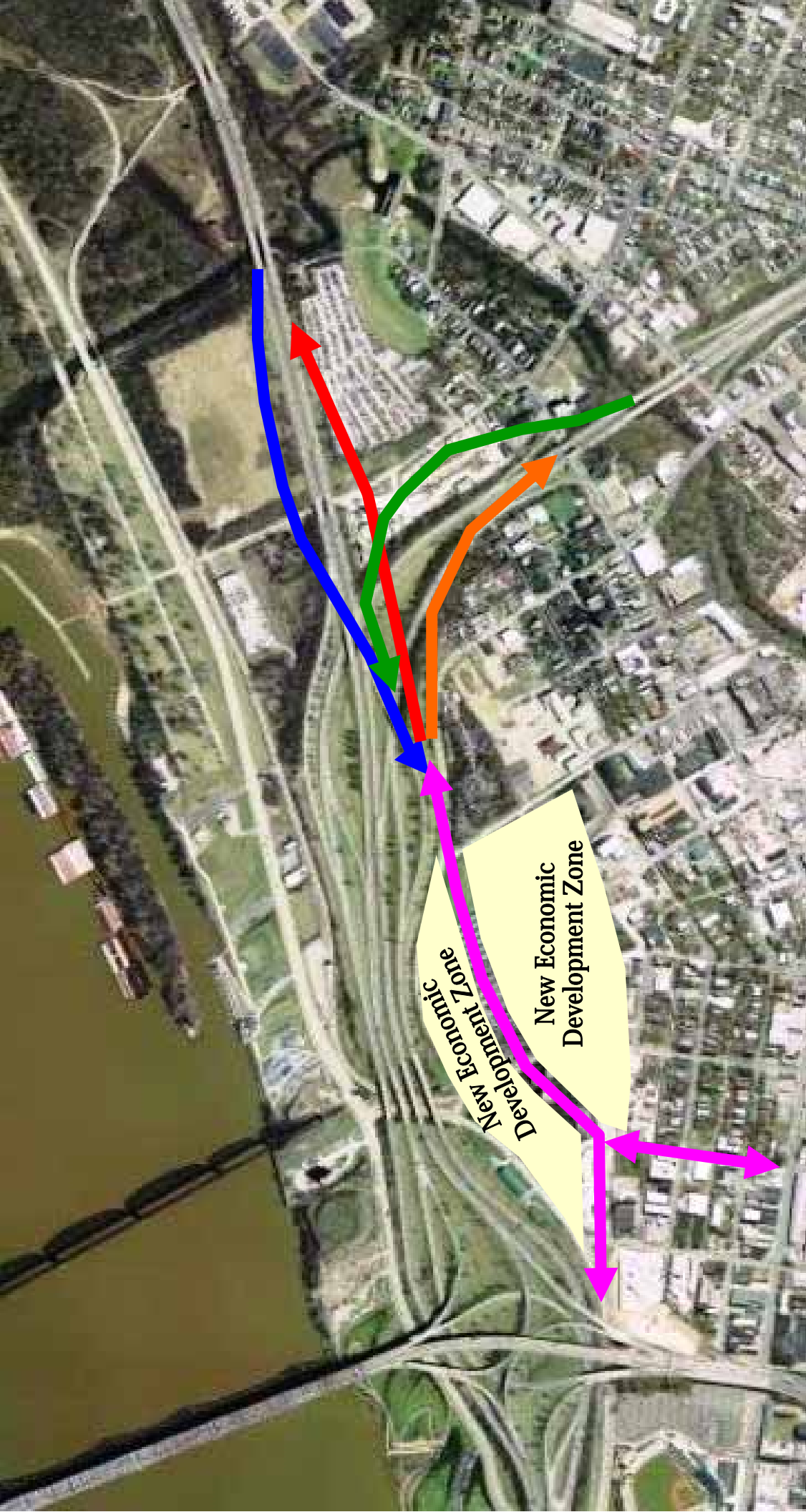
**Low-frequency radio:** Other metro areas, as well as major tourist attractions (e.g. Kentucky Speedway on I-71), have placed low-frequency radio transmitters in strategic locations that provide timely directions and information regarding traffic congestion.

For Louisville, only 5 such radio systems would be needed, one each major interstate gateway point near the Watterson Expressway. This would then allow motorists an informed decision to bypass going through downtown by using the Watterson beltway and Sherman Minton Bridge around any urban delays.

**Commercial radio:** While radio stations like WHAS provide traffic reports, these reports are sometimes lacking key info such as if the problem is in the northbound or southbound lanes of I-65. These reports also often do not offer a viable route to avoid congestion. If radio traffic reports could add another sentence or two of info, then it would greatly assist motorists in deciding which alternative route to use.






**Offering better congestion avoidance via radio is a simple affordable solution that can be implemented NOW!**





## New I-71 & I-64 Access Connector for East Downtown—Medical Center—Arena—Waterfront

New interstate 'connector' access from Interstates 71 and 64 which would remove traffic from spaghetti junction, which then would eliminate need to rework spaghetti junction. This proposal will open up new economic development zone on east downtown.

-  6 Lane connector access way from the Interstate ramps to the East Downtown / Medical Center Districts
-  Ramp to Eastbound I-64
-  Ramp to Northbound I-71
-  Ramp from southbound I-71
-  Ramp from westbound I-64

**New Local Access Bridge parallel to the Clark Memorial**  
 Provided below are 2 possible options to adding a new local access bridge parallel to the Clark Memorial Bridge. This is how it would connect on the INDIANA side.  
 Below each option is a text description



**“Tie-Into Existing Ramp” Option**

- This option would ‘tie-into’ the existing access ramp
- New Bridge would have 3 traffic lanes and the existing Clark would have 3 lanes.
- One existing lane on the Clark would be converted to pedestrian-bike only.
- Reverse follow lanes would also be used which would permit 4 traffic lanes in/out at rush hour.



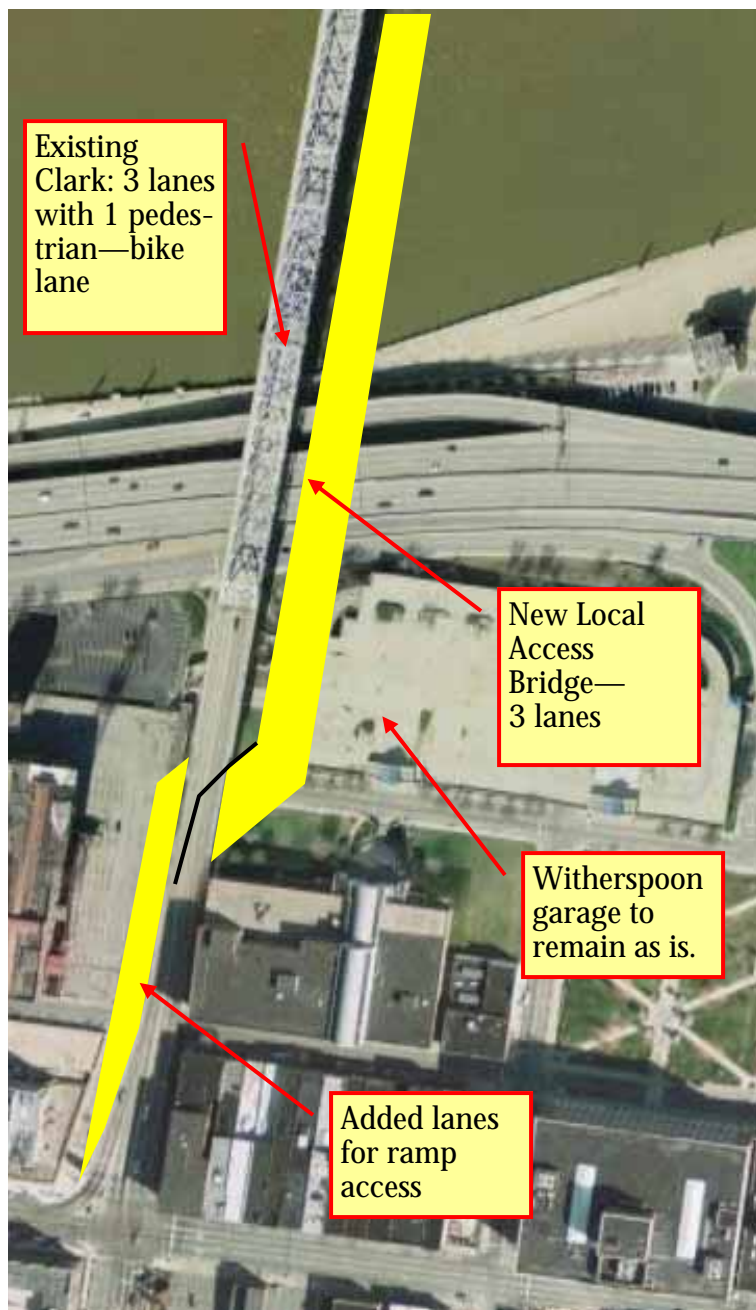
**“New Access Ramp” Option**

- New access ramps to be built to access both the existing Clark Memorial Bridge and the new local access bridge
- Reverse flow lanes to also be used to allow 4 lanes in-out during rush hour.

# New Local Access Bridge parallel to the Clark Memorial

Provided below are 2 possible options to adding a new local access bridge parallel to the Clark Memorial Bridge. This is how it would connect on the KENTUCKY side.

Below each option is a text description



## “Shared Access Ramp” Option

- This option would ‘tie-into’ the existing access ramp at Second Street.
- New Bridge would have 3 traffic lanes and the existing Clark would have 3 lanes.
- One existing lane on the Clark would be converted to pedestrian-bike only.
- The entry ramp would be widened by adding more lane space on the western edge.
- Reverse follow lanes would also be used which would permit 4 traffic lanes in/out at rush hour.



## “First Street Access Ramp” Option

- New Bridge to contain 3 traffic lanes
- Witherspoon Garage would need to be reworked to accommodate the ramp.
- Reverse flow lanes to also be used to allow 4 lanes in-out during rush hour.