



APPENDIX B

Interchange Alternatives Analysis

As a part of the alternatives development process, study was given to the analysis of interchange options within the corridor. Initial analysis, provided in Chapter 1 – Purpose and Need, had demonstrated the ineffectiveness of the existing interchange configurations along the corridor to move traffic safely and efficiently. Due to complex travel movements, the pattern of adjacent land uses, substandard geometrics and concern for safety, a number of interchange options were studied for each interchange location.

Additional analysis of engineering, traffic and social and environmental impacts was conducted as more detailed engineering concepts were prepared. As this stage of engineering review and refinement was completed, a number of the options were refined or eliminated from further consideration. Discussions with project stakeholders and community leaders were included as a part of the alternatives development process. In addition, a public meeting and stakeholder meetings were held to solicit input from the public for the alternatives development. Each interchange alternative was evaluated based on its ability to address or avoid/minimize impacts to the following criteria:

- Roadway Deficiencies
- Traffic Safety
- System Linkage
- Transportation Capacity
- Traffic Operation
- Economic Development
- Intermodal/NAFTA
- Impacts to Built Environment
- Impacts to Natural Areas
- Impacts to Social Environment
- Impacts to Section 4(f) Properties
- Project Cost

This appendix provides the background information on the interchange alternatives analysis conducted for the study. The information provided in this appendix represents the interchange alternatives analysis during a specific time period in the study process. Refinements in interchange type and configuration continued throughout the study as the Reasonable Alternatives were developed and new project issues became available from the public or project stakeholders.

The subsequent section describes the interchange types that were considered to be most feasible and that were used to demonstrate the construction limits of the build alternatives.

1. M-210/ARMOUR ROAD INTERCHANGE

In addition to a No-Build Alternative, four interchange alternatives were initially considered at the M-210/Armour Road interchange location. These included a single point urban interchange (SPUI), a tight cloverleaf, and two variations of a diamond interchange – a two-signal full diamond and an offset diamond. While the No-Build Alternative did not meet the purpose and need for the project, it was still carried forward as a Reasonable Alternative in order to provide a baseline for comparison with the Build Alternatives.

One of the biggest challenges at the M-210/Armour Road Interchange location is the highly skewed crossing angle between the freeway and the crossroad. Considerations were given to softening the acuteness of the angle, but due to the built-up nature of the surroundings, little opportunity exists to reduce the skew angle. In tight, constrained areas, a SPUI interchange is often the best interchange type. However, due to the skewed crossing, the bridge overpass requirements become too large for the SPUI configuration. Also, the SPUI becomes too large for efficient traffic operations – the intersection clearance time becomes excessive. The SPUI would address the need to solve roadway deficiencies, increase traffic safety, as well as improve system linkage and economic development; however, traffic operations and transportation capacity problems would be only moderately addressed by this alternative. As a result, this alternative was not considered to be feasible and was not used to determine construction limits.

A two-signal full diamond interchange was also considered at this location. The diamond interchange would address the need to solve roadway deficiencies and increase traffic safety; however, it would be less effective than the SPUI because it would not improve system linkage and traffic operations and transportation capacity problems would not be addressed under this alternative. As a result, this alternative was not considered to be feasible and was not used to determine construction limits.

A tight cloverleaf interchange would meet the purpose and need of the project, but would have a negative impact on the built environment and social environment, as well as a higher cost to construct than the other alternatives. Under this alternative, right-of-way takings and displacements would be higher, resulting in more negative impacts overall than the other alternatives, therefore it was not considered to be feasible and was not used to determine construction limits.

The offset Diamond Interchange was determined to best address the purpose and need for the project while maintaining a reasonable cost for the interchange improvement. This interchange alternative would address the transportation capacity and traffic operational problems with the existing interchange, as well as the other important criteria, including solving roadway deficiencies and improving system linkage and economic development. In addition, this alternative would minimize right-of-way takings and displacements. As a result, the Offset Diamond Interchange was determined to be the most feasible interchange type to be used to estimate construction limits as part of the build alternatives..

2. 16TH AVENUE INTERCHANGE

One of the initial options evaluated for the 16th Avenue Interchange considered the full system of access to the industrial areas in North Kansas City. It is a given that full access would be provided at the M-210/Armour Road Interchange to the north. However, it would be advantageous to combine in some fashion the access to Levee Road, Bedford Avenue and 16th Avenue into a more simple access system. In other words, consolidate the three existing half interchanges into a full interchange. This concept was explored but was not developed further due to several issues. For this concept to work, better local connections across the rail yard would need to be provided. These local connections would require new local arterial bridges over the rail yard, which would have a high cost. Also, combining movements at one location would likely require more space. Given the tight constraints of the corridor's adjacencies through the North Kansas City industrial area, unreasonable impacts to existing development would occur. Consequently, it was determined that the improvements at the 16th Avenue Interchange should maintain the existing ramp movements that exist today, and that the improvements would likely be independent of the adjacent interchanges.

The 16th Avenue interchange alternatives included a No-Build Alternative, as well as two Build Alternatives – a quarter diamond with a loop and a half-diamond. The No-Build Alternative would not address operational and capacity needs. However, it does provide a baseline of comparison for the Build Alternatives.

The quarter diamond with a loop is a modification of the existing interchange configuration. The modification would address the current roadway design deficiencies with the loop ramp, as well as improve traffic safety, capacity and operations and provide better system linkage. However, the quarter diamond with a loop would have a high impact to the planned development in the area between the loop ramp and the M-210/Armour Road interchange. For this reason, the quarter diamond was not used to determine construction limits.

The half-diamond would improve traffic capacity and operations and provide better system linkage. It would also have fewer impacts to the planned business developments in the area. The cost is slightly higher than the quarter-diamond with a loop; however it was determined to best meet the overall purpose and need for the project and support the economic development planned for the area. For these reasons, it was determined to be the most feasible interchange type to be used to estimate construction limits as part of the build alternatives.

3. BEDFORD AVENUE/LEVEE ROAD INTERCHANGE

A number of options were assessed to address the existing problems at these interchanges. The alternatives included a No-Build and three Build Alternatives: half-diamond at Levee Road with Bedford Avenue ramp closed, a back-to-back folded diamond, and braided ramps. The No-Build Alternative does not meet the purpose and need for the project because it does not address traffic safety, operational and capacity needs. However, it was carried forward in order to provide a baseline of comparison for the Build Alternatives.

One of the concepts considered was to eliminate the Bedford Avenue Interchange and provide local access over the railroad between 16th Avenue to the north and Levee Road by constructing a half-diamond at 16th Avenue and a half-diamond at Levee Road. However, providing local access over the rail yard to the north is cost prohibitive. Other options included combining the local access into a single interchange. Again, local impacts prevent this concept from being pursued further. .

A back-to-back folded diamond was considered at Bedford Avenue and Levee Road. This alternative was not considered to be feasible due to negative impacts to the built environment and high construction costs. It was determined that both Bedford Avenue and Levee Road traffic cannot be accommodated at a single access point. In addition, there were traffic operations and transportation capacity problems with this interchange alternative.

The braided ramps alternative was determined to best address the need to improve system linkage, intermodal traffic movements and economic development in the area because it continues to maintain full access to the area. In addition, the alternative best addressed traffic operations and transportation capacity. However, the braided ramps alternative does have some negative impacts to the built environment and some traffic safety and roadway deficiencies it cannot address, as well as a higher construction cost. Overall, the braided ramps alternative would meet the purpose and need for the project and improve the overall traffic operations and travel time for the area.

4. FRONT STREET INTERCHANGE

Improvements at the Front Street interchange are directly related to the improvement options being considered at the Missouri River bridge. In addition, improvements at Front Street are constrained by the Union Pacific railroad, located just south of the interchange and by the Berkley Riverfront Park and existing development in close proximity to the interchange, including the Isle of Capri Casino.

In addition to a No-Build Alternative, a number of alternatives were initially considered at the Front Street interchange. The alternatives included an existing configuration modified, diamond (under mainline), east diamond-west folded, diamond (over mainline), and a tight diamond or roundabout. The diamond (over mainline), east diamond-west folded, and diamond (under mainline) had negative impacts to the built environment and natural areas including parks and forested areas that would result in impacts to 4(f) resources. In addition, these diamond interchange alternatives only moderately addressed transportation capacity, traffic operations and intermodal connections. For these reasons, the diamond interchange alternatives were not considered to be feasible.

The existing configuration modified is a feasible alternative interchange type. This interchange type has the lowest cost and is feasible when combined with the bridge option that uses the existing Paseo Bridge. This interchange configuration can be constructed in a way that will improve traffic operations. In addition, this interchange type can be constructed in a way that will not impact to potential 4(f) resources, including parks. However, this interchange type does not improve the continuity of Front Street. Because the level of access to the riverfront would remain approximately the same, this interchange type would have a neutral effect on economic development. The overall assessment is that the existing configuration modified is a feasible interchange type it will be used to estimate construction limits.

Following the public meeting held in October, 2004, several other interchange options that used less space than a standard diamond interchange were explored at Front Street. These interchange types included a tight diamond, use of a roundabout, and a single point urban interchange (SPUI). However, the roundabout interchange type was shown to not provide improved traffic operations. The remaining interchange types were shown to be feasible and addressed traffic safety, operations and capacity, as well as improved truck connections. The SPUI alternative has been used to estimate construction limits as part of the build alternatives.

The following table shows the interchange types combined with the bridge options that have been used to develop the build alternatives.

Front Street Reasonable Alternatives

Interchange Layout	Missouri River Bridge Options		
	Option A	Option B	Option C
No-Build	X	X	X
Existing Configuration Modified	X	X	
Single-Point		X	X

5. PASEO BOULEVARD INTERCHANGE

The interchange types at Paseo Boulevard included a No-Build and one Build Alternative which provided a right entrance and exit alternative. The No-Build interchange type leaves the current left entrance and exit configuration in place, as well as lane drops for the I-29/35 mainline. This

interchange type would not improve existing roadway operational deficiencies nor would it improve system linkages. However, the No-Build Alternative is carried forward as a baseline for comparison with other interchange types.

The right entrance and exit interchange type addresses the current roadway operational deficiencies, and improves system linkage. The alternative also allows the I-29/35 mainline to be reconfigured to eliminate the existing lane drops. This interchange type was refined in order to avoid direct property impacts the Belvidere Playground. This interchange type was determined to be the most feasible interchange type to be used to estimate construction limits as part of the build alternatives.

6. NORTHEAST CORNER OF CBD LOOP INTERCHANGE

In addition to the No-Build, two interchange types for the northeast corner of the CBD loop were considered. The types considered include a Charlotte-Harrison flyover connection, similar to the concept recommended by the MIS, and an existing configuration modified option. The Charlotte-Harrison flyover was able to improve system linkage, transportation capacity and traffic operations, as well as improve intermodal connections. However, this option would have negative impacts to the built environmental and social environment due to right-of-way takings and displacements. In addition, this option would require over a steep eight percent grade for the ramps connecting the I-29/35 lanes into Downtown. For these reasons, the Charlotte-Harrison Flyover was not considered feasible.

The existing configuration modified interchange type would meet many aspects of the project purpose and need, including providing lane continuity and improve the system linkage between the north leg and the east leg of the CBD loop. The flyover ramps were modified to provide improved access to-and-from the CBD and improve constructability. This concept also improved traffic operations and intermodal connections, as well as moderately increasing capacity into and through this part of the CBD loop. This interchange type was determined to be the most feasible interchange type to be used to estimate construction limits as part of the build alternatives..

7. M-9 INTERCHANGE

A number of options were considered at the M-9 Interchange to provide better access and connectivity, including a No-Build and three other interchange types -- a modified existing, a box-diamond and a braided diamond.

The modified existing interchange improved traffic operations as compared to the No-Build and also offered improved system linkage by developing a new connection between I-70 westbound and US 71 northbound from the east leg of the loop to M-9 northbound. However, it eliminated the ability for I-35 southbound traffic to exit at the M-9 Interchange and utilize the north frontage road to access the River Market and Broadway Boulevard or access the CBD. A new access point was added from the CBD via 6th Street to I-35 northbound, I-70/US 24 westbound. However, this resulted in the removal of the I-35 northbound/I-70 eastbound exit to M-9 northbound, which is one of the most heavily used movements of the M-9 Interchange. For these reasons, the existing configuration modified was not considered to be feasible.

The box diamond option consists of reconfiguring the current M-9 Interchange and a portion of the corridor between the M-9/Heart of America bridge and Downtown by removing the directional ramps in lieu of a new box-diamond interchange configuration and lowering the vertical profile of this portion of M-9 to instead provide an at-grade divided arterial that takes on the appearance of a parkway. The box-diamond interchange improved traffic operations as compared to No-Build and also offered improved system linkage by developing a new connection between I-70

westbound and US 71 northbound from the east leg of the Loop to M-9 northbound. The box diamond was also viewed as being a good alternative for stimulating economic development in the area because it would provide an opportunity to provide better access and connectivity between the CBD, Columbus Park and the River Market. For these reasons, the box diamond alternative was carried forward as a Reasonable Alternative.

The braided diamond provided many of the same traffic operational and safety benefits as the box-diamond interchange; however it resulted in shorter weaving sections on the I-35/70 mainline and changes in traffic operations on the frontage roads. The box-diamond interchange would provide better traffic operation at the M-9 intersections due to the use of fewer traffic conflicts at four separate signals, whereas the braided diamond would bring all of the traffic into two signals, including the heavy left-turn movement between I-35 northbound/I-70 eastbound and M-9 northbound. For these reasons, the braided diamond was determined to a feasible interchange type to be used to estimate construction limits as part of the build alternatives.

8. BROADWAY INTERCHANGE

The Broadway interchange types included a No-Build and three Build concepts, including modified existing, a SPUI and a flyover recommended in the Northland~Downtown MIS. All three Build concepts addressed many of the elements included in the purpose and need, including improvements in traffic operations, transportation capacity and intermodal connections. However, the MIS flyover concept would have negative impacts to the built environment, Section 4(f) properties and economic development for the area, as well as a high cost estimate. Right-of-way takings and displacements, as well as the project cost for this alternative were determined to be too significant to make this alternative feasible. Therefore, the MIS flyover was eliminated from further consideration.

The modified existing was also eliminated because it only moderately addressed transportation capacity needs -- one of the most critical needs at this interchange location. The SPUI would provide traffic safety and operational improvements, fix current roadway deficiencies and improve capacity through the interchange. However, the SPUI would eliminate the ability for traffic to go through the intersections at the north and south frontage roads of the freeway. Overall, the SPUI was considered to be feasible because it best met the purpose and need for the project at this location, and this interchange type was used to establish project limits in the Build Alternatives.

The following information is also included as part of this appendix:

- **Interchange Evaluation Matrix:** An interchange evaluation matrix for each I-29/35 Corridor interchange to show the screening process used to determine the Reasonable Alternatives to be carried forward for further analysis.
- **Interchange Alternative Exhibits:** Interchange Alternative Exhibits for each I-29/35 Corridor interchange.

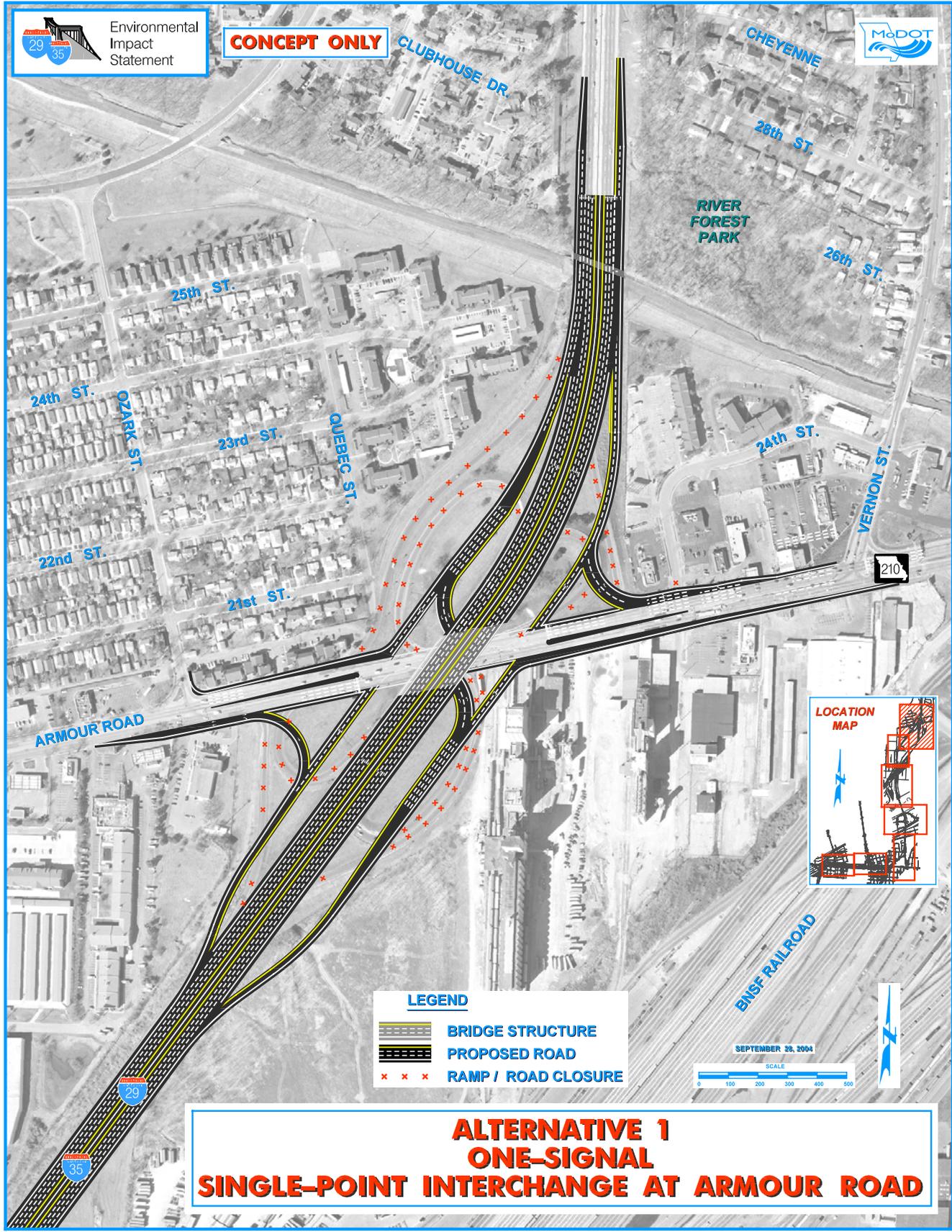
M-210/Armour Rd. Evaluation Matrix

M-210/ Armour Road		Purpose and Need							Other Impacts				Project Cost
		Roadway Deficiencies	Traffic Safety	System Linkage	Transportation Capacity	Traffic Operation	Economic Development	Intermodal/NAFTA	Built Environment	Natural Areas	Social Environment	Section 4(f) Properties	
	No-Build	x	x	x	x	x	o	o	o	o	o	o	
Alternative 1	One-Signal Single-Point	●	●	●	◐	◐	●	●	o	o	o	o	M
Alternative 2	Two-Signal Full-Diamond	●	●	o	x	x	o	o	o	o	o	o	M
Alternative 3	Cloverleaf	●	●	●	●	●	●	●	-	o	-	o	H
Alternative 4	Offset Diamond	●	●	●	●	●	●	●	o	o	o	o	M

- = Substantially Addresses Needs
- ◐ = Moderately Addresses Needs
- o = Neutral
- = Negative Impact
- x = Determined Not to Meet Purpose and Need
- L = Low Cost
- M = Medium Cost
- H = High Cost

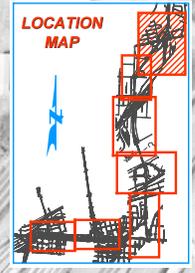
Reasonable Alternative

CONCEPT ONLY



LEGEND

	BRIDGE STRUCTURE
	PROPOSED ROAD
	RAMP / ROAD CLOSURE



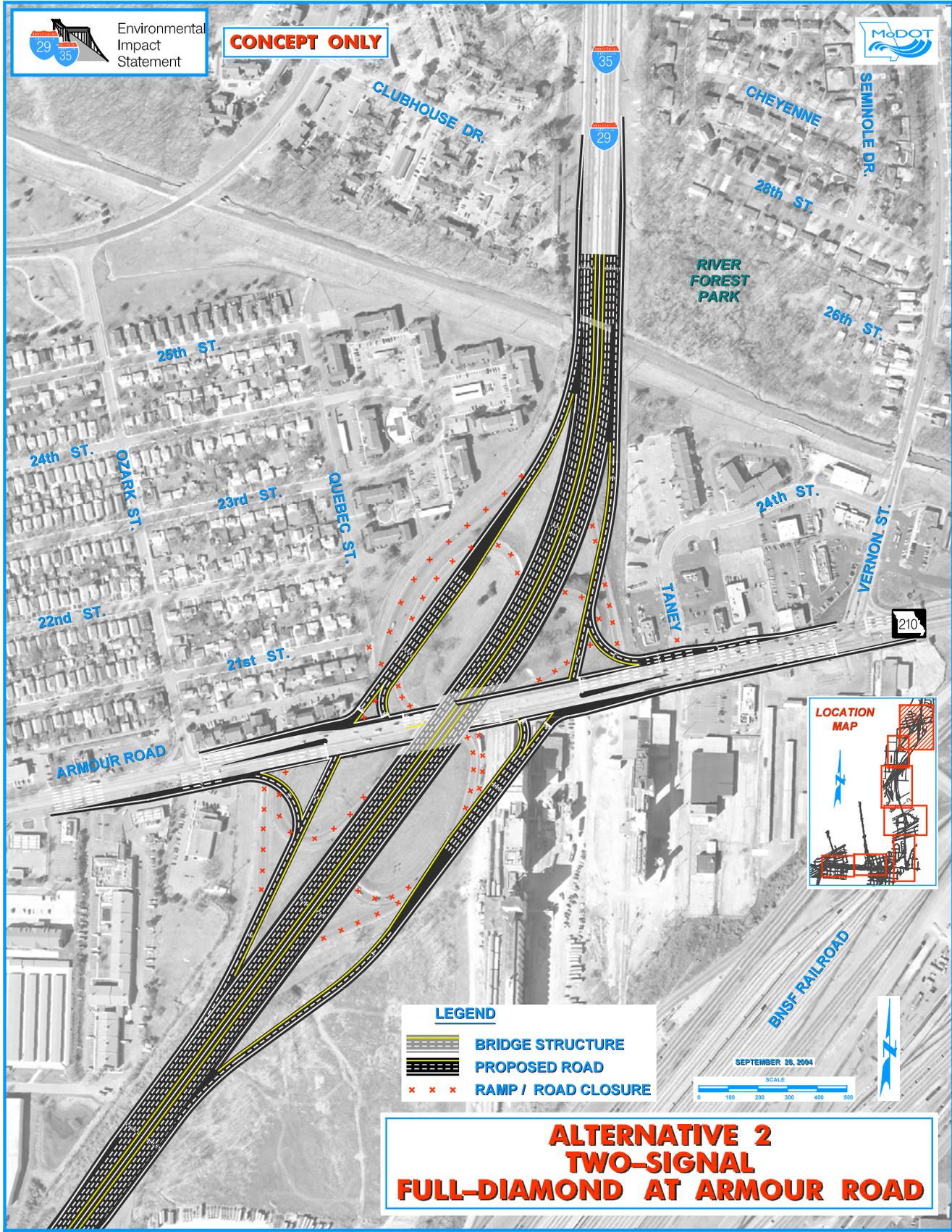
SEPTMBER 28, 2004
SCALE
0 100 200 300 400 500

**ALTERNATIVE 1
ONE-SIGNAL
SINGLE-POINT INTERCHANGE AT ARMOUR ROAD**



Environmental
Impact
Statement

CONCEPT ONLY



LEGEND

	BRIDGE STRUCTURE
	PROPOSED ROAD
	RAMP / ROAD CLOSURE

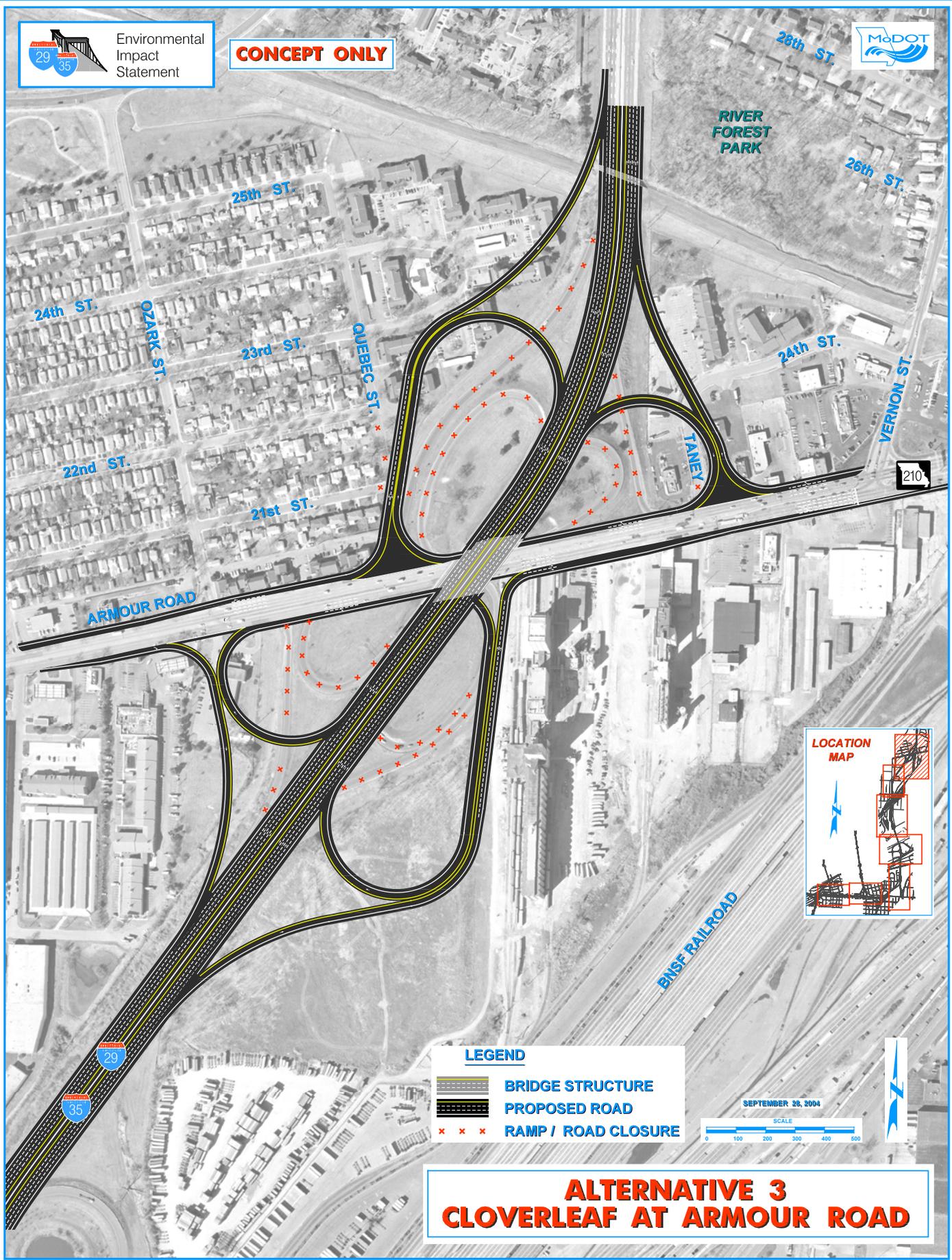


**ALTERNATIVE 2
TWO-SIGNAL
FULL-DIAMOND AT ARMOUR ROAD**



Environmental
Impact
Statement

CONCEPT ONLY



RIVER
FOREST
PARK

25th ST.

24th ST.

22nd ST.

ARMOUR ROAD

OZARK ST.

25th ST.

23rd ST.

21st ST.

QUEBEC ST.

BNSF RAILROAD

28th ST.

26th ST.

24th ST.

VERNON ST.

TANEY

210

LOCATION
MAP

LEGEND

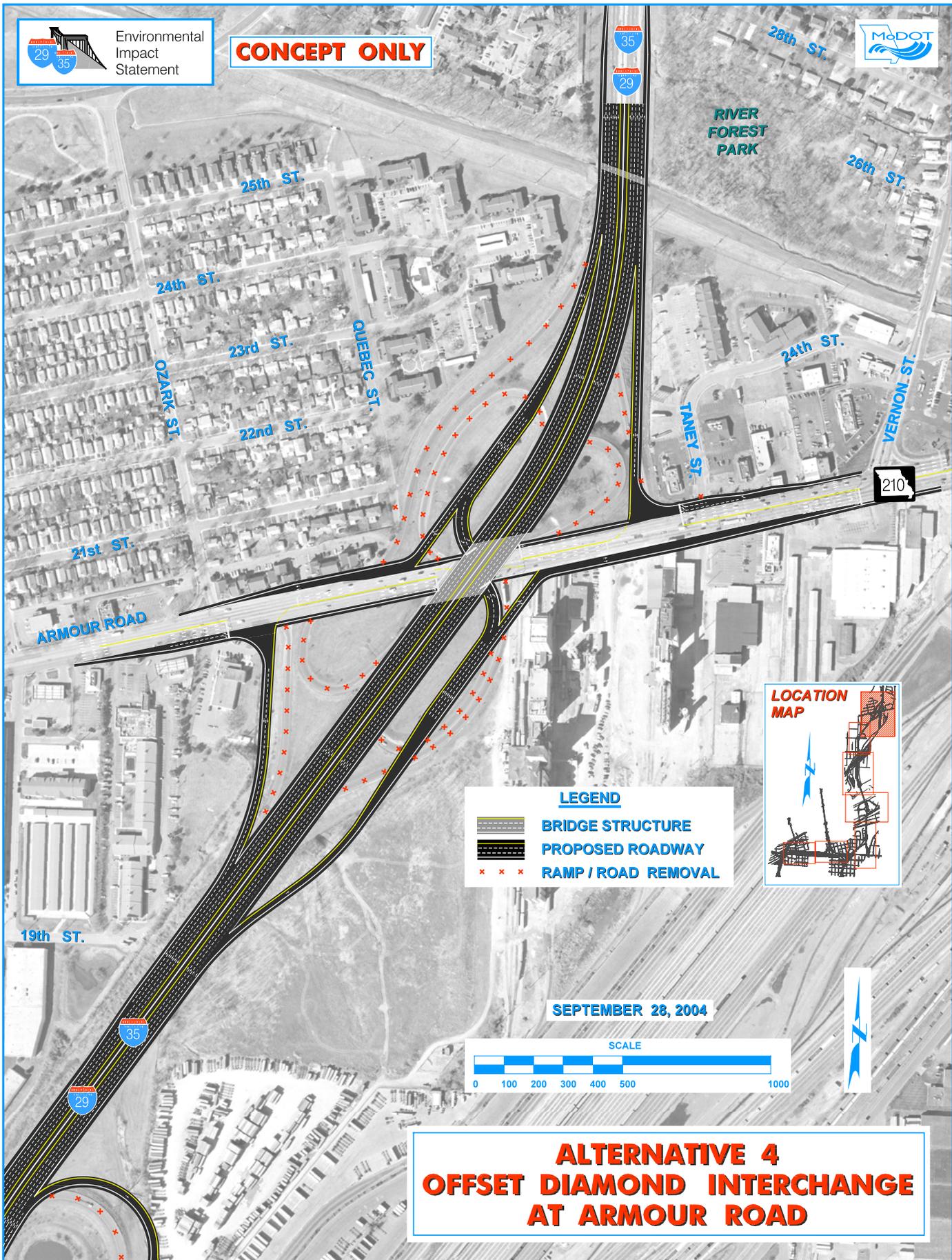
-  BRIDGE STRUCTURE
-  PROPOSED ROAD
-  RAMP / ROAD CLOSURE

SEPTEMBER 28, 2004



**ALTERNATIVE 3
CLOVERLEAF AT ARMOUR ROAD**

CONCEPT ONLY



**ALTERNATIVE 4
OFFSET DIAMOND INTERCHANGE
AT ARMOUR ROAD**

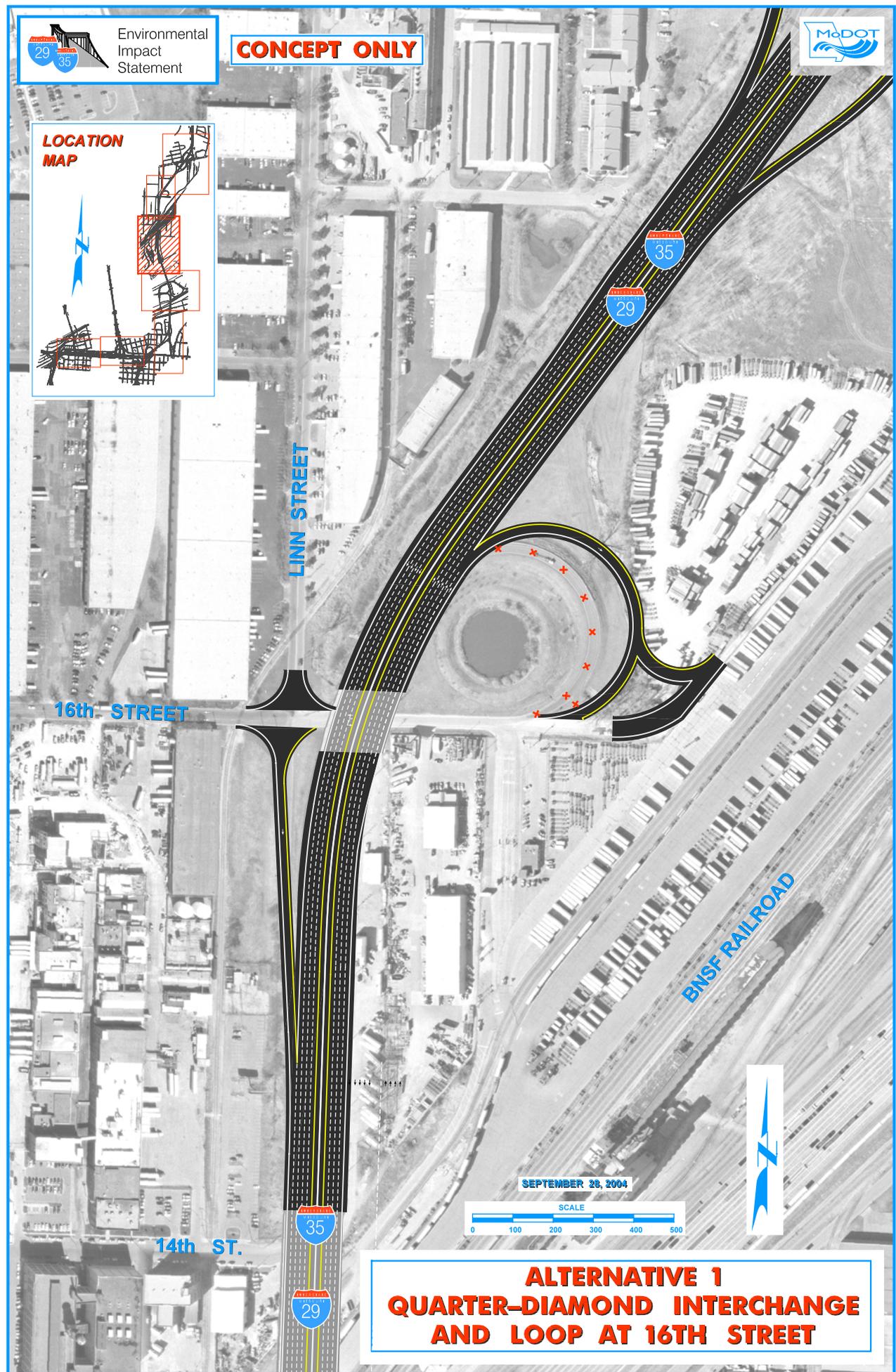
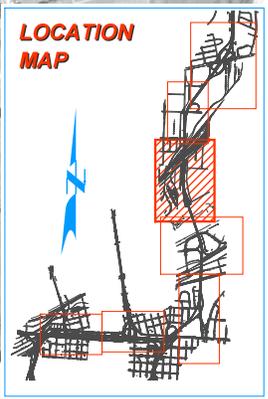
16th Avenue Interchange Evaluation Matrix

16 th Avenue Interchange		Purpose and Need							Other Impacts				
		Roadway Deficiencies	Traffic Safety	System Linkage	Transportation Capacity	Traffic Operation	Economic Development	Intermodal/NAFTA	Built Environment	Natural Areas	Social Environment	Section 4(f) Properties	Project Cost
	No-Build	x	x	x	x	x	○	○	○	○	○	○	
Alternative 1	Quarter-Diamond and Loop	●	●	●	●	●	●	●	○	○	○	○	L
Alternative 2	Half-Diamond	●	●	●	●	●	●	●	-	○	○	○	M

- = Substantially Addresses Needs
- ◐ = Moderately Addresses Needs
- = Neutral
- = Negative Impact
- X = Determined Not to Meet Purpose and Need
- L = Low Cost
- M = Medium Cost
- H = High Cost

Reasonable Alternative

CONCEPT ONLY



SEPTEMBER 28, 2004



**ALTERNATIVE 1
QUARTER-DIAMOND INTERCHANGE
AND LOOP AT 16TH STREET**

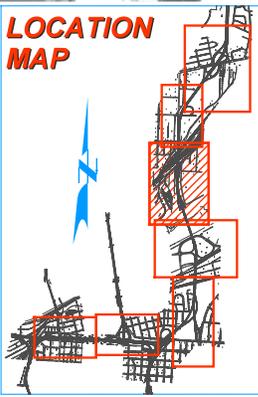


Environmental
Impact
Statement

CONCEPT ONLY

E. 16th STREET

**LOCATION
MAP**



KNOX ST.

E. 14th ST.

JASPER ST.

E. 13th ST.



SEPTEMBER 28, 2004



LEGEND



BRIDGE STRUCTURE



PROPOSED ROADWAY



RAMP / ROAD REMOVAL



BNSF RAILROAD

BEDFORD AVE.

OZARK ST.

**ALTERNATIVE 2
HALF-DIAMOND INTERCHANGE
AT 16TH STREET**

Bedford Ave./Levee Rd. Interchange Evaluation Matrix

Bedford Ave./ Levee Rd. Interchange		Purpose and Need							Other Impacts				
		Roadway Deficiencies	Traffic Safety	System Linkage	Transportation Capacity	Traffic Operation	Economic Development	Intermodal/NAFTA	Built Environment	Natural Areas	Social Environment	Section 4(f) Properties	Project Cost
	No-Build	X	X	○	○	X	○	○	○	○	○	○	
Alternative 1	Braided Ramps	-	-	●	●	●	●	●	-	○	○	○	H
Alternative 2	Back-to-Back Folded-Diamond	●	●	●	●	●	●	●	-	○	○	○	H
Alternative 3	Half-Diamond Levee, Bedford Ramp Closed	●	●	-	●	●	-	-	○	○	○	○	L

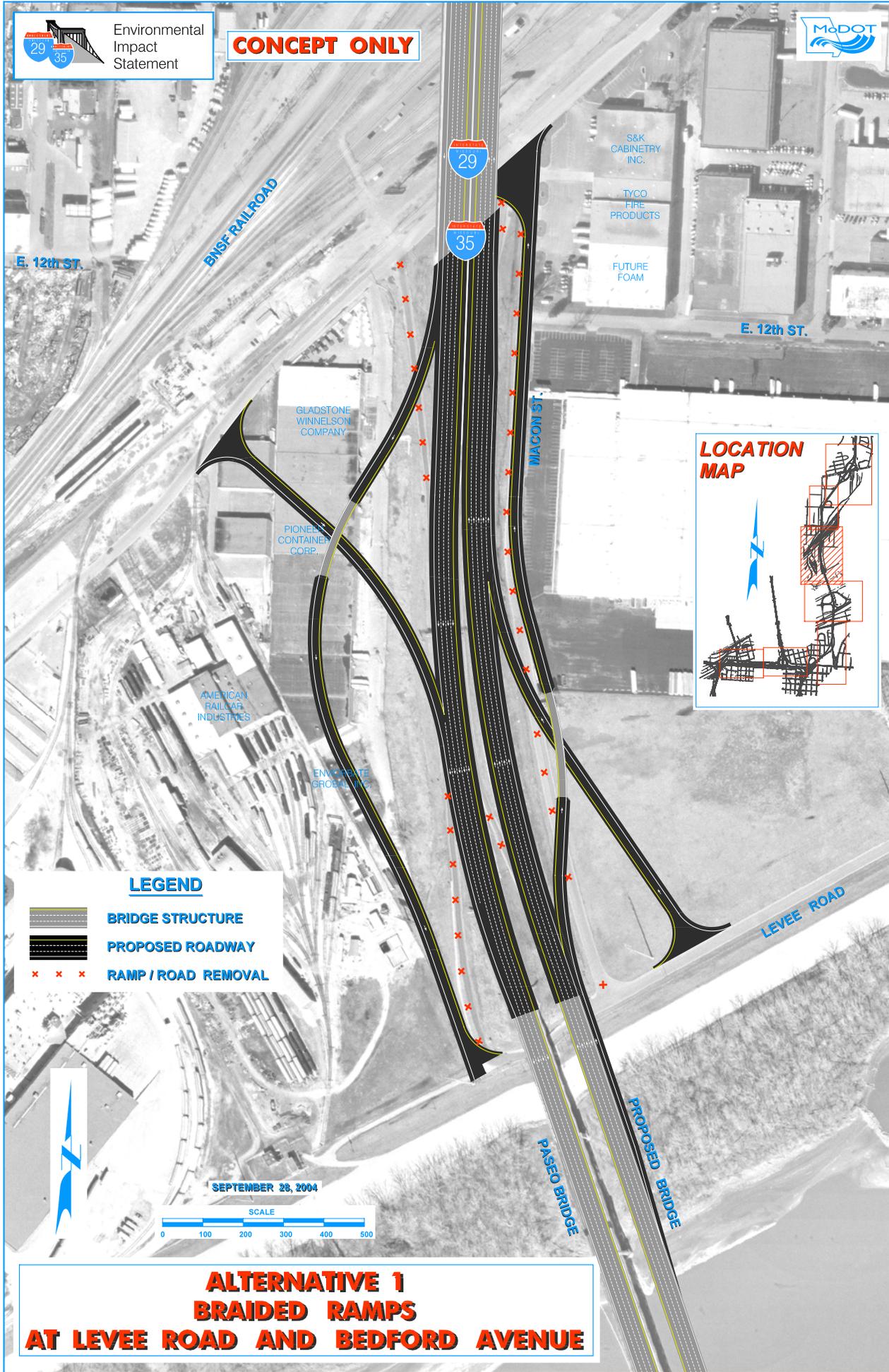
- = Substantially Addresses Needs
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Reasonable Alternative



Environmental
Impact
Statement

CONCEPT ONLY



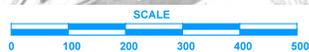
LEGEND

-  BRIDGE STRUCTURE
-  PROPOSED ROADWAY
-  RAMP / ROAD REMOVAL

LOCATION MAP



SEPTEMBER 28, 2004

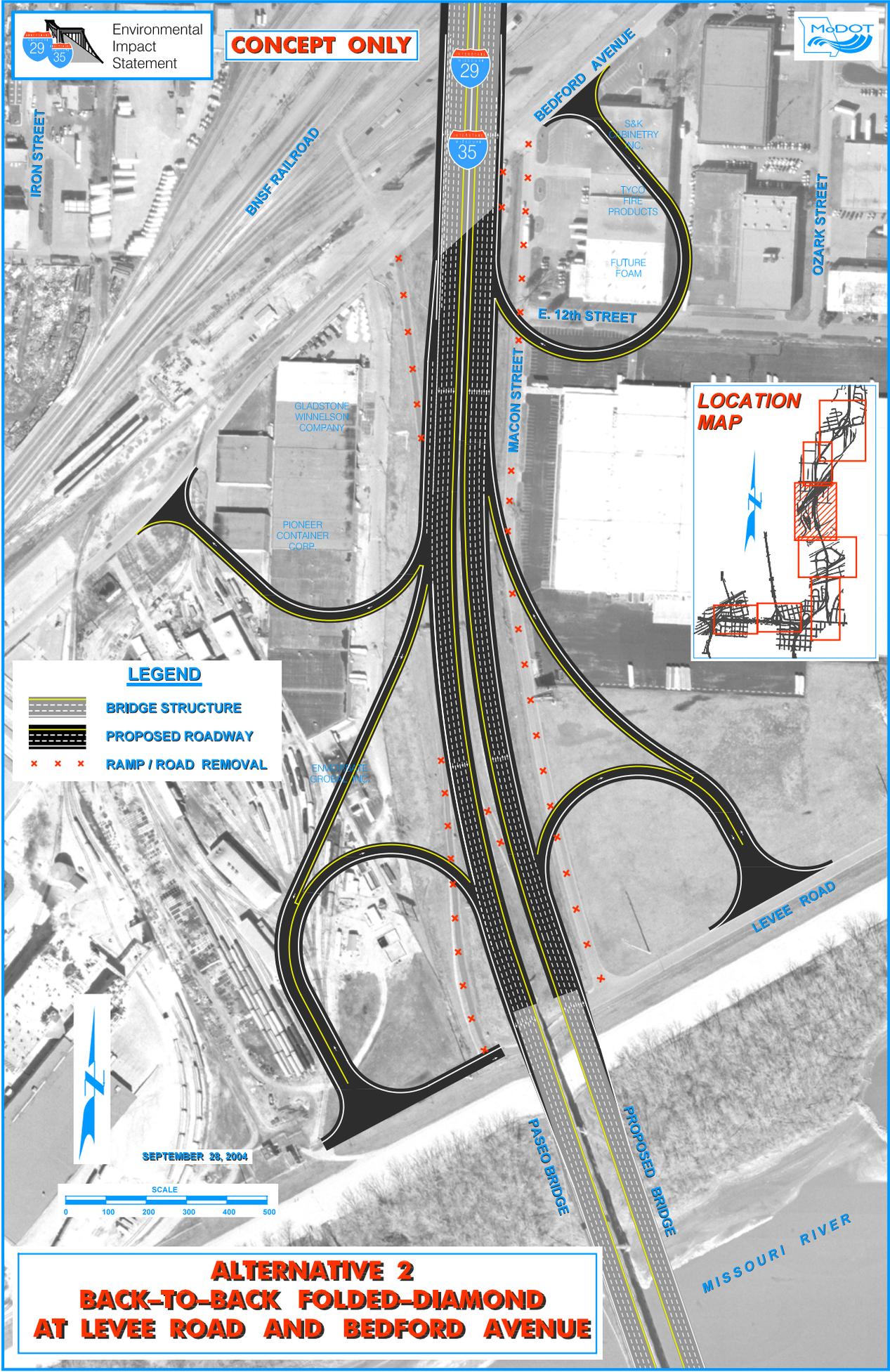


**ALTERNATIVE 1
BRAIDED RAMPS
AT LEVEE ROAD AND BEDFORD AVENUE**



Environmental Impact Statement

CONCEPT ONLY



LEGEND

- BRIDGE STRUCTURE
- PROPOSED ROADWAY
- RAMP / ROAD REMOVAL

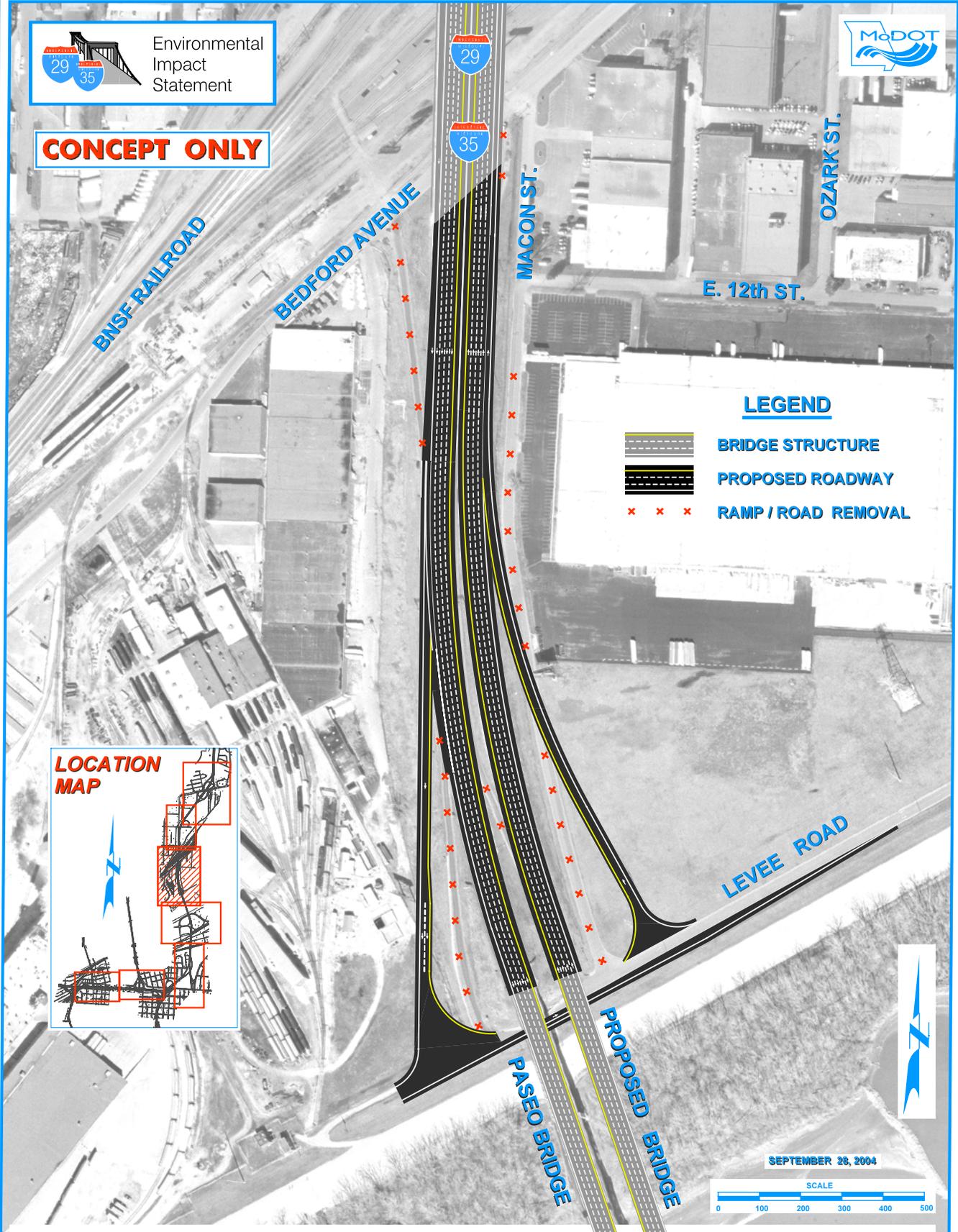


SEPTEMBER 28, 2004



**ALTERNATIVE 2
BACK-TO-BACK FOLDED-DIAMOND
AT LEVEE ROAD AND BEDFORD AVENUE**

CONCEPT ONLY



**ALTERNATIVE 3
HALF-DIAMOND INTERCHANGE AT
LEVEE ROAD - BEDFORD RAMP CLOSED**

Front Street Interchange Option Evaluation Matrix

Front Street Interchange Option		Purpose and Need							Other Impacts				
		Roadway Deficiencies	Traffic Safety	System Linkage	Transportation Capacity	Traffic Operation	Economic Development	Intermodal/NAFTA	Built Environment	Natural Areas	Social Environment	Section 4(f) Properties	Project Cost
	No-Build	x	x	o	-	x	-	-	o	o	o	o	
Alternative 1	Existing Configuration Modified	●	◐	-	x	o	-	o	o	-	o	o	L
Alternative 2	Diamond (under)	●	●	◐	◐	◐	●	◐	-	-	●	o	H
Alternative 3	East Diamond-West Folded	●	●	●	◐	◐	◐	◐	-	-	◐	o	M
Alternative 4	Diamond (over)	◐	◐	●	◐	◐	◐	◐	-	-	◐	o	M
Alternative 5A-5D	Tight Diamond or Roundabout	●	●	●	●	o	●	●	o	o	●	o	M

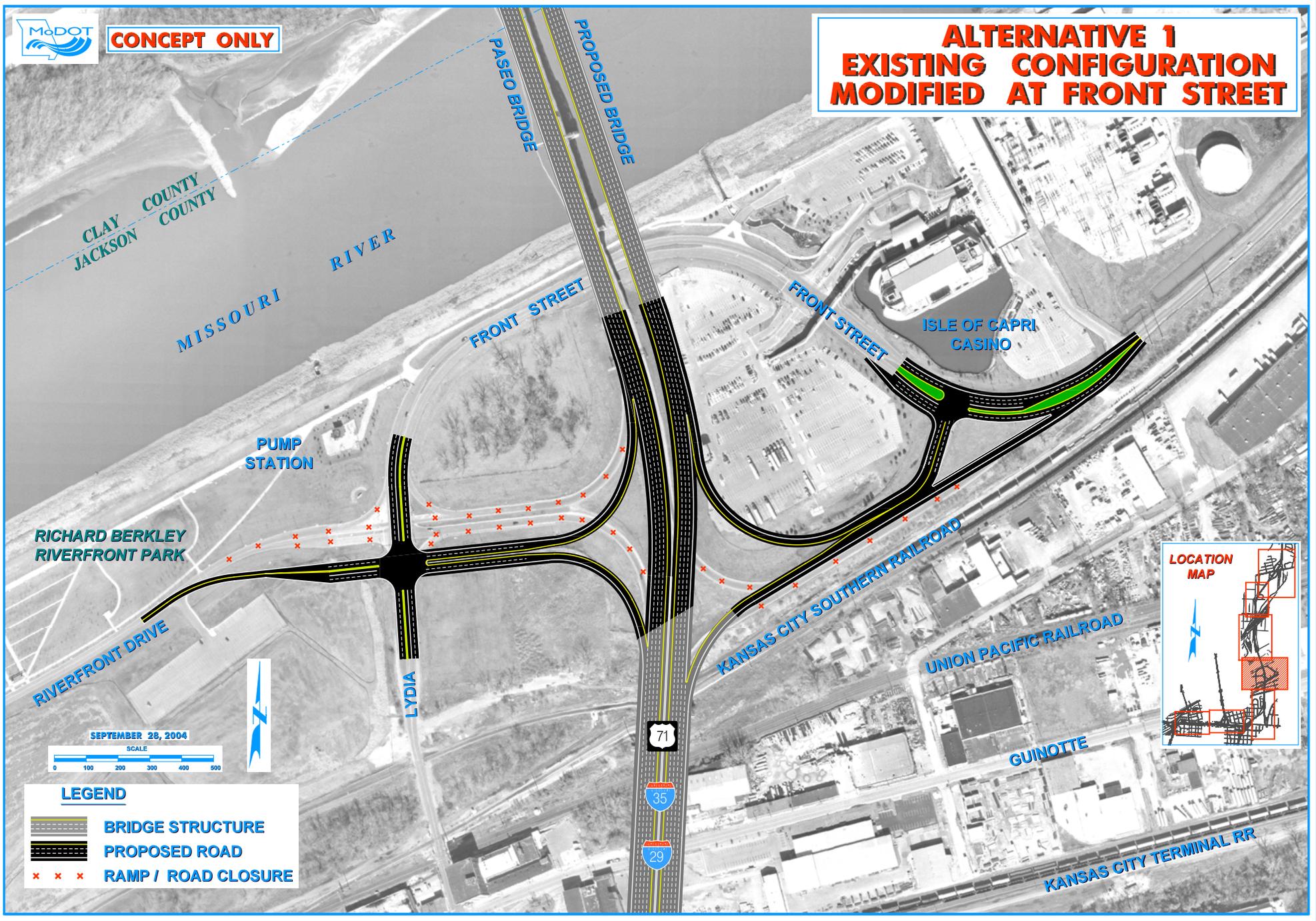
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Reasonable Alternative



CONCEPT ONLY

ALTERNATIVE 1 EXISTING CONFIGURATION MODIFIED AT FRONT STREET



SEPTEMBER 28, 2004



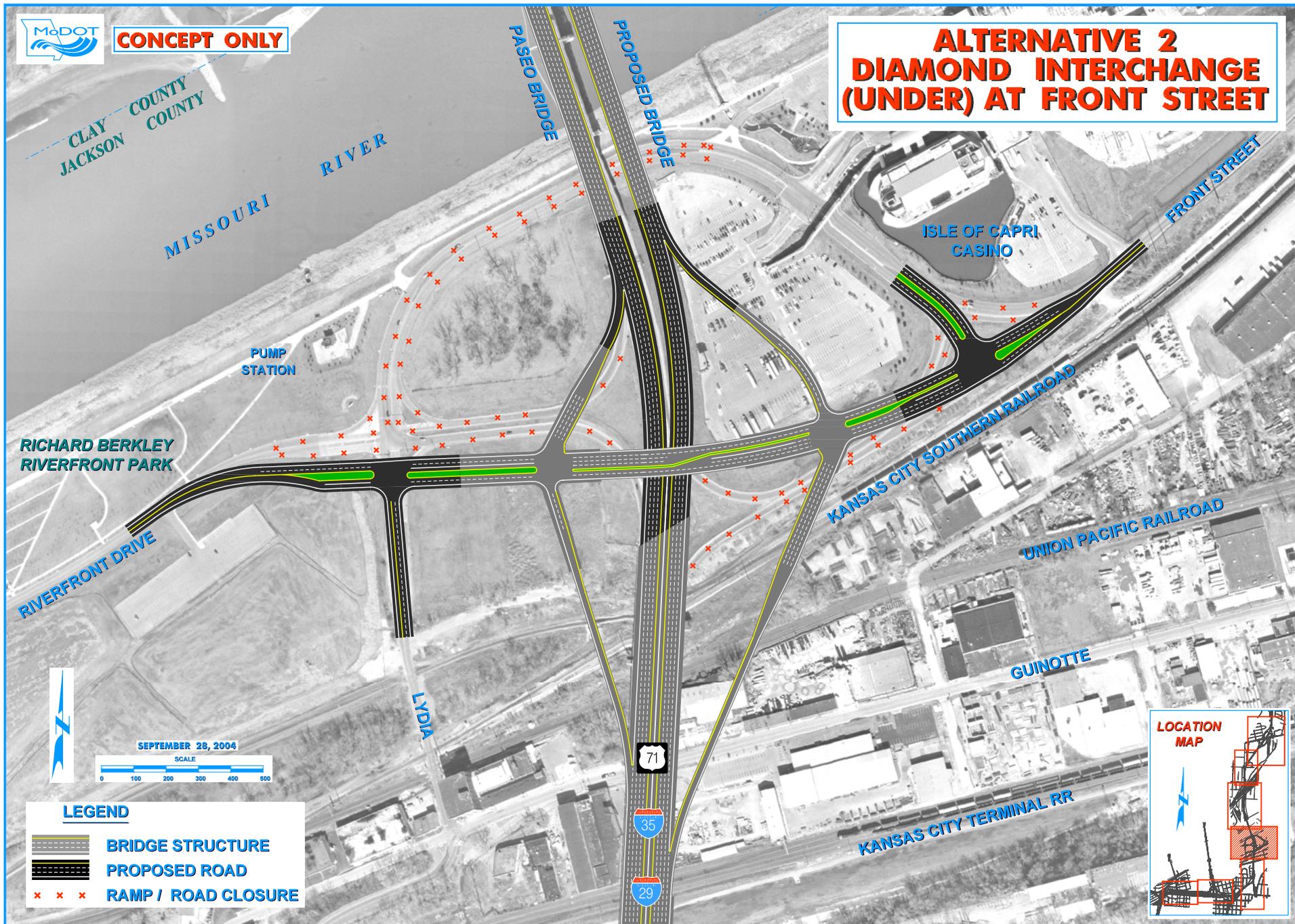
LEGEND

-  BRIDGE STRUCTURE
-  PROPOSED ROAD
-  RAMP / ROAD CLOSURE



CONCEPT ONLY

ALTERNATIVE 2 DIAMOND INTERCHANGE (UNDER) AT FRONT STREET



CLAY COUNTY
JACKSON COUNTY

MISSOURI RIVER

PASEO BRIDGE
PROPOSED BRIDGE

ISLE OF CAPRI CASINO

FRONT STREET

PUMP STATION

RICHARD BERKLEY RIVERFRONT PARK

RIVERFRONT DRIVE

KANSAS CITY SOUTHERN RAILROAD

UNION PACIFIC RAILROAD

GUINOTTE

LYDIA

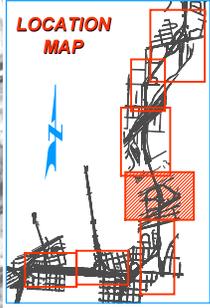
KANSAS CITY TERMINAL RR

SEPTEMBER 28, 2004



LEGEND

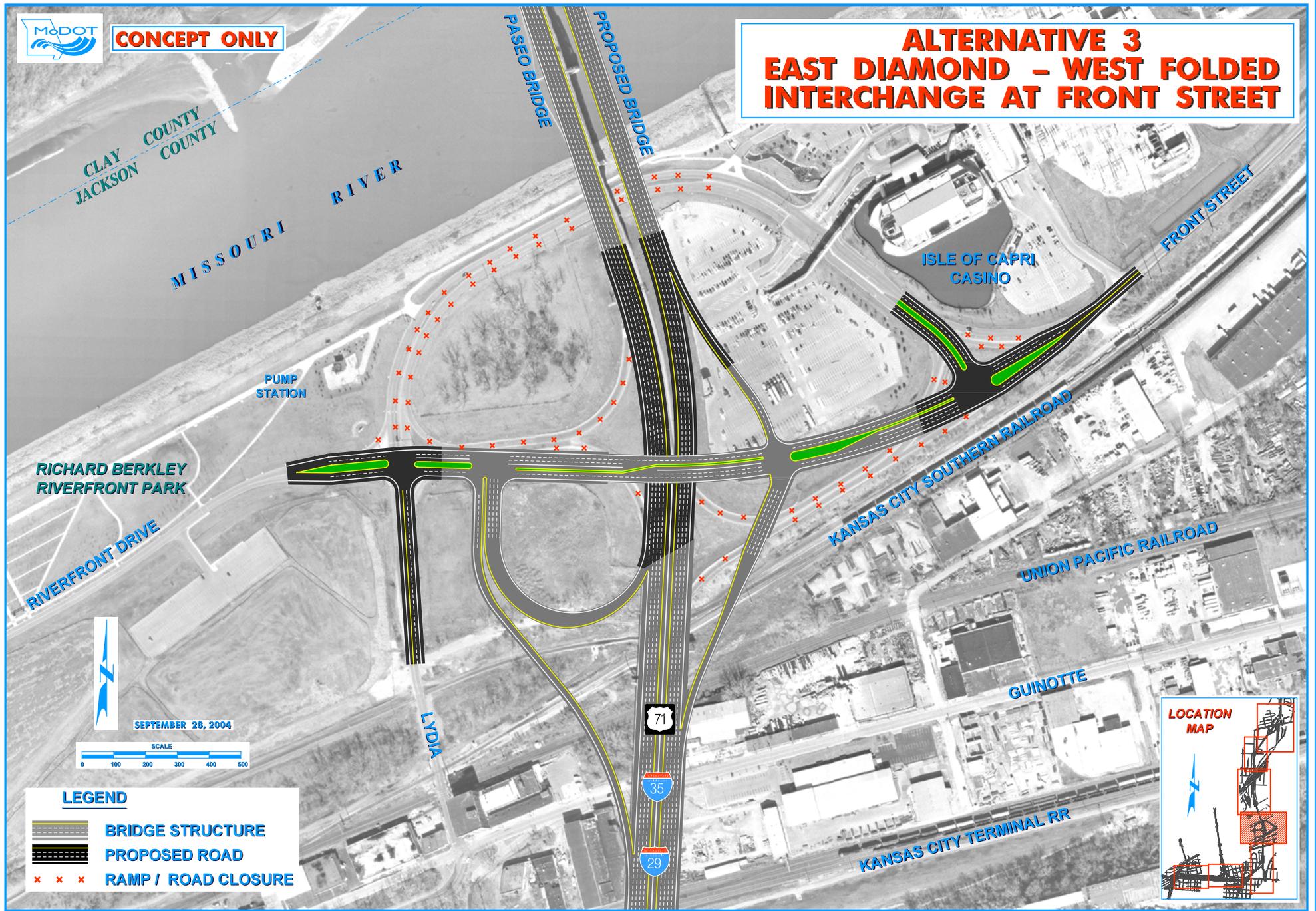
-  BRIDGE STRUCTURE
-  PROPOSED ROAD
-  RAMP / ROAD CLOSURE





CONCEPT ONLY

ALTERNATIVE 3 EAST DIAMOND – WEST FOLDED INTERCHANGE AT FRONT STREET



CLAY COUNTY
JACKSON COUNTY

MISSOURI RIVER

PASEO BRIDGE

PROPOSED BRIDGE

ISLE OF CAPRI CASINO

FRONT STREET

PUMP STATION

RICHARD BERKLEY RIVERFRONT PARK

RIVERFRONT DRIVE

KANSAS CITY SOUTHERN RAILROAD

UNION PACIFIC RAILROAD

GUINOTTE

LYDIA



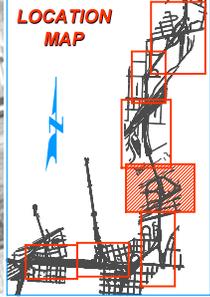
KANSAS CITY TERMINAL RR

SEPTEMBER 28, 2004



LEGEND

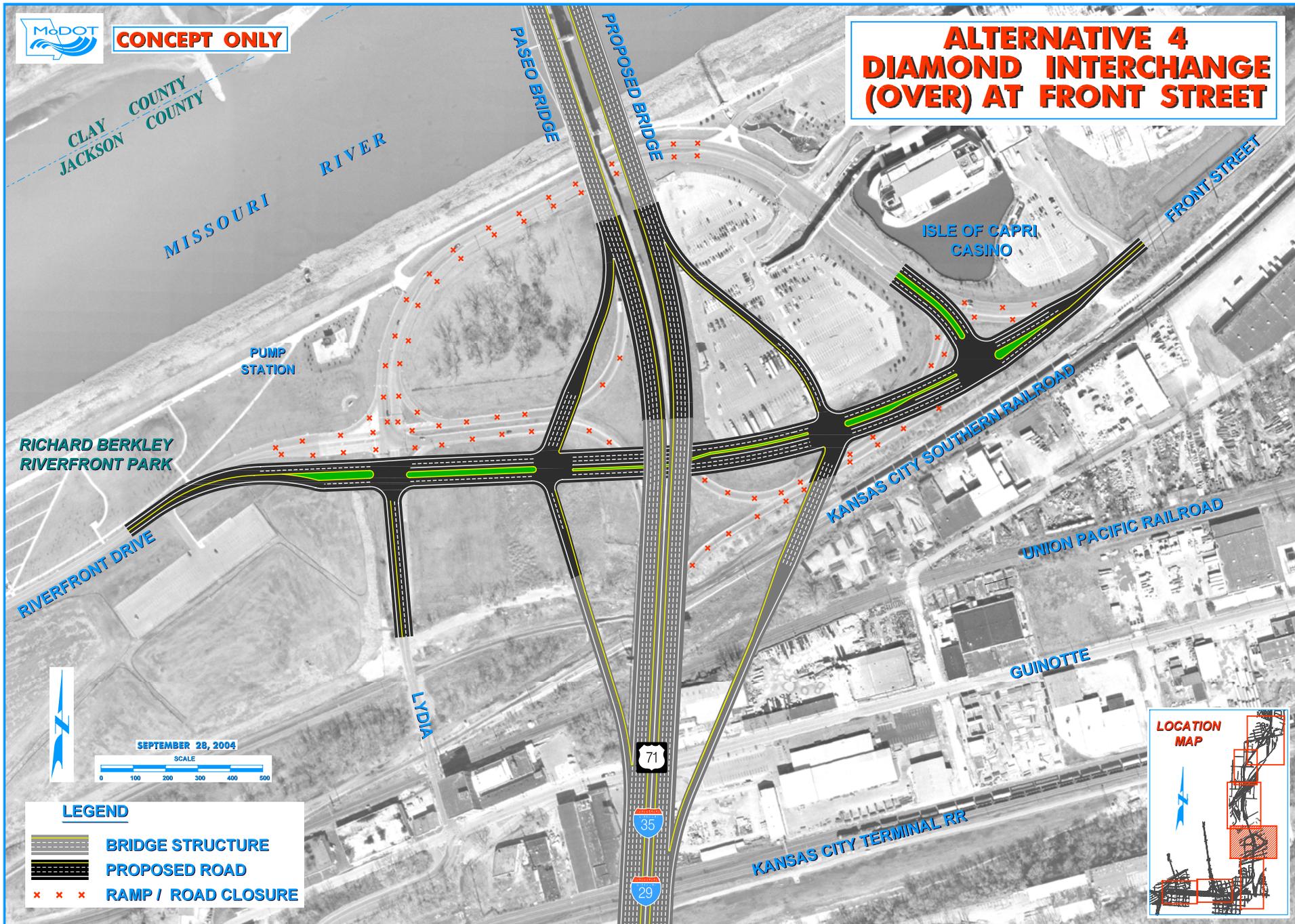
- BRIDGE STRUCTURE
- PROPOSED ROAD
- RAMP / ROAD CLOSURE





CONCEPT ONLY

ALTERNATIVE 4 DIAMOND INTERCHANGE (OVER) AT FRONT STREET



RICHARD BERKLEY
RIVERFRONT PARK

ISLE OF CAPRI
CASINO

PUMP
STATION

RIVERFRONT DRIVE

LYDIA

KANSAS CITY SOUTHERN RAILROAD

UNION PACIFIC RAILROAD

GUINOTTE

KANSAS CITY TERMINAL RR

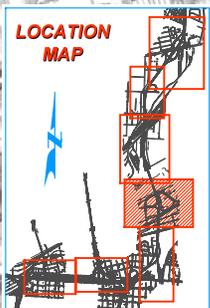


SEPTEMBER 28, 2004



LEGEND

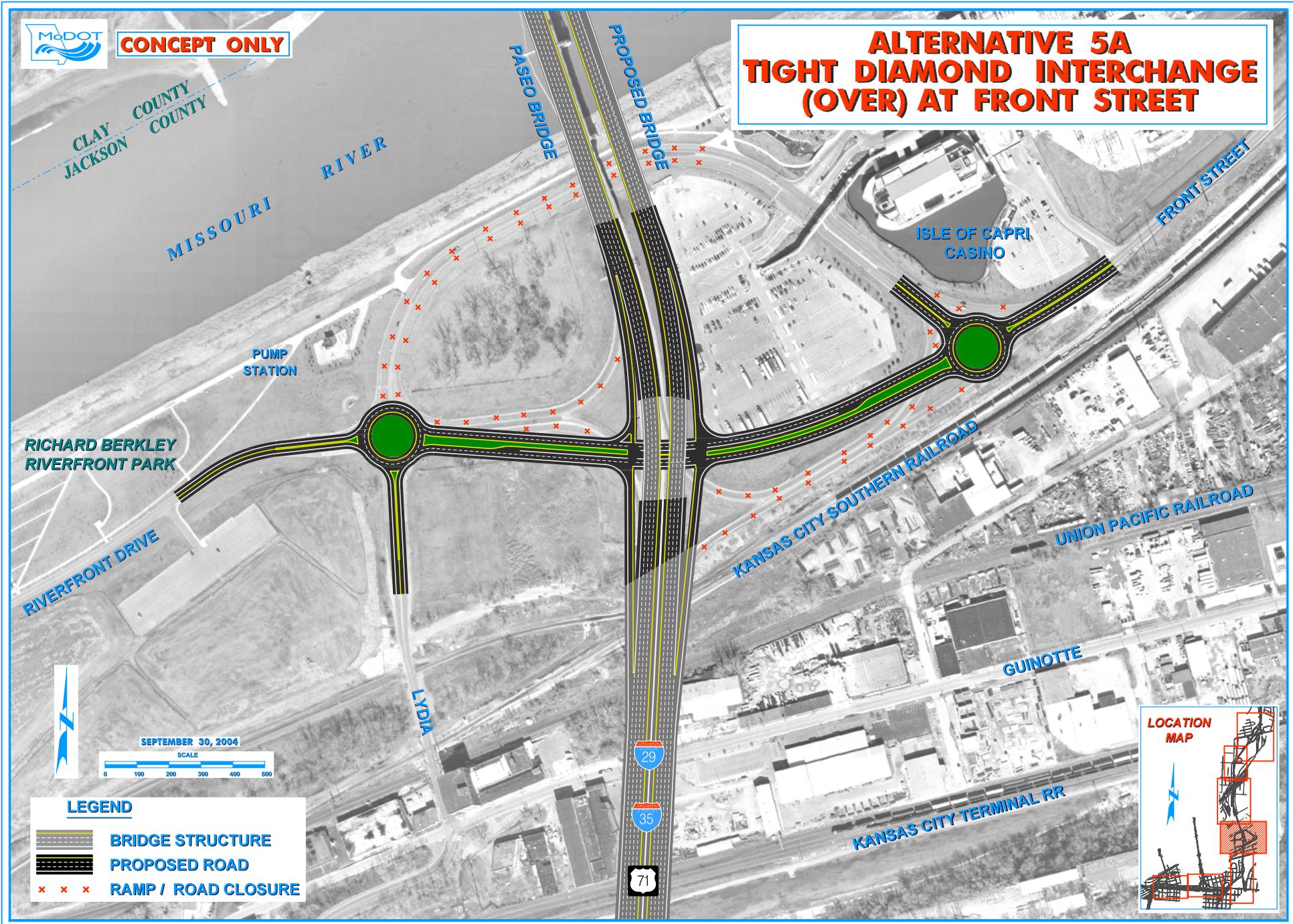
-  BRIDGE STRUCTURE
-  PROPOSED ROAD
-  RAMP / ROAD CLOSURE





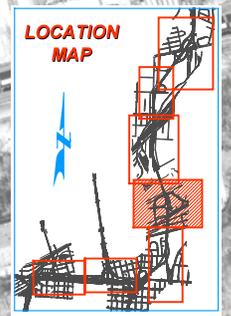
CONCEPT ONLY

ALTERNATIVE 5A TIGHT DIAMOND INTERCHANGE (OVER) AT FRONT STREET



SEPTEMBER 30, 2004
SCALE
0 100 200 300 400 500

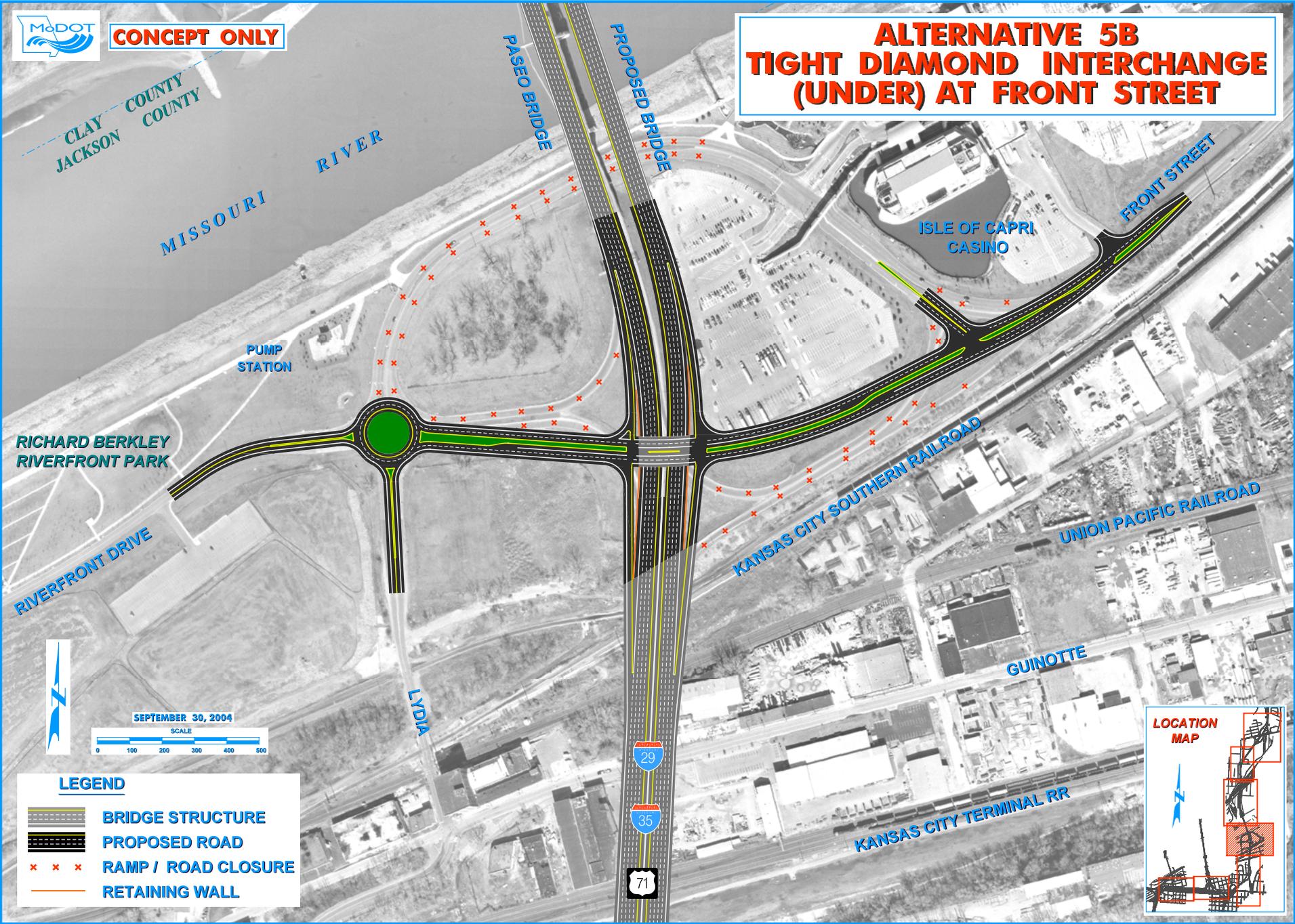
- LEGEND**
-  BRIDGE STRUCTURE
 -  PROPOSED ROAD
 -  RAMP / ROAD CLOSURE





CONCEPT ONLY

ALTERNATIVE 5B TIGHT DIAMOND INTERCHANGE (UNDER) AT FRONT STREET



CLAY COUNTY
JACKSON COUNTY

MISSOURI RIVER

PASEO BRIDGE

PROPOSED BRIDGE

ISLE OF CAPRI CASINO

FRONT STREET

PUMP STATION

RICHARD BERKLEY RIVERFRONT PARK

RIVERFRONT DRIVE

KANSAS CITY SOUTHERN RAILROAD

UNION PACIFIC RAILROAD

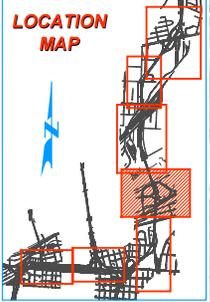
GUINOTTE

LYDIA



KANSAS CITY TERMINAL RR

LOCATION MAP



SEPTEMBER 30, 2004



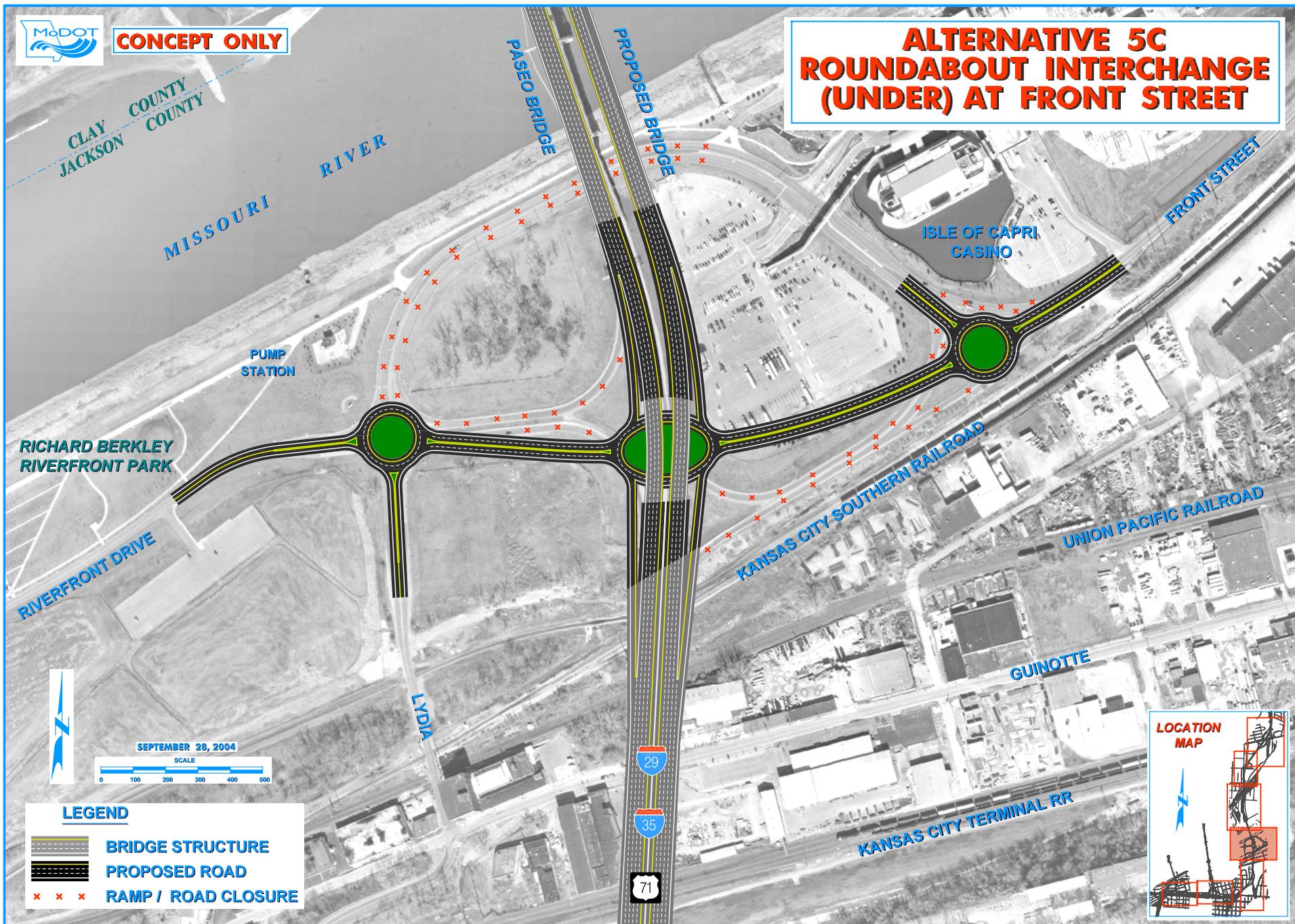
LEGEND

-  BRIDGE STRUCTURE
-  PROPOSED ROAD
-  RAMP / ROAD CLOSURE
-  RETAINING WALL



CONCEPT ONLY

ALTERNATIVE 5C ROUNDBABOUT INTERCHANGE (UNDER) AT FRONT STREET



CLAY COUNTY
JACKSON COUNTY

MISSOURI RIVER

PASEO BRIDGE

PROPOSED BRIDGE

ISLE OF CAPRI CASINO

FRONT STREET

PUMP STATION

RICHARD BERKLEY RIVERFRONT PARK

RIVERFRONT DRIVE

KANSAS CITY SOUTHERN RAILROAD

UNION PACIFIC RAILROAD

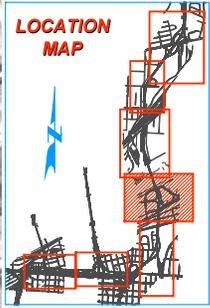
LYDIA

GUINOTTE

KANSAS CITY TERMINAL RR



LOCATION MAP



SEPTEMBER 28, 2004



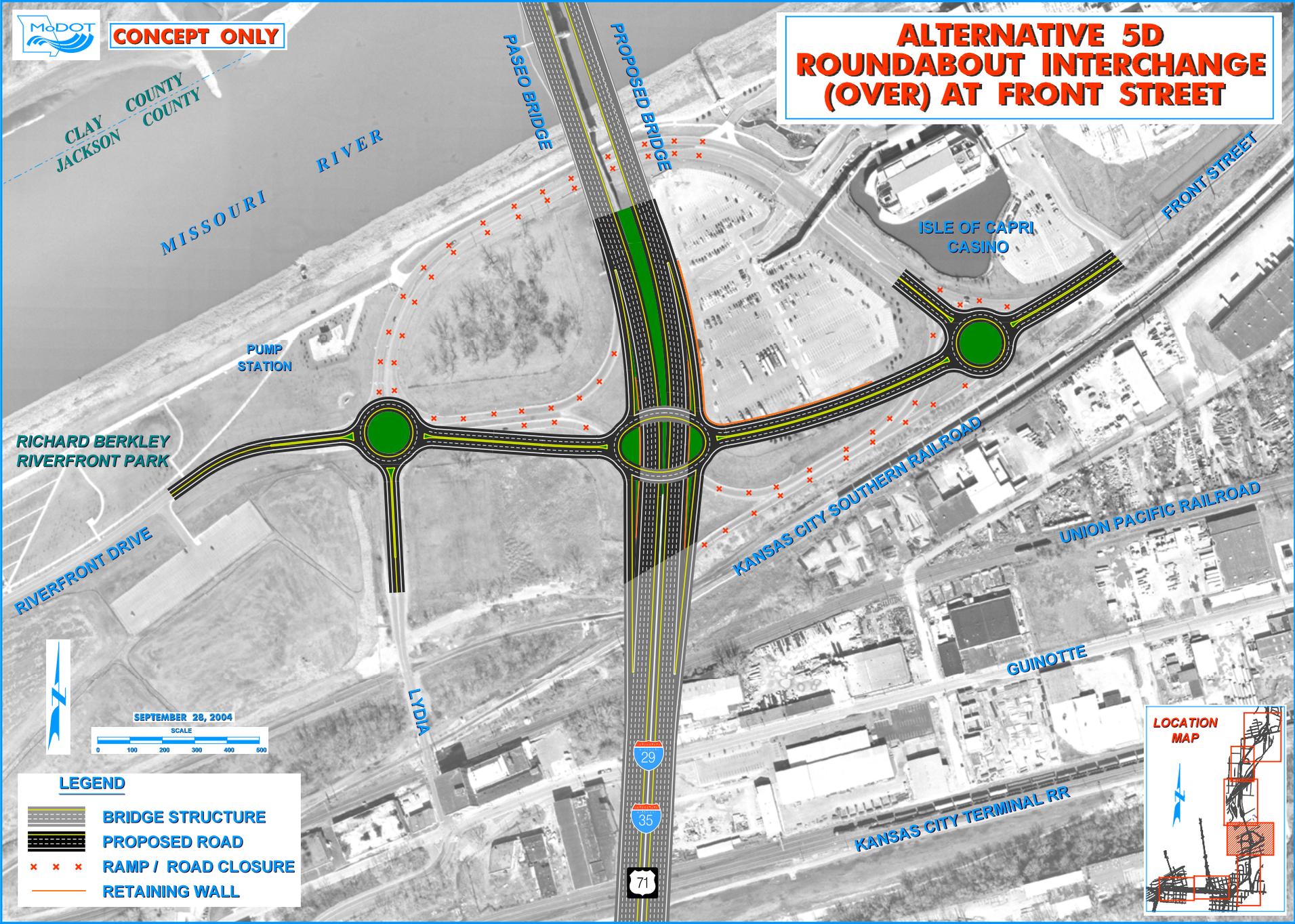
LEGEND

-  BRIDGE STRUCTURE
-  PROPOSED ROAD
-  RAMP / ROAD CLOSURE



CONCEPT ONLY

ALTERNATIVE 5D ROUNDBABOUT INTERCHANGE (OVER) AT FRONT STREET



CLAY COUNTY
JACKSON COUNTY

MISSOURI RIVER

PASEO BRIDGE

PROPOSED BRIDGE

ISLE OF CAPRI CASINO

FRONT STREET

PUMP STATION

RICHARD BERKLEY RIVERFRONT PARK

RIVERFRONT DRIVE

KANSAS CITY SOUTHERN RAILROAD

UNION PACIFIC RAILROAD

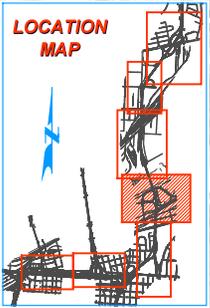
GUINOTTE

LYDIA



KANSAS CITY TERMINAL RR

LOCATION MAP



SEPTEMBER 28, 2004



LEGEND

-  BRIDGE STRUCTURE
-  PROPOSED ROAD
-  RAMP / ROAD CLOSURE
-  RETAINING WALL

Paseo Boulevard Evaluation Matrix

Paseo Boulevard		Purpose and Need							Other Impacts				
		Roadway Deficiencies	Traffic Safety	System Linkage	Transportation Capacity	Traffic Operation	Economic Development	Intermodal/NAFTA	Built Environment	Natural Areas	Social Environment	Section 4(f) Properties	Project Cost
	No-Build	x	x	-	o	o	o	o	o	o	o	o	
Alternative 1A -1B	Right Entrance/Exit	●	●	●	●	●	o	o	o	o	o	-	M

- = Substantially Addresses Needs
- ◐ = Moderately Addresses Needs
- = Neutral
- = Negative Impact
- X = Determined Not to Meet Purpose and Need
- L = Low Cost
- M = Medium Cost
- H = High Cost

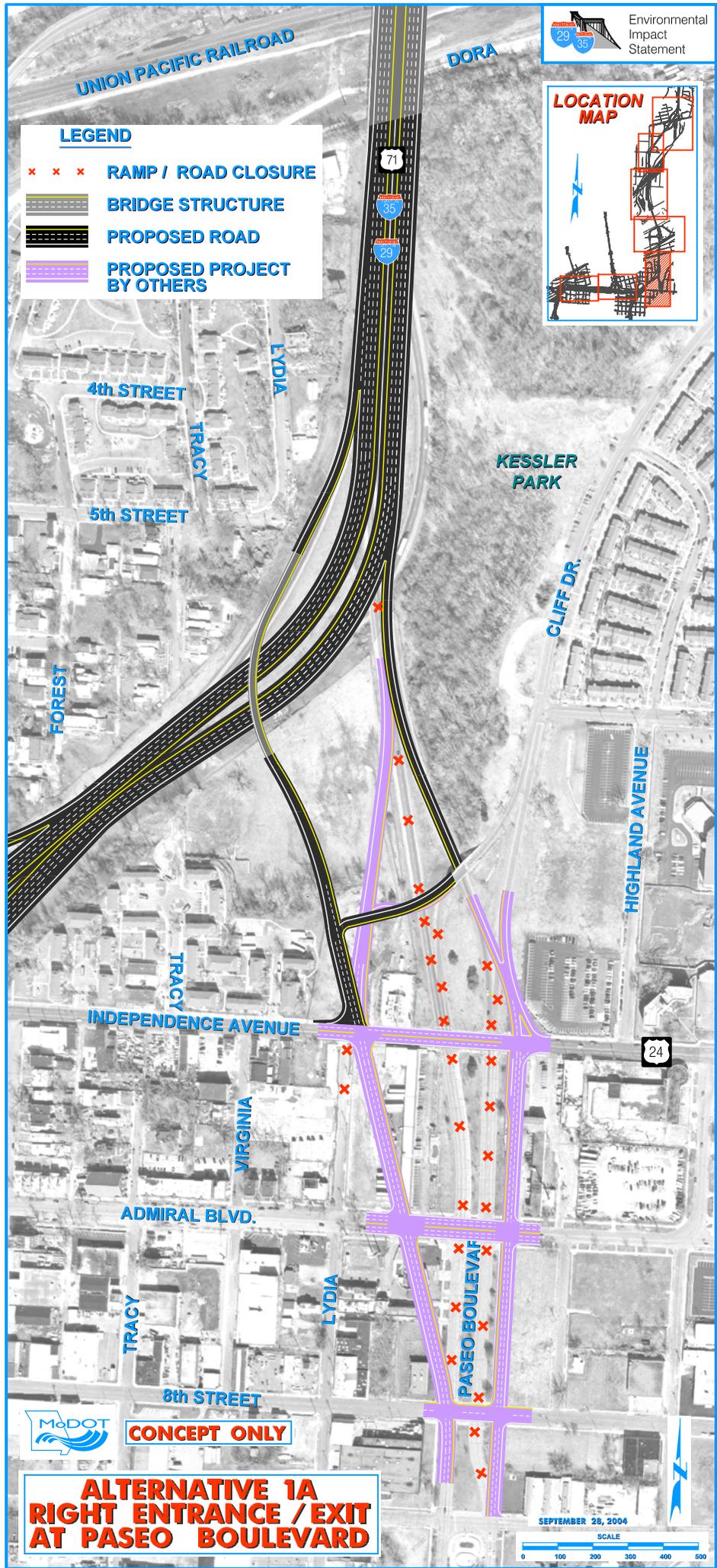
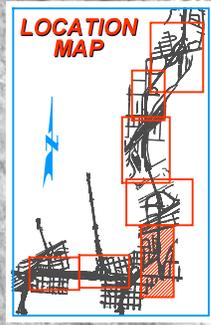
Reasonable Alternative

UNION PACIFIC RAILROAD

DORA

LEGEND

- x x x RAMP / ROAD CLOSURE
- BRIDGE STRUCTURE
- PROPOSED ROAD
- PROPOSED PROJECT BY OTHERS



CONCEPT ONLY

**ALTERNATIVE 1A
RIGHT ENTRANCE / EXIT
AT PASEO BOULEVARD**

SEPTEMBER 28, 2004

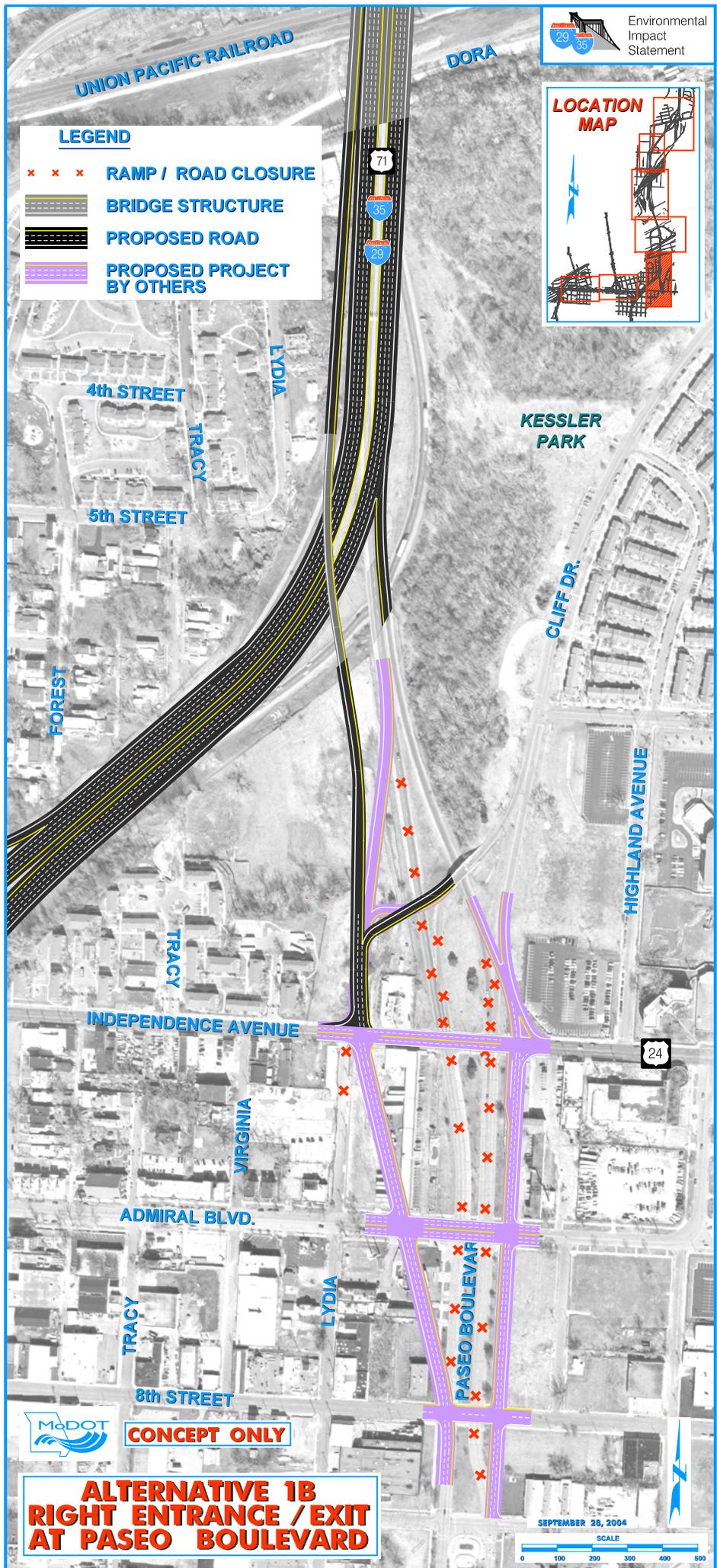
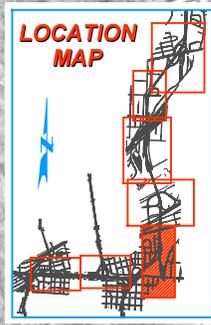


UNION PACIFIC RAILROAD

DORA

LEGEND

- x x x RAMP / ROAD CLOSURE
- BRIDGE STRUCTURE
- PROPOSED ROAD
- PROPOSED PROJECT BY OTHERS



CONCEPT ONLY

**ALTERNATIVE 1B
RIGHT ENTRANCE / EXIT
AT PASEO BOULEVAR**

SEPTEMBER 20, 2004



M-9 Evaluation Matrix

M-9		Purpose and Need							Other Impacts				
		Roadway Deficiencies	Traffic Safety	System Linkage	Transportation Capacity	Traffic Operation	Economic Development	Intermodal/NAFTA	Built Environment	Natural Areas	Social Environment	Section 4(f) Properties	Project Cost
	No-Build	○	○	○	○	○	○	○	○	○	○	○	
Alternative 1	Modified Existing	●	●	●	○	●	○	○	○	○	○	○	M
Alternative 2	Box-Diamond	●	●	●	○	●	●	○	-	○	○	○	M
Alternative 3	Braided Diamond	●	●	-	○	●	●	○	○	○	○	○	M

- = Substantially Addresses Needs
- ◐ = Moderately Addresses Needs
- = Neutral
- = Negative Impact
- X = Determined Not to Meet Purpose and Need
- L = Low Cost
- M = Medium Cost
- H = High Cost

Reasonable Alternative

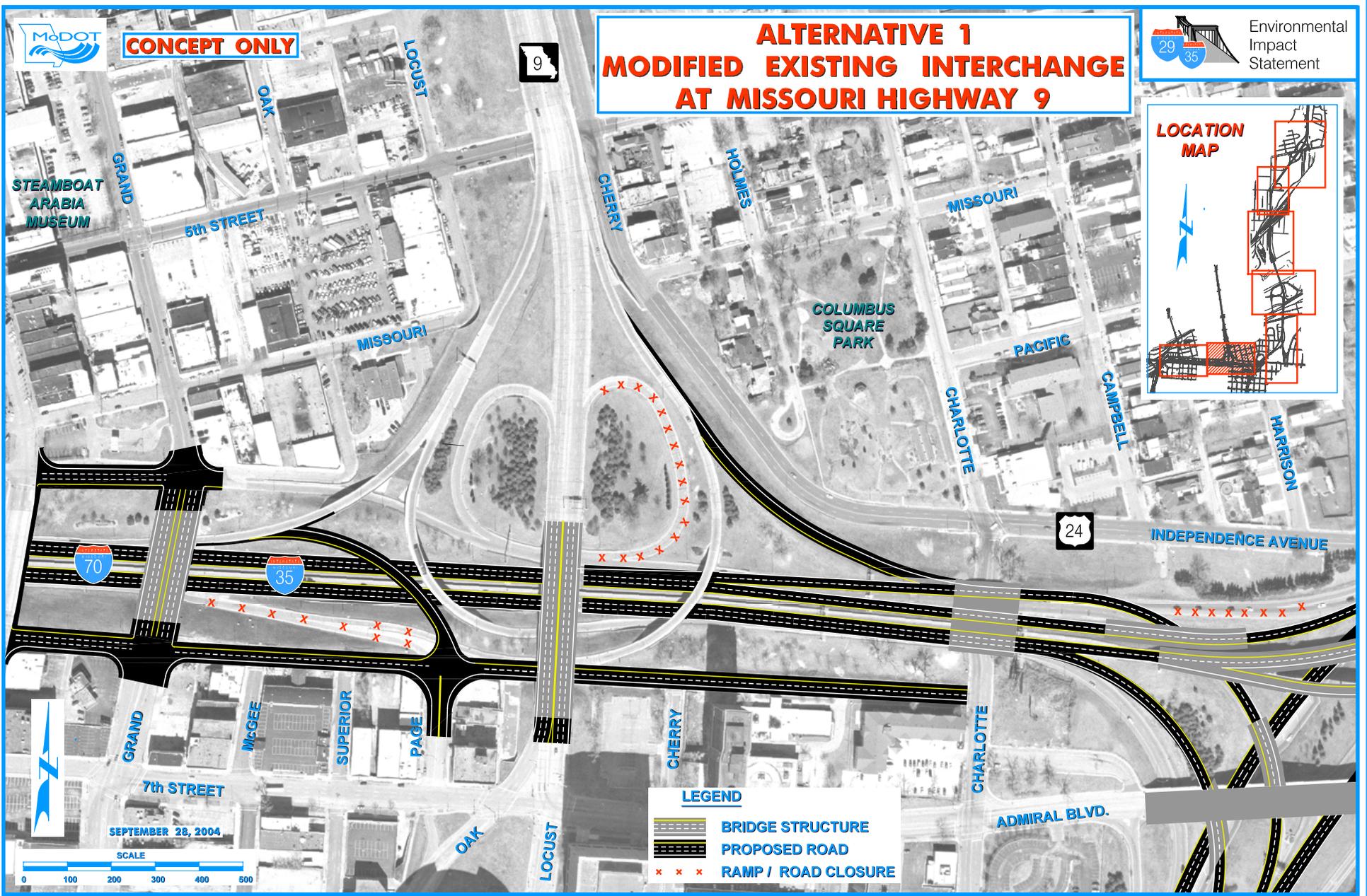
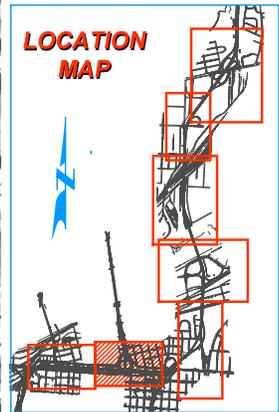


CONCEPT ONLY

ALTERNATIVE 1 MODIFIED EXISTING INTERCHANGE AT MISSOURI HIGHWAY 9



Environmental
Impact
Statement



LEGEND

-  BRIDGE STRUCTURE
-  PROPOSED ROAD
-  RAMP / ROAD CLOSURE

SEPTMBER 28, 2004

SCALE

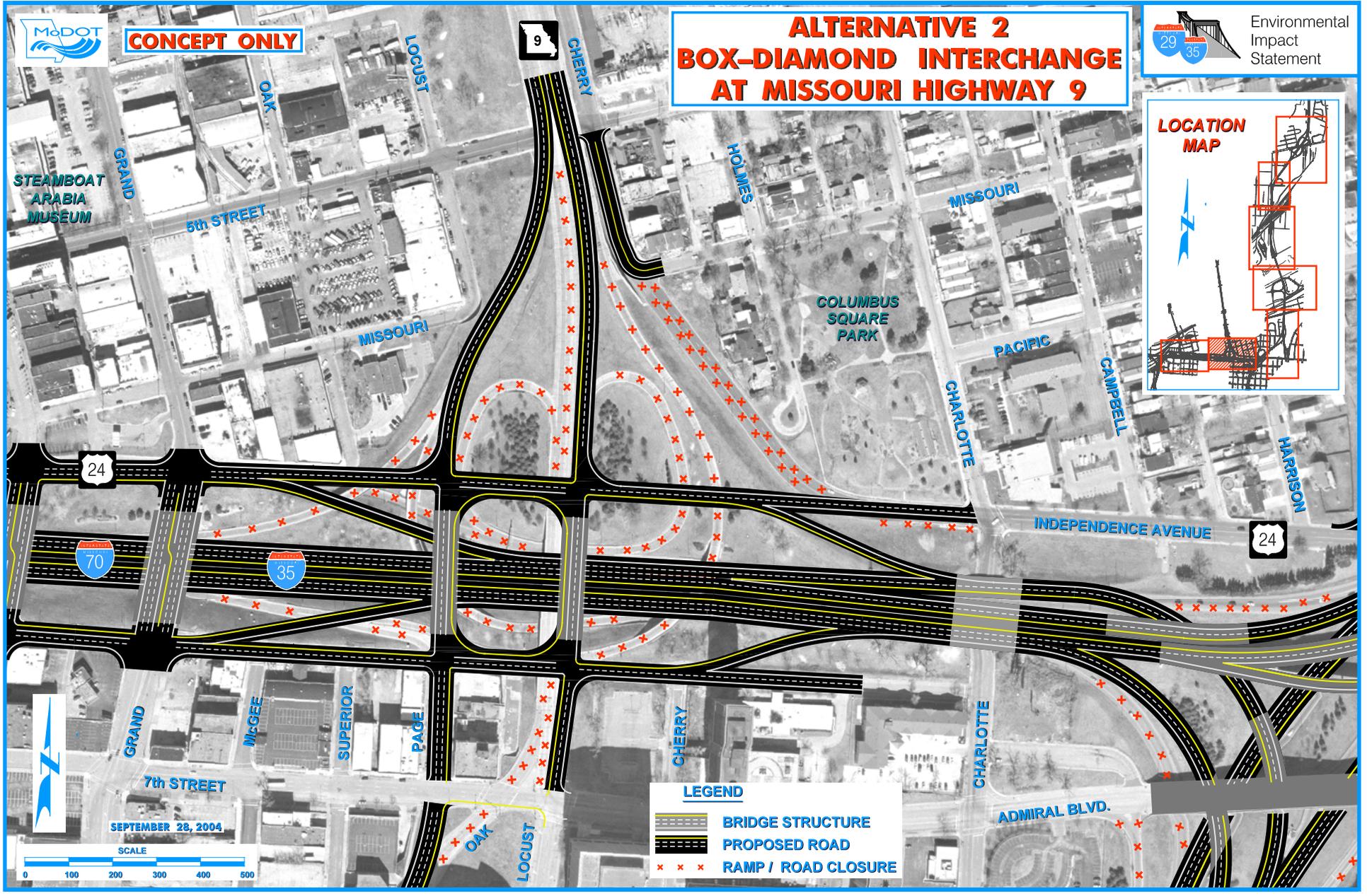
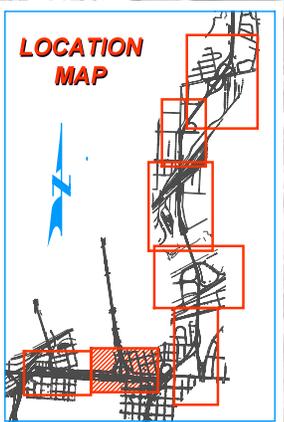
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CONCEPT ONLY

ALTERNATIVE 2 BOX-DIAMOND INTERCHANGE AT MISSOURI HIGHWAY 9

Environmental
Impact
Statement



LEGEND

- BRIDGE STRUCTURE
- PROPOSED ROAD
- RAMP / ROAD CLOSURE



SEPTEMBER 28, 2004

SCALE



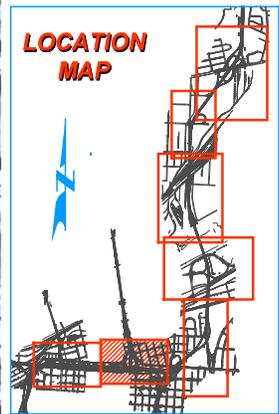


CONCEPT ONLY

ALTERNATIVE 3 BRAIDED DIAMOND INTERCHANGE AT MISSOURI HIGHWAY 9

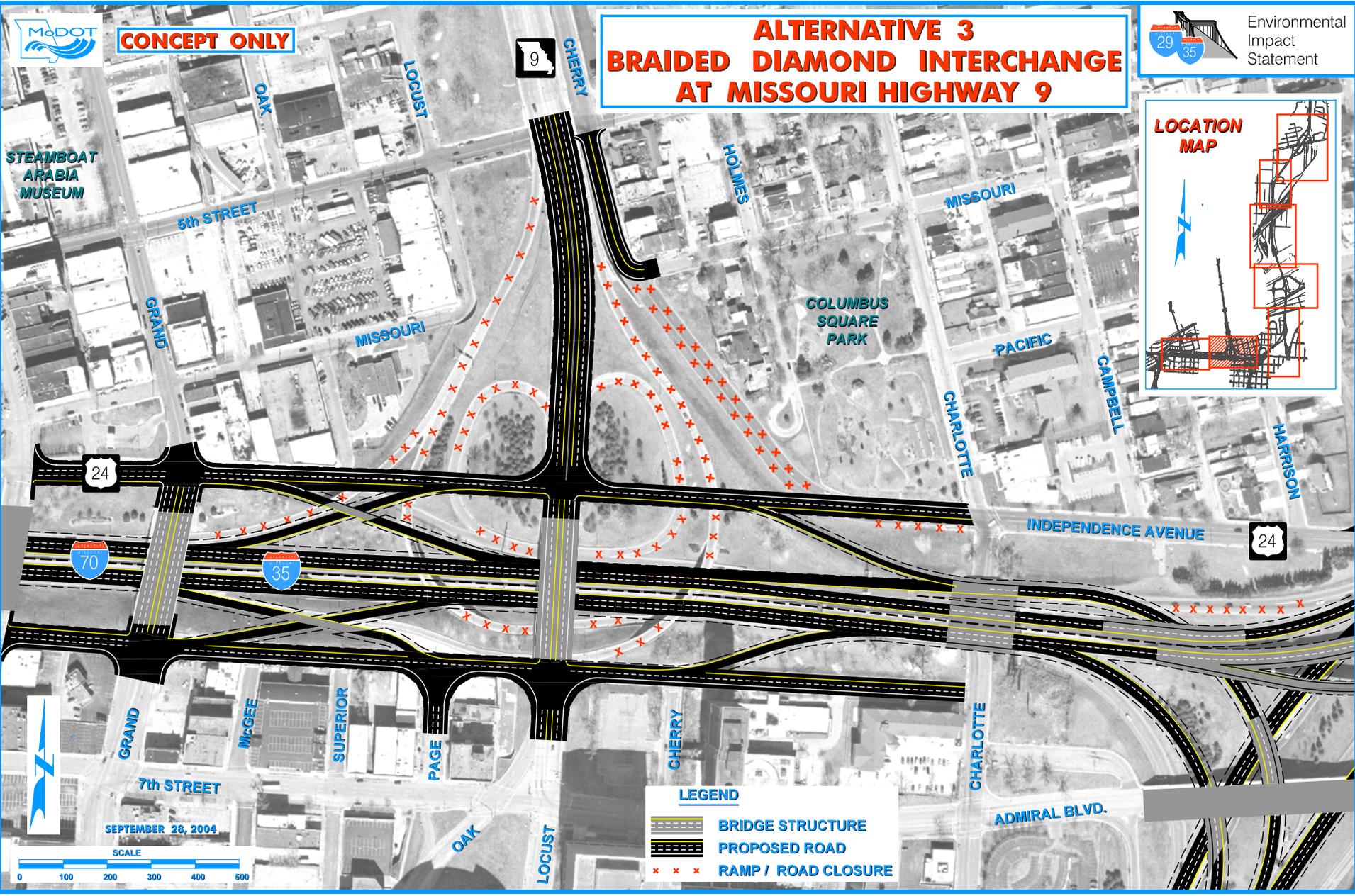


Environmental
Impact
Statement



STEAMBOAT
ARABIA
MUSEUM

COLUMBUS
SQUARE
PARK



LEGEND

-  BRIDGE STRUCTURE
-  PROPOSED ROAD
-  RAMP / ROAD CLOSURE



Broadway Evaluation Matrix

Broadway Boulevard		Purpose and Need							Other Impacts				
		Roadway Deficiencies	Traffic Safety	System Linkage	Transportation Capacity	Traffic Operation	Economic Development	Intermodal/NAFTA	Built Environment	Natural Areas	Social Environment	Section 4(f) Properties	Project Cost
	No-Build	x	○	○	○	○	○	○	○	○	○	○	
Alternative 1	Single-Point	●	●	◐	●	●	○	●	-	○	○	○	H
Alternative 2	Modified Existing	●	●	●	◐	●	○	●	○	○	○	○	M
Alternative 3	MIS Flyover	●	●	●	●	●	-	●	-	○	○	-	H

- = Substantially Addresses Needs
- ◐ = Moderately Addresses Needs
- = Neutral
- = Negative Impact
- X = Determined Not to Meet Purpose and Need
- L = Low Cost
- M = Medium Cost
- H = High Cost

Reasonable Alternative



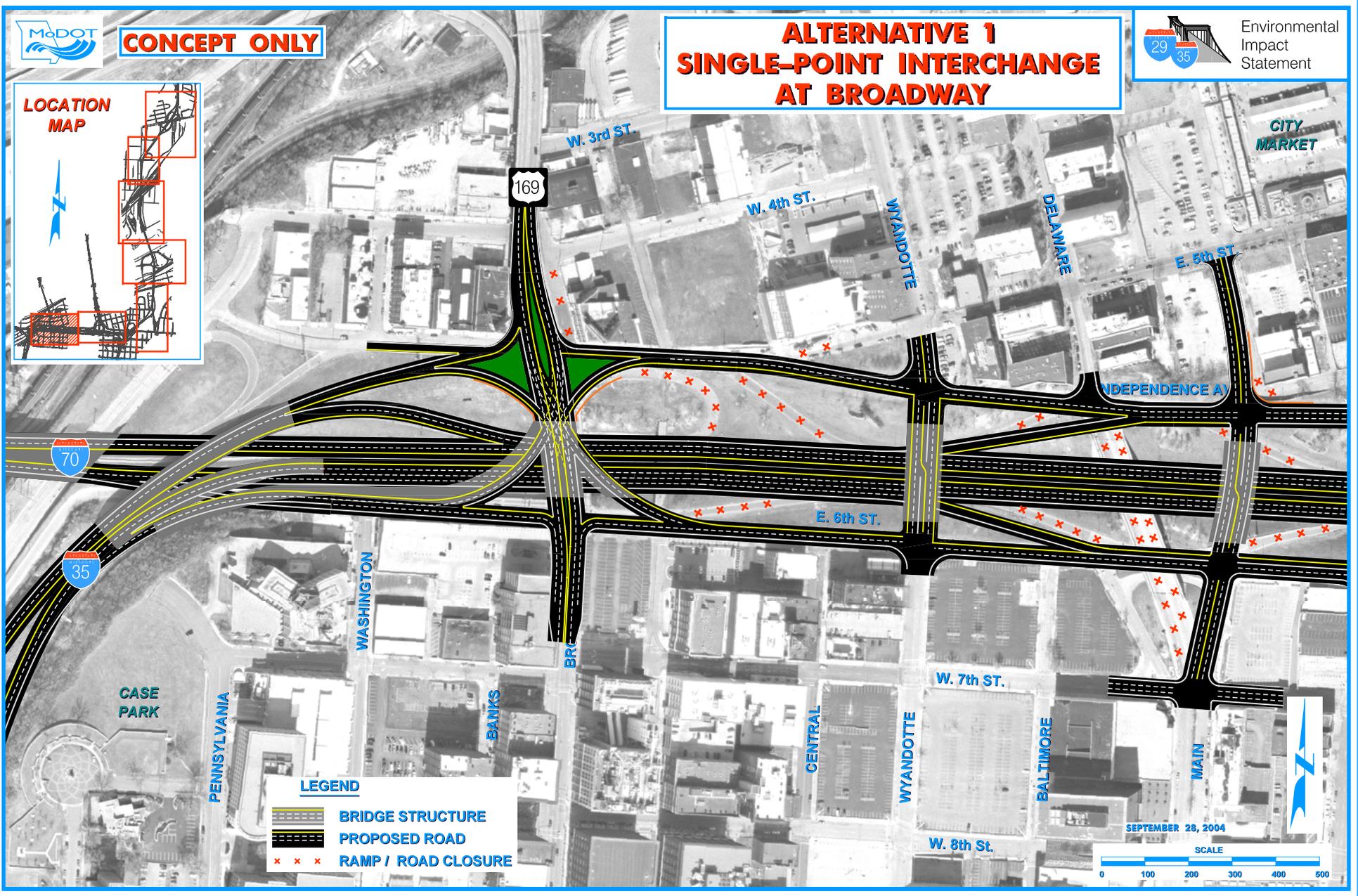
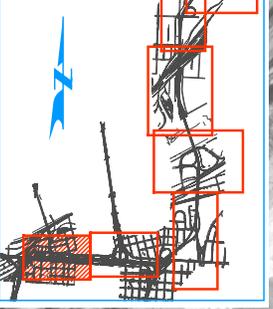
CONCEPT ONLY

ALTERNATIVE 1 SINGLE-POINT INTERCHANGE AT BROADWAY



Environmental
Impact
Statement

**LOCATION
MAP**



LEGEND

-  BRIDGE STRUCTURE
-  PROPOSED ROAD
-  RAMP / ROAD CLOSURE

SEPTEMBER 28, 2004

SCALE





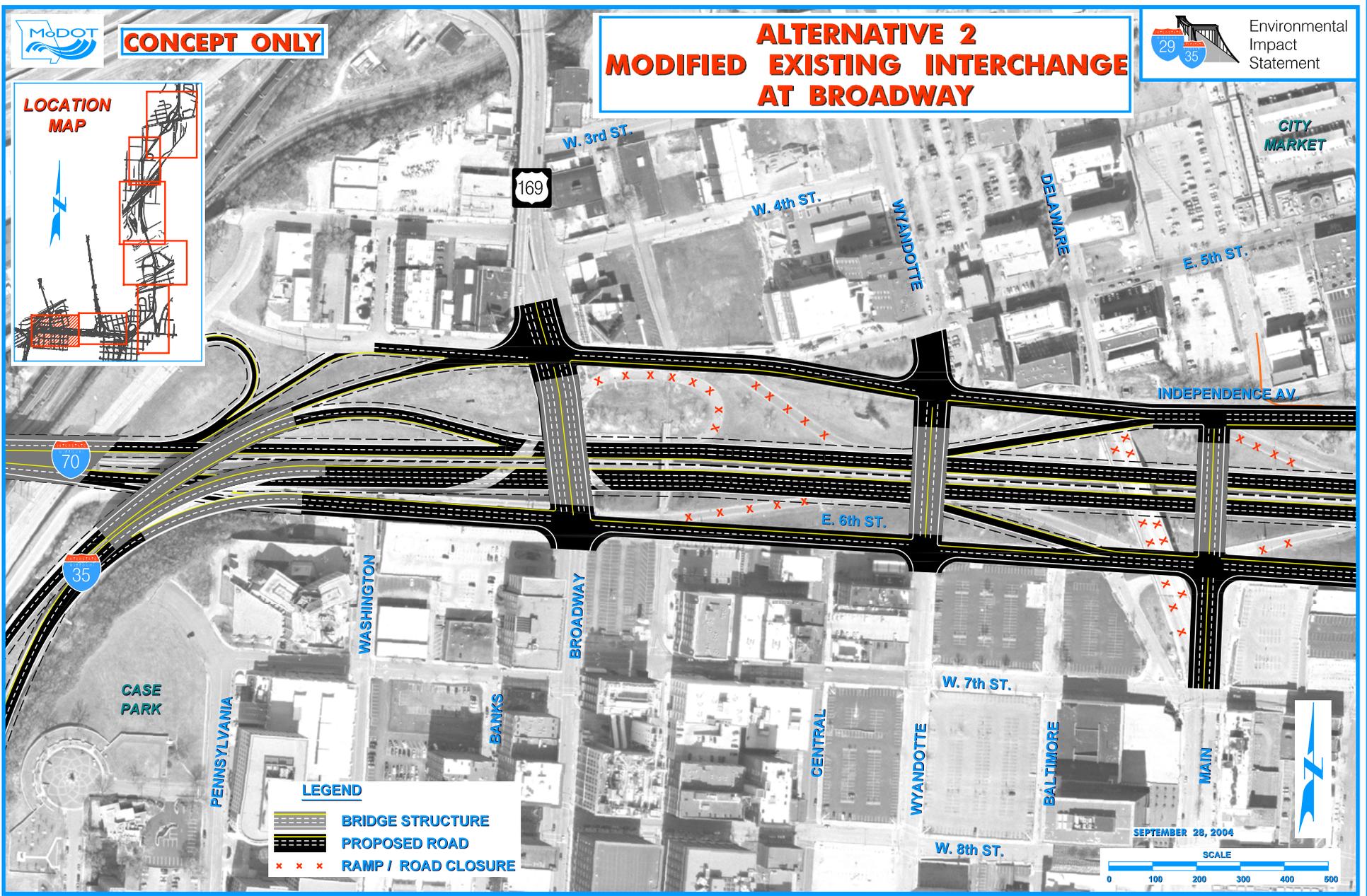
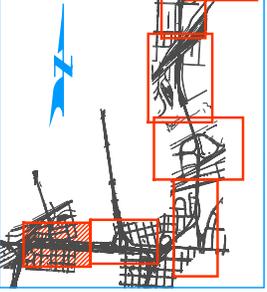
CONCEPT ONLY

ALTERNATIVE 2 MODIFIED EXISTING INTERCHANGE AT BROADWAY



Environmental
Impact
Statement

LOCATION
MAP



LEGEND

	BRIDGE STRUCTURE
	PROPOSED ROAD
	RAMP / ROAD CLOSURE

