

**Feasibility Review**  
**8664 Plan, Louisville, Kentucky**

*Prepared for*

**8664.org**

**Louisville, Kentucky**

*Prepared by*

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## SUMMARY AND CONCLUSIONS

The 8664 plan, proposed by 8664.org is an alternative to the Louisville-Southern Indiana Ohio River Bridges project (hereinafter “Bridges” project). Key features of the 8664 Plan are the rerouting of I-64 to a northern bypass around Louisville, the resulting simplification of the existing I-64/I-65/I-71 junction (“Spaghetti Junction” or, hereinafter, “SJ”), and the elimination of four of the existing eight freeway-to-freeway ramps in SJ. The remaining four ramps will be rebuilt for improved capacity and speed.

Equally important as the traffic features in the 8664 Plan is the conversion of 2.0 miles of freeway (now I-64 but to be rerouted) west of SJ, from its existing freeway configuration to an at-grade riverfront boulevard flanked by riverfront parkland.

The 8664 plan is technically sound:

- It fully meets the overall purpose of the Bridges project, “to address long-term cross-river transportation needs in the Louisville metropolitan area” and to “address the national need for improved performance of I-64, I-65 and I-71 in the immediate vicinity of the river crossing” (Kentucky Transportation Cabinet, December 1, 2006).
- The 8664 Plan is technically sound. It exemplifies sound freeway network planning by widely dispersing the long-distance Interstate traffic flows and removing all weave maneuvers within SJ. The roadway design concepts fully meet reasonable geometric design guidelines for urban freeways. Traffic can be maintained throughout the construction of the 8664 Plan, with little or no need for temporary (“throwaway”) roadways and bridges.
- The vehicular capacity of the 8664 plan exceeds the year 2025 traffic forecast, as developed in the Bridges plan. Under the 8664 Plan, vehicular level of service will exceed guidelines for urban areas of Louisville’s size, and will greatly exceed the current level of service.
- The 8664 Plan falls within the footprint of the environmental analysis already preformed for the Bridges plan, and would therefore require little or no additional effort to fulfill the NEPA (environmental analysis) process.
- Numerous projects throughout the US, many of them now ongoing, are pursuing one or both of the major principles of the 8664 Plan: i.e., removal of freeways from waterfronts or other valuable land and rerouting of existing Interstate routes in order to bypass obsolete, first-generation freeway routes in downtowns.

The 8664 Plan yields an enormous increment of quality of life to Louisville. The recovery, from freeway use, of the Louisville downtown riverfront will generate an increment in land value of around \$1 - 2 billion. Other civic benefits (for example

signature riverfront park), difficult to assess monetarily, are likely to become priceless civic treasures.

The estimated cost of the 8664 Plan, including sections #4, #5 and #6 of the Bridges Project, conversion of I-64 west of SJ to a parkway, enhancements to the interchanges at I-265 and I-64 and restoration of the Kennedy Bridge, is \$2,227 million (\$2.2 Billion). This compares to a cost of \$4,067 million (\$4.1 billion) for the Bridges plan.

These conclusions are discussed in detail in the following sections of this white paper.

## **COMPONENTS OF THE 8664 PLAN**

Principal features of the 8664 Plan are:

- Dispersion of the Interstate traffic movements away from SJ, by routing I-64 around the Louisville area on a northern bypass (Appendix A) consisting of the existing segment of I-265, and Bridges plan sections #4, #5 and #6. By contrast, the Bridges plan concentrates all three Interstates (I-64, I-65 and I-71) to a single point at SJ.
- Simplifying SJ to a conventional “T” interchange between the remaining Interstate highways: I-65, I-71 and the segment of existing I-64 (“I-364” in the 8664 Plan) to the east of SJ. This simplification is accomplished by removing the four ramps to/from I-64 to the west of SJ (Appendix B). The resulting downsized interchange occupies an area somewhat smaller than the existing SJ. By contrast, the Bridges plan (Appendix C) calls for an all-direction interchange of three Interstate highways, covering an area roughly twice the existing SJ, most of it on new right of way not currently in road use.
- Eliminating all of the traffic weaving movements within SJ. These weave movements are the primary contributing factor to much of the congestion, delay, driver frustration and perceived danger in the existing SJ.

The 8664 Plan eliminates weaves by rerouting some of the existing movements onto the east-west connecting roadways currently used for the through movement on I-64. The Bridges plan, by contrast, accomplishes the same result (i.e., elimination of all weaves) by building eleven new east-west connector roadways, encompassing a total of up to 23 lanes of connecting roadways.

- Connection to the local street system in Downtown Louisville, as follows:
  - Inbound from I-364: via ramp to Witherspoon westbound (in Bridges plan, to both directions on River Road)
  - Inbound from I-71: via half interchange at Frankfort Ave. (same as Bridges plan) and also via ramp to Clay Street southbound.
  - Inbound from I-65 southbound at Jefferson Street

- interchange (same as Bridges Plan).
  - Outbound to I-364: via ramp at Clay Street (Bridges Plan via 2<sup>nd</sup> Street)
  - Outbound to I-71: On ramp at Clay or Shelby (in Bridges plan, Witherspoon Street extended to new half interchange at Frankfort Ave.,)
  - Outbound to I-65, northbound at Brook and southbound at Jefferson Street interchange (in Bridges plan, above plus northbound ramp at 2<sup>nd</sup>)
- Rehabilitating and continuing the existing use of the Kennedy Bridge, with seven lanes of traffic. By contrast, the Bridges plan calls for an additional parallel bridge, yielding a total of 12 lanes across the Ohio River at this point in Downtown Louisville.
  - An East End Bridge, the same as proposed in the Bridges plan (Bridges plan Section #5)
  - Freeway connection, in Indiana, between I-65 and the East End bridge. This connection is identical to Section #6 of the Bridges plan.
  - Freeway connection, in Kentucky, between the existing I-265 and the proposed East End bridge. This segment is identical to Bridges plan Section #4.

## **THE 8664 PLAN IS TECHNICALLY SOUND**

### **8664 Plan Meets Bridges Project Purpose and Need**

The stated purpose of the Bridges project is to “address long-term cross-river transportation needs in the Louisville metropolitan area” and to “address the national need for improved performance of I-64, I-65 and I-71 in the immediate vicinity of the river crossing” (Kentucky Transportation Cabinet, December 1, 2006).

The 8664 Plan fully accomplishes this purpose. It provides ample capacity to accommodate river crossing for the long-term horizon (30 years) adopted in the Bridges project (see following sections on traffic capacity).

The 8664 Plan meets the “national need for improved performance” by the most powerful possible approach – removing a sizeable volume of travel of “national” concern (i.e., through trips with neither origin nor destination within the Louisville area) from the center of the urban area and therefore from local traffic congestion.

## **8664 Plan Exemplifies Good Practice in Freeway Planning and Design**

**Sound Freeway Planning Principles** --The underlying principle of the 8664 Plan reflect sound concepts in freeway planning:

- Elimination of confluence – the existing confluence of more than a pair of Interstate routes is undesirable, due to (a) complexity of interchange design required to meet current guidelines for “systems” (i.e., freeway-to-freeway) interchanges, (b) driver stress and confusion, (c) land consumption and (d) rupture of local street fabric. Relocating I-64 to a northern bypass route solves or greatly alleviates all of these negative features of a confluence of freeways.
- Reasonable travel distance for rerouted through traffic -- The rerouting of I-64 as proposed in the 8664 Plan will add around 5.0 miles to the trip through the greater Louisville area (i.e., the “through” trip with neither origin nor destination within the area). This increment of “out-of-direction” travel distance (5.0 miles) is well below the typical out-of-direction distance on recently built or planned beltways around other cities. For example, the planned I-840 around Nashville yields an out-of-direction distance of around 17 miles; I-295 around Jacksonville yields 7.0 miles, and I-275 around Cincinnati yields 17 miles.
- Minimal travel time increment for through trips -- Under free flow conditions, the through trip on I-64 as rerouted in the 8664 Plan would require around 3.5 minutes more than under free flow conditions on the existing I-64 route. This difference in free flow travel times would be seen, by most drivers, to be a small “price” to pay for the reduction in complexity and stress. During weekday peak hours, the travel time increment due to the rerouting of I-64 in the 8664 Plan would diminish to near zero, due to the peak-hour reduction in speed in the existing SJ area.
- Continued or improved access for local trips -- Under the 8664 Plan, local trips (i.e., with origin, destination or both within the Louisville area) continue to have the same or improved access. Conversion of I-64 west of I-65 to a waterfront boulevard would be a particularly notable improvement in access for local trips.
- Simplification of the driver decision process, dispersing decisions needed for freeway-to-freeway movements (which ideally require a two-mile advance notification) onto widely separated interchanges where signs can be properly spaced.

**8664 Plan Fully Meets Freeway Geometric Design Guidelines** -- The proposed configuration of the elements of the 8664 plan can readily meet the design requirements for freeways in an urban area, specifically:

- Elimination of weaving – The 8664 Plan eliminates all of the traffic weaving movements within SJ, thereby eliminating the source of most of the congestion, delay and driver frustration associated with the existing SJ.
- Lane balance and continuity – the 8664 Plan incorporates lane balance (proper relationship between number of lanes upstream/downstream of exit and entry ramps) and lane continuity (consistency of through lanes at interchanges) throughout.
- 65 miles per hour (mph) design speed, main line -- the proposed alignment of I-71 and I-65 as proposed in the 8664 Plan would readily accommodate a design speed of at least 65 miles per hour. The alignment of the proposed northern bypass already accommodates a design speed of at least 65 mph, and at least this design speed would be proposed for the remaining links.
- 41-45 mph design speed on the three freeway-to-freeway ramps having the smallest radii (I-65 SB exit, I-65 SB entrance, and I-65 NB entrance). For the remaining freeway-to-freeway ramp, I-65 NB entrance, the design speed exceeds of 55 mph. The design speed of 41 - 45 mph on the more constrained of the freeway-to-freeway ramps is closely comparable to the design speed for the counterpart ramps in the Bridges plan.

**Can Maintain Traffic Through Construction** -- Traffic can be maintained throughout construction of the 8664 plan. Specifically:

- Early removal of many existing ramps -- Segments of existing ramps eliminated by the 8664 plan and not needed as temporary detours can be eliminated as an early stage of construction.
- Staged removal of some existing ramps – Some segments of existing ramps (mainly to the west of I-65) not needed in the 8664 Plan but needed for interim use as detours for the remaining freeway-to-freeway movements can remain in place, with temporary crossovers as needed, until completion of the new freeway-to-freeway ramps (below). The existing I-65 SB to I-64 WB I-64 EB to I-65 SB ramps are highly likely candidates for this interim role.
- New ramps – All four of the new freeway-to-freeway ramps in the 8664 Plan can be constructed while traffic is maintained on combinations of existing ramps outside the footprint of new ramps and segments of other existing ramps usable for interim detours (above). This sequence of maintaining traffic on existing ramps while constructing new ones of larger radii at the same interchange is typical at dozens of interchange reconstruction projects throughout the US.

- Removal of I-64 west of SJ -- Traffic can be maintained on the combination of the rerouted I-64 through Indiana and the network of Downtown Louisville arterial and collector streets.
- New bridges over Witherspoon Street -- These can be constructed while maintaining traffic on the existing southernmost bridge.
- All local connections (inbound ramps to downtown, Frankfort Ave. half interchange, I-65/Jefferson interchange) – Through traffic on the Interstate involved can be maintained without need for temporary detours.

### **8664 Plan Has Ample Capacity for Long-Term Traffic Demand**

The 8664 plan will accommodate the projected year 2025 traffic at peak-hour peak-direction levels of service appropriate for an urban area of the size of Louisville. Major factors contributing to this adequacy are the diversion of traffic to the East End Bridge, simplification of the traffic movements at SJ, and the more extensive use of the existing surface street network.

**Capacity on the Downtown Bridge --** With the East End Bridge in place (but with I-64 not rerouted) the year 2025 traffic across the downtown bridge will be 146,100 daily vehicles, an increase of 4.7% over the year 2006 volume of 139,500 vehicles. The rerouting of I-64 as proposed in the 8664 Plan would reduce the volume on the downtown bridge, by around 15,000 – 30,000 daily vehicles in the year 2025.

Even if no diversion of traffic results from the rerouting of I-64, the projected year 2025 traffic volume of 146,100 daily vehicles (2,150 in the critical peak-hour peak-direction flow) only approaches (not exceeds) the capacity of a lane of traffic (around 2,300 vehicle/hour). Approaching the capacity of the bridge with a twenty-year traffic projection, however, is by no means a reasonable justification for doubling its capacity to twelve lanes, as proposed in the Bridges plan. A far more reasonable response to dealing with the capacity of the downtown bridge is further distribution of traffic to the east end bridge, as proposed through the rerouting of I-64 in the 8664 Plan.

**Capacity at SJ --** Ramp capacities in the 8664 Plan are well in excess of projected year 2025 demand. As a result of the weave-free traffic flow in the 8664 Plan, the four freeway-to-freeway ramps in SJ all have a lane of traffic “dedicated” exclusively to a single freeway-to-freeway movement. The projected Year 2025 peak hour lane volumes for these movements ranges from 900 to 1550 vehicles hourly. The capacity of each lane, given the weave-free operation and the improved design speed, is around 2,000 vehicles hourly. Thus, even the most heavily used ramp in the 8664 plan will have ample spare capacity. The other three ramps in SJ under the 8664 Plan will have an even greater margin of excess capacity for the projected year 2025 traffic demand.

Testing the 8664 plan with the MPO's travel demand forecast model ("traffic" model) fully accounting for the rerouting of I-64 through Indiana, would provide a more detailed analysis of the distribution of traffic between the Kennedy and East End bridges, and could therefore show a somewhat different distribution of traffic to the two crossings than that assumed above. However, even in advance of any traffic modeling of the 8664 Plan, it is clear that any reasonable distribution of traffic to the two crossings will result in ample capacity on both of them, and with an aggregate capacity on the two crossing far in excess of the projected year 2025 demand. (See Appendix D)

**Traffic Level of Service --** As a result of the above two factors – i.e., reduction in entering traffic volume combined with the capacity gained from adding ramp lanes and from removal of the problematical merge and weave problems – the SJ interchange will carry its projected year 2025 traffic volume with less delay than at present. Establishing the size of this reduction would require two major analytical steps not yet taken by the Bridges project: (1) estimates, from the regional travel demand forecast ("traffic") model of traffic with the 8664 Plan treatment of SJ and I-64 incorporated and (2) detailed micro-simulation modeling of SJ traffic movements in the simplified SJ in the 8664 Plan. Even in the absence of this information, however, 8664.org can confidently assert that the 8664 Plan will yield year 2025 traffic conditions through the SJ that are BETTER (and most likely significantly better) than at present.

**Traffic Service in the Waterfront –** With the East End bridge in place and with I-64 continuing in its current configuration, the projected year 2025 traffic volume on I-64 along the downtown waterfront to the west of SJ is around 100,000 ADT (average daily traffic). The 8664 Plan would reroute around 20,000 ADT to the northern loop, on the re-designated I-64, leaving some 80,000 ADT in the riverfront corridor. A four-lane surface riverfront parkway would carry some 40,000 – 50,000 of this volume, leaving some 30,000 to 40,000 ADT to be accommodated on the existing street grid. At present there is some 174,000 ADT of spare capacity on east-west streets in or near the east-west riverfront corridor (see "Traffic Impact of Waterfront I-64 Removal", 5/1/2007, 8664.org). This 174,000 ADT of spare capacity is available for the 30,000 – 40,000 ADT not accommodated by rerouting of I-64 plus the proposed riverfront parkway. This spare capacity of 174,000 ADT on existing parallel corridor street is therefore four to six times the needed increment of east-west capacity in the waterfront corridor that would remain after rerouting I-64 to the northern bypass and assignment of remaining traffic to the new parkway.

As with the other two elements of capacity (above), the adequacy of the existing parallel street network to absorb the needed amount of traffic in the 8664 Plan can best be addressed through the well-structured use of the regional traffic model. In the absence of such information, 8664.org should continue to maintain vigorously and confidently that the simple, already available facts support the replacement of I-64 by an enhanced surface street network.

The decision, by Seattle's voters, not to restore their waterfront freeway (Alaskan Way) and to support an at-grade signalized boulevard, supported by more use of the existing

downtown Seattle street system has a number of lessons for Louisville. At first, proposals for such a reconfiguring were dismissed as ridiculous, having obvious “fatal flaws”. After further analysis and interpretation of regional traffic model results, however, the “fatal flaws” gave way to acceptable reroutings of traffic, more use of alternative routes, and serious attention to transit service, all balanced against a growing realization of the enormous benefits of removing the freeway. The similarities to Louisville are striking.

A similar situation occurred in the evolution of the Shelby Parkway through the Shelby Park (two thousand acres) in Memphis. The early planning identified a demand for some 80,000 daily vehicles through the park, thereby requiring a six-eight lane freeway. Failure to build this freeway, according to proponents, would bring on dire situations of “gridlock” on alternative parallel routes. However, when the same traffic model that routed 80,000 daily vehicle to a six-eight lane freeway was applied to networks that had only a four-lane parkway with signalized intersections (with a capacity of only around 35,000-40,000 vehicles daily), the traffic model did not show gridlock, but rather showed a gentle cascade of traffic reroutings through the entire eastern suburban area of Memphis, with no single route gaining a problematical volume of the “displaced” volume of 40,000 or so daily vehicles. To the contrary, this volume of “displaced” traffic was spread over a large number of network links.

Interestingly, around one third of the “displaced” volume (i.e., the difference between the original forecast of 80,000 daily vehicles for the freeway and the 35,000-40,000 for the Parkway) could simply not be found in the model results. We regularly observe this type of “disappearance” of around one-third to one half of traffic projected to use a large road when replaced by a smaller road in a traffic model. The explanation is that the model is (correctly) re-distributing travel to different and less travel-consumptive combinations of origins and destination. This re-distribution is familiar to us personally, as we regularly choose to satisfy our travel needs (for example, shopping, personal business) with a “new” destination that is more convenient, in response to increased travel time required to reach the previously-favored destination.

### **Within the Environmental Footprint of the Bridges Project**

The roadways included in the 8664 Plan are either existing or fall within the areas examined for environmental impact for the Bridges plan. Therefore, there is no likelihood that the 8664 Plan will be found to have environmental obstacles “fatal” to its feasibility.

The frequently-expressed concern, that introducing a new alternative (in this case the 8664 Plan) will negate all of the environmental work (the “NEPA process”) and approvals and send the project “back to square one” through a long NEPA process is not supported by the facts. (See Appendix E) A good-faith effort to include an alternative that fits within the footprint of those alternatives already examined in detail can be a matter of

weeks, and further, can run simultaneously with other project tasks (such as a renewed public participation process in support of the new alternative). (See Appendix F)

Failure to include an important but neglected alternative, or bad-faith analysis that dismisses them without full and fair treatment may, on the other hand, indeed send the NEPA process “back to square one” in a legal challenge. In a notable example of such a challenge, the Interstate 710 completion in Los Angeles, the court found that the NEPA process improperly ignored an alternative (long advocated by the City of South Pasadena but summarily dismissed by Caltrans, the state’s transportation agency) that had a reasonable “probability of success”.

### **Numerous Examples of Projects Similar to 8664 Plan**

A large number of freeway reconfiguration projects throughout the US have elements in common with the 8664 Plan. Although most of these examples are well known to 8664.org, it is interesting to simply grasp the extent of activity that has or is occurring with regard to freeway removal or modification. In roughly a chronological order:

- Portland Harbor Drive – early waterfront freeway converted to parkway.
- Boston Transportation Review (BTPR) – terminated entire Boston freeway program in 1970’s. Led to “Big Dig” Central Artery project.
- Embarcadero, San Francisco – granddaddy of freeway removal, occasioned by earthquake damage.
- Park East Freeway, Milwaukee – replacement of spur by at-grade street. Bold mayoral initiative.
- Riverside Drive, Chattanooga -- downsizing of 4-lane freeway to 2-lane at-grade parkway.
- Scajaquada Expressway, Buffalo -- (pending) replacement of freeway through Olmsted-designed park with at grade parkway.
- Inner Loop, Rochester (pending) – removal of downtown Interstate loop, and replacement by at grade boulevard.
- I-40 Loop, Nashville (proposed by city design center) conversion of downtown depressed loop to at-grade boulevard, taking advantage of existing trench to create high value building sites
- Alaskan Way, Seattle – resounding referendum choosing not to replace the elevated freeway with plans instead for an at-grade boulevard.

- I-75 and I-85, Atlanta (proposed by design center) conversion to at-grade boulevards, form “grand spine” for northern half of city.
- Whitehurst Freeway, Washington DC (under study) – removal of riverfront elevated freeway, with one replacement option being parkway.
- US 29, Trenton (proposed by NJDOT) -- replacement of riverfront expressway in downtown with parkway and several new intersections.
- Shelby Farms Parkway, Memphis – replacement of a planned and designed 6-8 lane freeway through the Farms (now Park) with consensus for an at-grade parkway.
- Route 202, Montgomery County PA (Philadelphia area) – replacement of planned suburban freeway, designed and with land acquired, with consensus for an at-grade parkway
- Mon Fayette Expressway, Pittsburgh – Proposed toll road, much of it riverfront, now appearing unlikely as cost and quality of like impacts become clear. Alternative is sweeping mix of at-grade arterial and transit.

## **THE 8664 PLAN PROVIDES LARGE INCREMENT OF QUALITY OF LIFE**

The 8664 Plan provides an enormous increment of quality of life for the city of Louisville, due to the reclamation of the waterfront, restoration of the network of local streets and the reduction in City areas now given over to freeway right of way.

The relocation of I-64, as called for in the 8664 Plan, would enable the reclaiming, as a waterfront park or other public or private uses, of around 60 acres along 2.0 miles of riverfront in Downtown Louisville. While the value of landmark civic features are, properly, “priceless” (i.e., not for sale) an estimate of their dollar value in land alone would be in the range of \$50 to \$100 per square foot, a range typical for urban downtown land, located on an amenity such as a park or waterfront in a city of Louisville’s size. Thus, the land value alone of a reclaimed waterfront would be in the range of \$130 million to \$260 million, aside from its incalculable value as a signature centerpiece park.

The secondary benefit of waterfront reclamation is the zone of the city not directly bordering the river, but within sight or within easy access (walking or driving) of the waterfront. Where waterfronts have been carefully saved or reclaimed as public space (lakes in Minneapolis, riverfront in Memphis, emerging South Waterfront in Knoxville, three rivers confluence area in Pittsburgh) the zone of enhanced value extends for distances of one quarter to one half mile (5 – 10 minutes walking distance) from the waterfront. The secondary beneficiary zone in Louisville, therefore, for a 2.0-mile distance of reclamation would be 300 - 600 acres of land. Configured as normal city blocks, this translates to an area of 60 - 120 city blocks.

## **COST OF THE 8664 PLAN**

Other than Sections #4, #5 and #6 of the Bridges Plan, the costliest item in the 8664 Plan (Table 1) is the construction of the four new freeway-to-freeway ramps. Other major elements are the reconstruction of the I-65/Jefferson interchange, the conversion of I-64 to a Waterfront parkway from SJ westward to 22nd Street, the restoration of the Kennedy Bridge and the modification of the existing I-64/I-265 interchange in Kentucky and Indiana to accommodate the proposed rerouting of I-64.

At a total cost of \$2.2 billion (Table 1), the 8664 Plan costs only 53 percent of the Bridges plan, while yielding most of the traffic service and safety benefits of the Bridges Plan.

Further, the 8664 Plan yields important quality of life benefits (reclamation of the Downtown waterfront for high-value uses, and real-estate value due to removal of I-64) that are absent in the Bridges Plan. When comparing the costs of the Bridges plan and the 8664 Plan, therefore, the values of these quality of life increments (easily \$1 billion to \$2 billion) should be added to the roughly \$1.9 billion construction cost difference.

## **IS THE 8664 PLAN TOO GOOD TO BE TRUE?**

A simple, common-sense plan (the 8664 Plan) that meets the purpose of the Bridges project, at a fraction of the Bridges plan cost, while delivering vastly more civic quality of life benefits than the Bridges plan may seem “too good to be true”. Why weren’t the features of the 8664 Plan considered in the long process of developing the Bridges plan?

Explanations may include:

- rerouting of Interstates -- the alternatives screening process for the Bridges project apparently did not consider as a valid option the rerouting of any of the three Interstate highways (I-65, I-64 and I-71) converging on SJ in downtown Louisville. Thus, the key planning principle of the 8664 Plan – the elimination of the convergence of highways at SJ – was excluded.
- building support for a new river crossing -- as the controversy over the location of a new east end bridge continued, and bridge location began to be an “either/or” controversy (i.e., new bridge either at the east end or at downtown) asserting that both bridges are needed (ignoring traffic projections showing the need for only one) became a compromise position to get something done.
- oblivious to context – the concept development phase of the SJ element of the Bridges plan preceded the nationwide surge in interest in “context sensitive design” (CSD), the now-common approach to road design that seeks not only

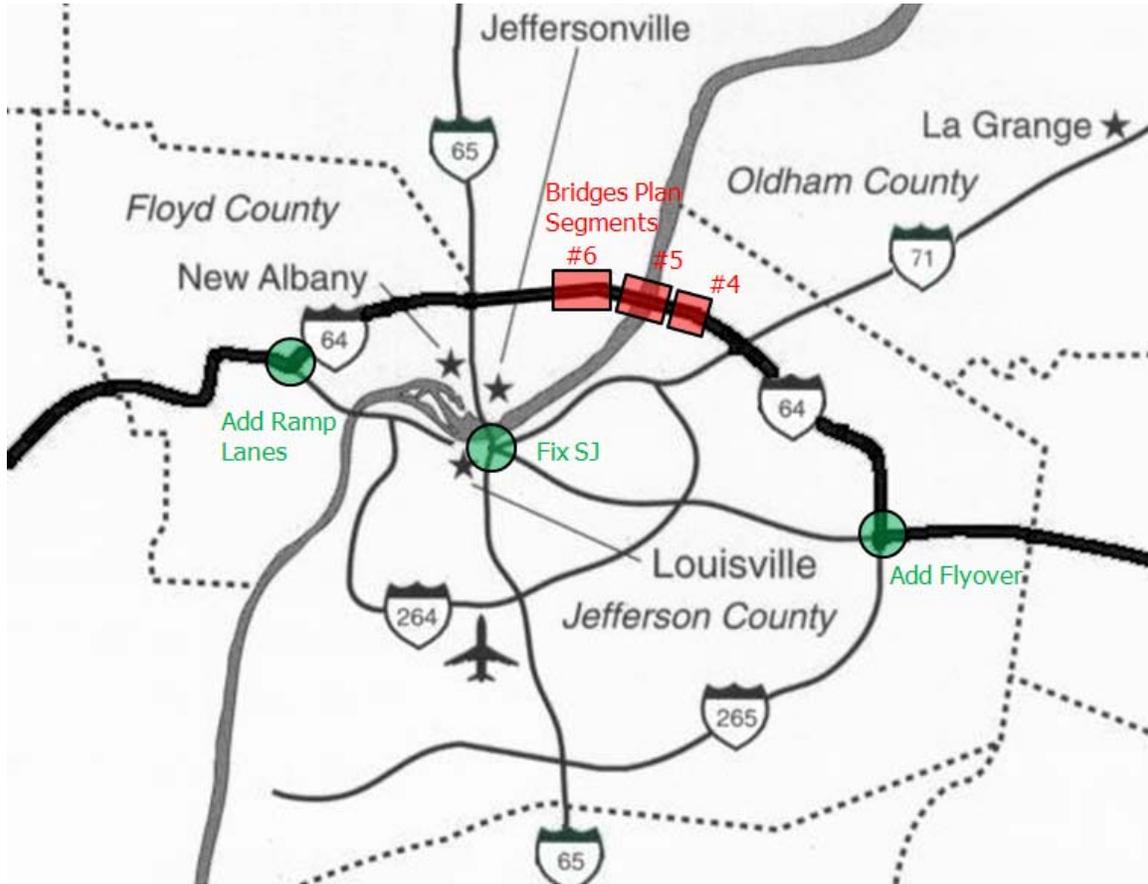
to move traffic, but also to use the road project as a catalyst for raising the community's overall quality of life. Some recent CSD successes include preserving valuable landscapes (Paris Pike in Lexington, Shelby Farms Parkway in Memphis) reclaiming waterfronts (Riverfront Parkway in Memphis, Fort Washington Way in Cincinnati), supporting resurgence in downtown loft living, and showcasing revered local institutions. Most likely, if the Bridges plan were to be started today, the study team would make the reclamation of the waterfront (through measures such as the removal of I-64 and the shrinking of SJ) into a key design element of the plan.

- maintenance of traffic – the enormous size and complexity of the SJ interchange in the Bridges plan is presumably a major factor in locating it largely on a new alignment, so that traffic can be maintained on the exiting SJ during the Bridges project construction period. Since consumption of land or reclamation of the riverfront did not appear to be a factor in the Bridges plan, a logical direction would be to consume even more land, and even more riverfront, so that the project could be constructed.
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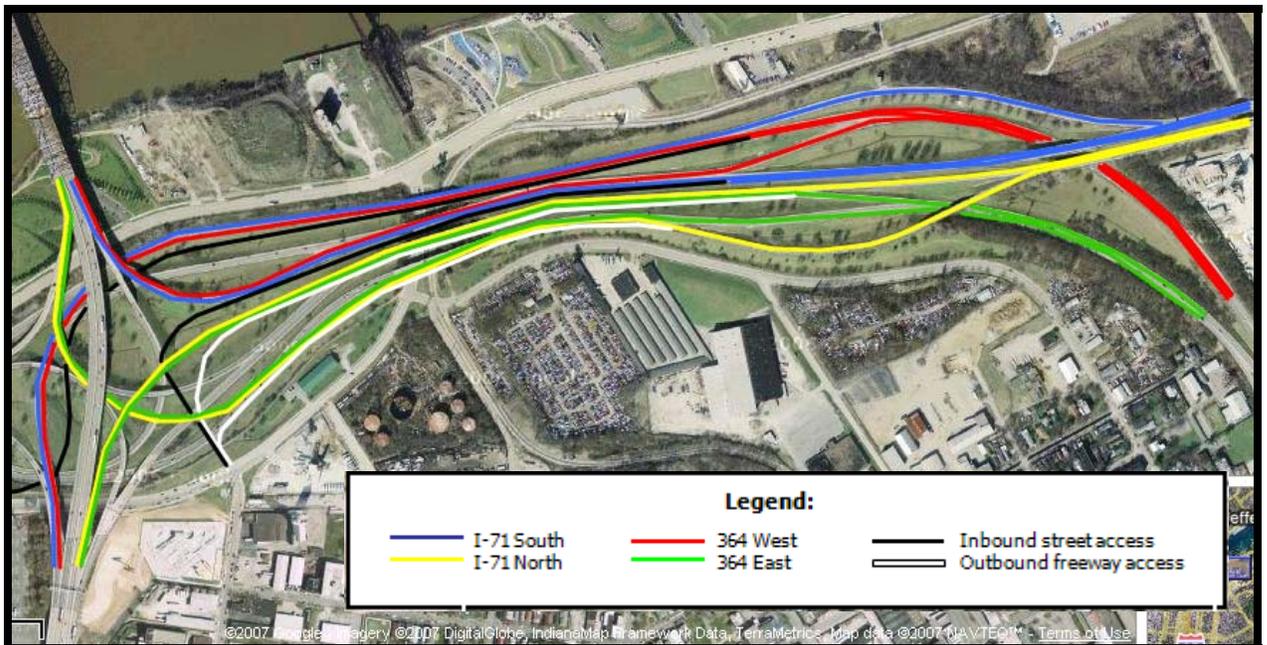
**Table 1: 8664 Costs**

				<b>Total Cost</b>
<b>East End Bridge (per Bridges Project)</b>			<b>(\$millions)</b>	<b>(\$millions)</b>
Kentucky approach ("Section 4")				753.3
Bridge ("section 5")				374.1
Indiana approach ("section 6")				318.4
<b>Subtotal, from Bridges Project</b>				<b>1,445.8</b>
<b>Location and Item</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Cost</b>	<b>(\$millions)</b>
<b>Spaghetti Junction (SJ), Freeway to Freeway</b>				
Remove all existing ramps west of Witherspoon	miles	3.34	10	33.35
4 new freeway/freeway ramps, west of Witherspoon	miles	1.63	50	81.50
Replace Bridge #1 (southernmost bridge) over Witherspoon	SF	22,600	0.0005	11.30
Auxiliary lanes, south end of Kennedy Bridge	miles	0.34	50	17.00
<b>Spaghetti Junction, Local Access Inbound</b>				
2 new local access ramps, inbound from I-71 and I-364	miles	1.03	18	18.54
Widen Bridges #3 and #4 over Witherspoon	SF	11,600	0.0005	5.80
Jefferson Street/Liberty Street interchange improvements	Int.	1.00	40	40.00
<b>Spaghetti Junction, Local Access Outbound</b>				
2 new local access ramps, outbound to I-71 and I-364	miles	0.88	18	15.84
Widen Bridge #2 over Witherspoon	SF	7,200	0.0005	3.60
Ramps, half interchange, I-71/Frankfort Ave.	miles	0.40	25	10.00
<b>Conversion, I-64 to Parkway</b>				
Remove existing I-64, 22nd Street to Witherspoon	miles	2.70	10	27.00
Extend River Rd. as 4 lane parkway, Preston St. west to 22nd St	miles	2.10	30	63.00
Riverfront Park landscaping, 1,000 foot corridor along Parkway	acres	60	0.25	15.00
<b>Rerouting of I-64</b>				
KY: I-64(existing)/I-265(existing) flyover SB-EB	miles	0.45	87	39.15
at-grade 2L ramp, SB-EB and WB-NB	miles	1.01	30	30.30
IN: I-64(existing)/I-265(existing); new 2L ramps, EB-NB and SB-WB	miles	1.04	50	52.00
<b>Restore Kennedy Bridge</b>				
Split between KY and IN				150.00
<b>Subtotal, Construction</b>				<b>613.38</b>
<b>Fees and contingencies</b>				
Fees (design, design management and design contingency)	%		0.08	49.07
Construction management and inspection	%		0.08	46.00
Construction contingency	%		0.12	73.61
<b>Subtotal, Fees and Contingencies</b>				<b>168.68</b>
<b>Total, 8664 Plan (in millions)</b>				<b>\$2,227.86</b>

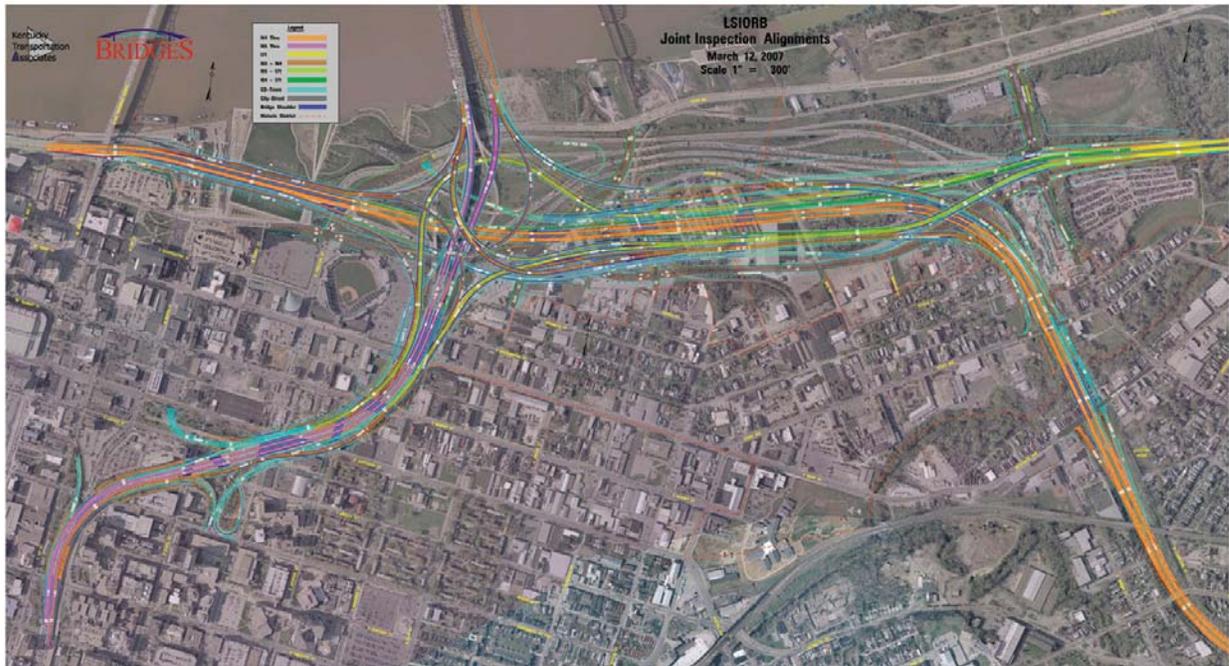
**Appendix A: 8664 Overview Map**



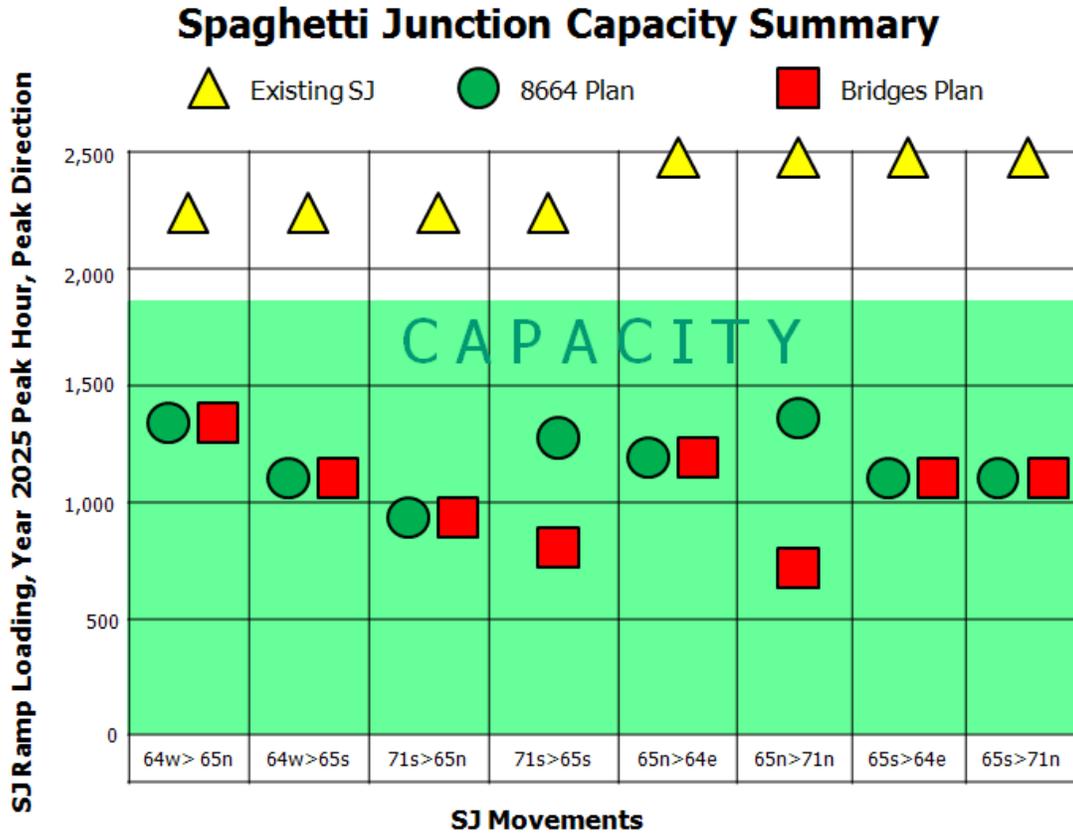
**Appendix B: 8664 weave-free Spaghetti Junction**



## Appendix C: Bridges Project Spaghetti Junction

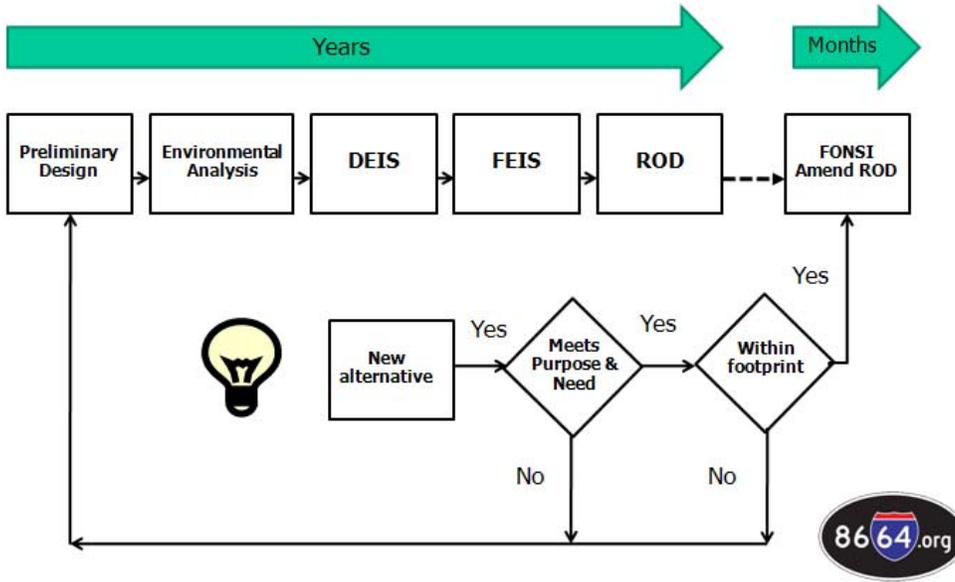


## Appendix D: Spaghetti Junction Capacity Summary



Appendix E: NEPA Process

**NEPA Process**



Appendix F: 8664 Plan within the Bridges Project “Footprint”

**Within Bridges Project Footprint**

