

# BELLEVUE

## BRIDGE ALTERNATIVES STUDY

### WHY A STUDY:

#### Remaining Useful Life

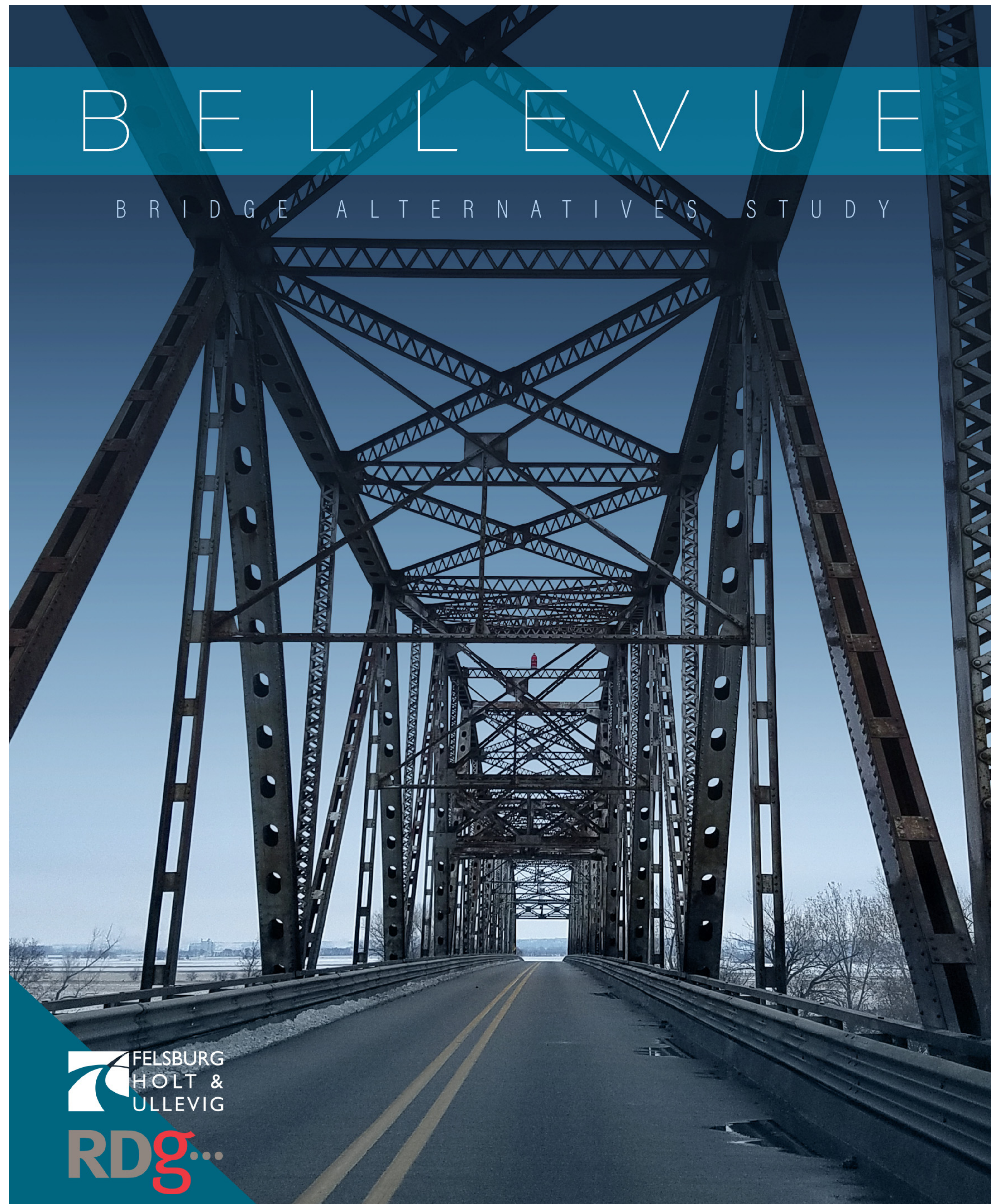
- 14 years into approximate 40 year service life with an estimated 20 to 25 years remaining
- Controlled by bridge deck condition

#### Work to Date

- Stakeholder Workshops (September and November 2018)
- Focus Group Interviews (October 2018)
  - › Bunge, Google, SIRE
  - › Olde Towne Business Association and Business Owners
  - › Mid-America Energy Power Plant
  - › Offutt AFB
  - › Bellevue Bicycle Club
- Research and Analysis (Ongoing)
  - › Development of multiple options for the bridge future
  - › Assessment of current bridge and traffic conditions
  - › Environmental impacts of each scenario
  - › Economic impacts of each scenario
  - › Similar projects and their approach and implementation
  - › Research into funding options

#### Next Steps

- Develop Final Plan
- Submit Report to Agency for Review (March 2019)
- Final Plan Presentation to Bridge Commission
- Project Completion (May 2019)



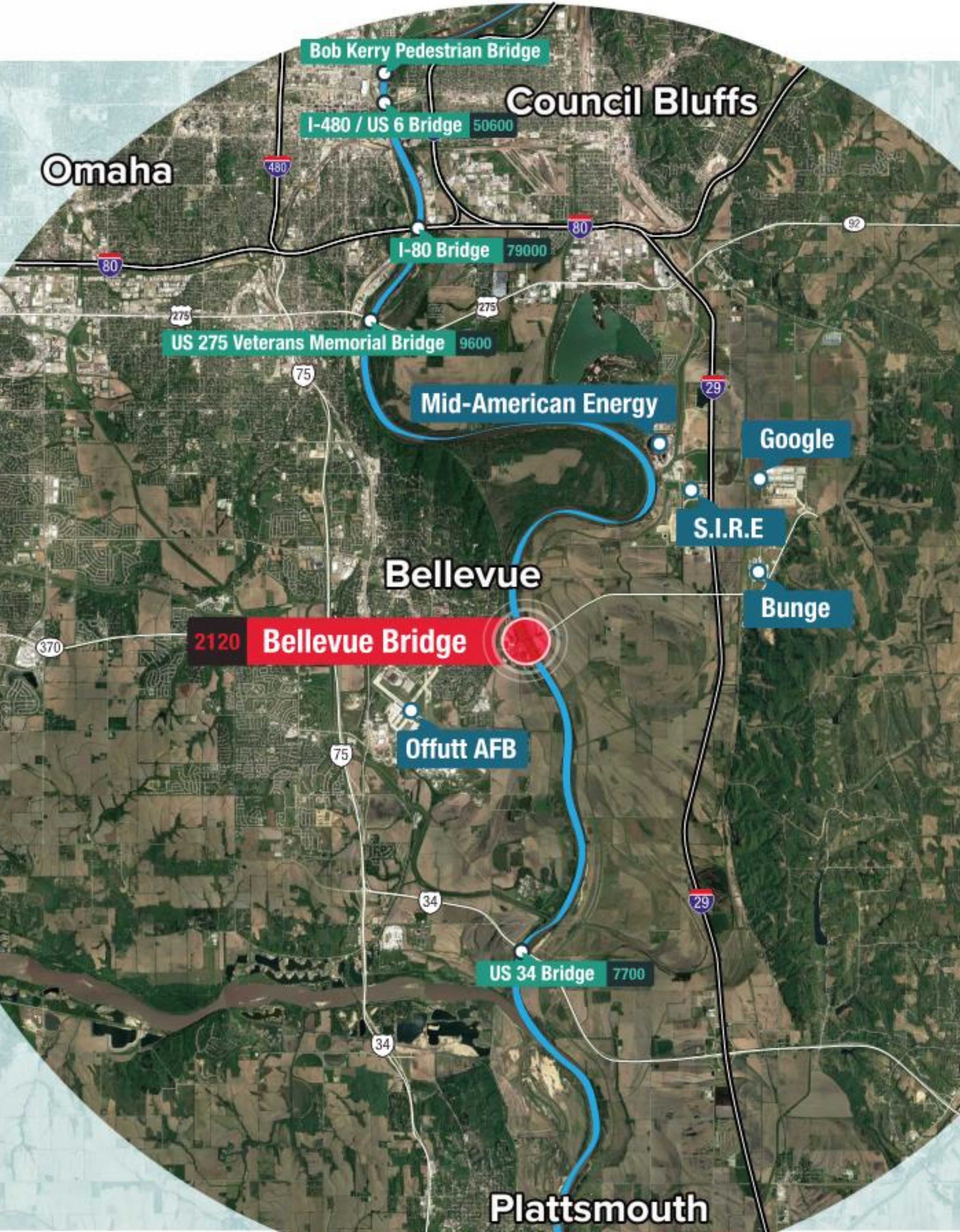


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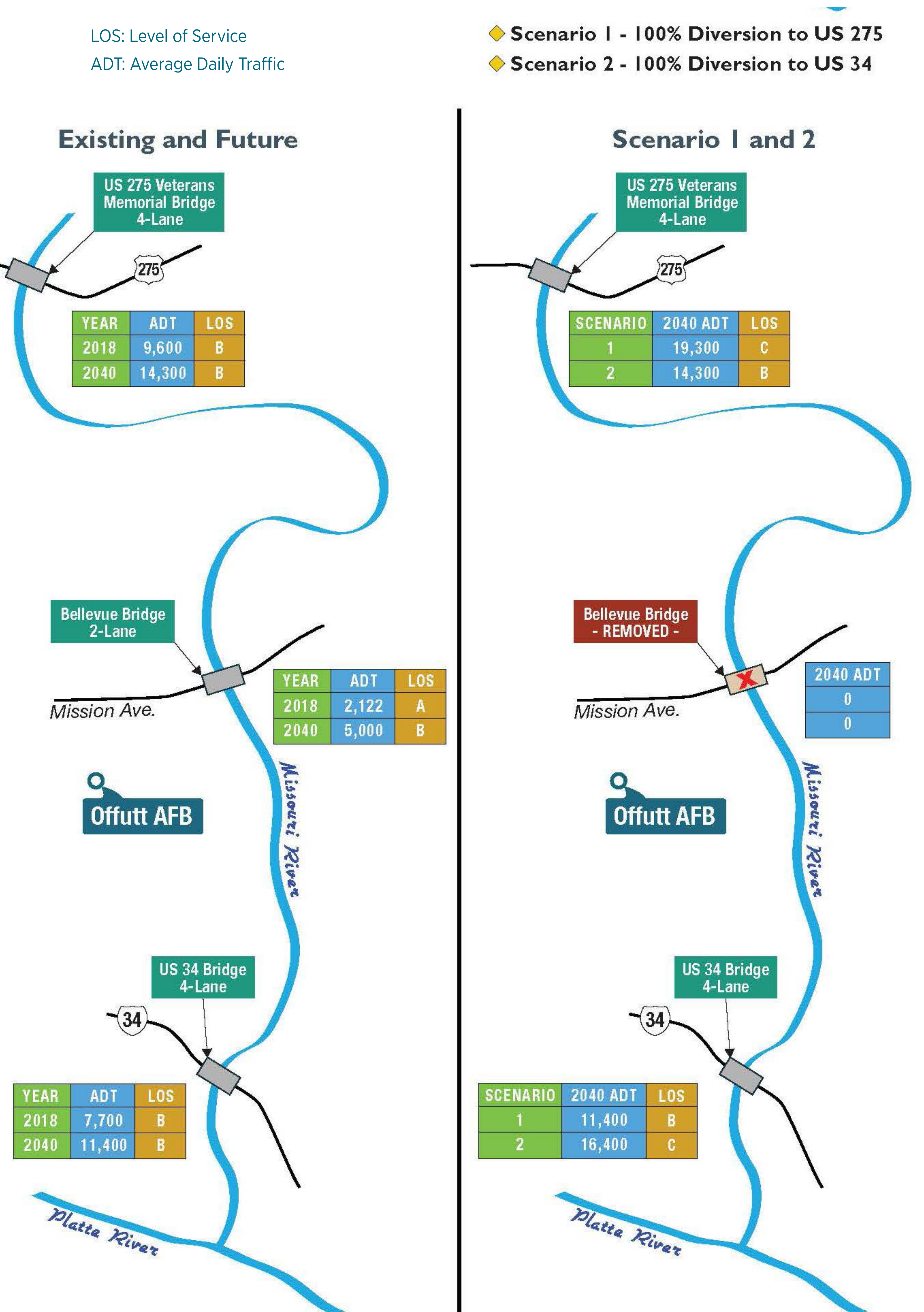
## BRIDGE ALTERNATIVES STUDY

### TRAFFIC VOLUMES:

#### 2018 Existing Daily Traffic Counts:



#### 2040 Projected Daily Traffic Counts:





### New Bridge Construction:



#### Champ Clark Bridge (Missouri) nearing completion

- Spans the Mississippi River from Illinois to Missouri
- Cost of maintenance and deterioration necessitated a new bridge
  - › 77 mile detour (Bellevue Bridge would be 5 miles)
  - › Estimated Average Daily Traffic: 4,630 (similar to Bellevue Bridge)
- Bridge Features:
  - › 10 foot shoulders for bike and pedestrians
  - › 44 foot total width with 12 foot drive lanes



#### Sauk Rapids Bridge (Minnesota) completed 2007

- Spans the Mississippi River from Benton to Stearns County
- Reached end of lifespan necessitated a new bridge
- Bridge Features:
  - › Helix design pedestrian and bicycle ramp ties into trail system that could be replicated with the Bellevue Bridge
  - › Alignment considered negative impacts to local businesses
  - › \$20.46 million cost; original bridge dismantled in 2008

### Bridge Conversion:



#### Chain of Rocks Bridge

- Historic 1929 structure spanning Mississippi River from St. Louis to Madison, Illinois converted in 1999 to a bike/pedestrian bridge after the new I-270 bridge opened to the north
- Connects more than 300 miles of trails on both sides of the river
- Used for events and Route 66 crossings



#### High Trestle Trail Bridge

- Former railroad bridge, the project in central Iowa was completed in 2011
- Attracts 40,000 riders a month in summer
- Immense effort to make this bridge and trail a regional destination



Evaluation Factors	Preservation & Maintenance	Demolition	New Bridge	Conversion to Recreational Trail Facility	Upgrade to Separate Lanes for Vehicles and Trail	Expansion of Existing Piers / Phased Construction
Property Impacts						
Right-of-Way Acquisition (Acres)	-	0.00	0.00	0.00	0.00	0.00
Environmental Resources						
Meets Purpose and Need (Maintain IA-NE Link)	Not for long term	No	Yes	Yes, bike/ped only	Yes	Yes
Hazardous Materials	-	Waste Materials Mgmt	Waste Materials Mgmt	Waste Materials Mgmt	Waste Materials Mgmt	Waste Materials Mgmt
Floodplain & Floodway	-	Minimal impacts to FP	Possible CLOMR	Permit required	Permit required	Possible CLOMR
Wetlands / WOUS	-	NWP	IP & Mitigation	NWP	NWP	IP & Mitigation
Section 4(f) (Recreational) Resources	-	4(f) exception	4(f) deMinimis	4(f) exception	4(f) exception	4(f) deMinimis
U.S. Coast Guard Section 9 Bridge Permit	-	USCG Approval	Permit Required	USCG Approval	USCG Approval	USCG Approval
U.S. Army Corps Section 10 Permit	-	Permit Required	Permit Required	No Permit	No Permit	Permit Required
U.S. Army Corps Section 408 Levee Permit	-	Categorical Permission	Section 408 Permit	Categorical Permission	Categorical Permission	Section 408 Permit
Traffic Operations						
Traffic Operations - 2045 Volumes	LOS A	No traffic	LOS A	No traffic	LOS C or Better	LOS A
Breakdown Year - LOS D or worse	2045 or until failure	2040	<2045	<2045	<2045	<2045
Farm Equipment / Oversized Loads	Requires special flagging / operations	No	Allows for Access	No	No	Allows for Access
Superstructure/Substructure						
Initial Construction Cost (2040 Dollars)	-	\$8,564,000	\$62,060,000	\$6,715,000	\$7,119,000	\$43,405,000
Annual Maintenance & Operations through 2040 (2040 Dollars)	\$2,959,000	-	-	-	-	-
River Navigation	maintained	maintained	coordinate with USCG	maintained	maintained	coordinate with USCG
Sustainability	Yes	No; Salvage Materials?	TBD	Yes	Yes	Yes
Construction						
Serviceability - Maintain Access During Construction	-	No	Able to construct bridge off-alignment	Crossroad would need to be closed	One lane maintained during construction	Able to construct bridge off-alignment
Funding Opportunities	Paid by Existing Toll Revenue	Paid by Existing Toll Revenue	Grant or Federal Funds	Paid by Existing Toll Revenue	Paid by Existing Toll Revenue	Grant or Federal Funds
Expandability						
Ability to Meet Vehicle Traffic Growth	Until 2040	No	Will Accommodate	No	yes, with additional delay	Will Accommodate
Bicycle/Pedestrians						
Dedicated Facility	Shared lane for Bicycles	No	trail separated by barrier	exclusive bicycle and pedestrian facilities	trail separated by barrier	trail separated by barrier
Economic Impact						
Destination Value (context)	Status Quo	No	possible	opportunities for bicycle tourism, historical	historical value	possible
Economic Development Potential	Status Quo	No	possible increase	limited	may decrease mobility	possible increase
Evaluation Rating						
Status	PREREQUISITE FOR ALL	ADVANCED	ADVANCED	ADVANCED	ELIMINATED	ELIMINATED

Rating Scale	
Highly Positive	
Moderately Positive	
Neutral	
Moderately Negative	
Highly Negative	



## POTENTIAL FUNDING SOURCES:

### State Programs

- County Bridge Match Program & Recreational Trails Program or Transportation Alternative Program
  - › These programs were determined too small to substantially fund this project

### Federal Grants

- USDOT Infrastructure Grant
- FHWA's Highway Bridge Program Grant
  - › Highly competitive national process
  - › 20% local match required

### Other Funding Options

- Increasing the toll
  - › Potential to raise \$22 million over 20 years with a \$1 increase
- Issuing Bonds
- Fundraising
  - › Trail user groups
  - › Papio Missouri River Natural Resources District (trail facility must be completed)



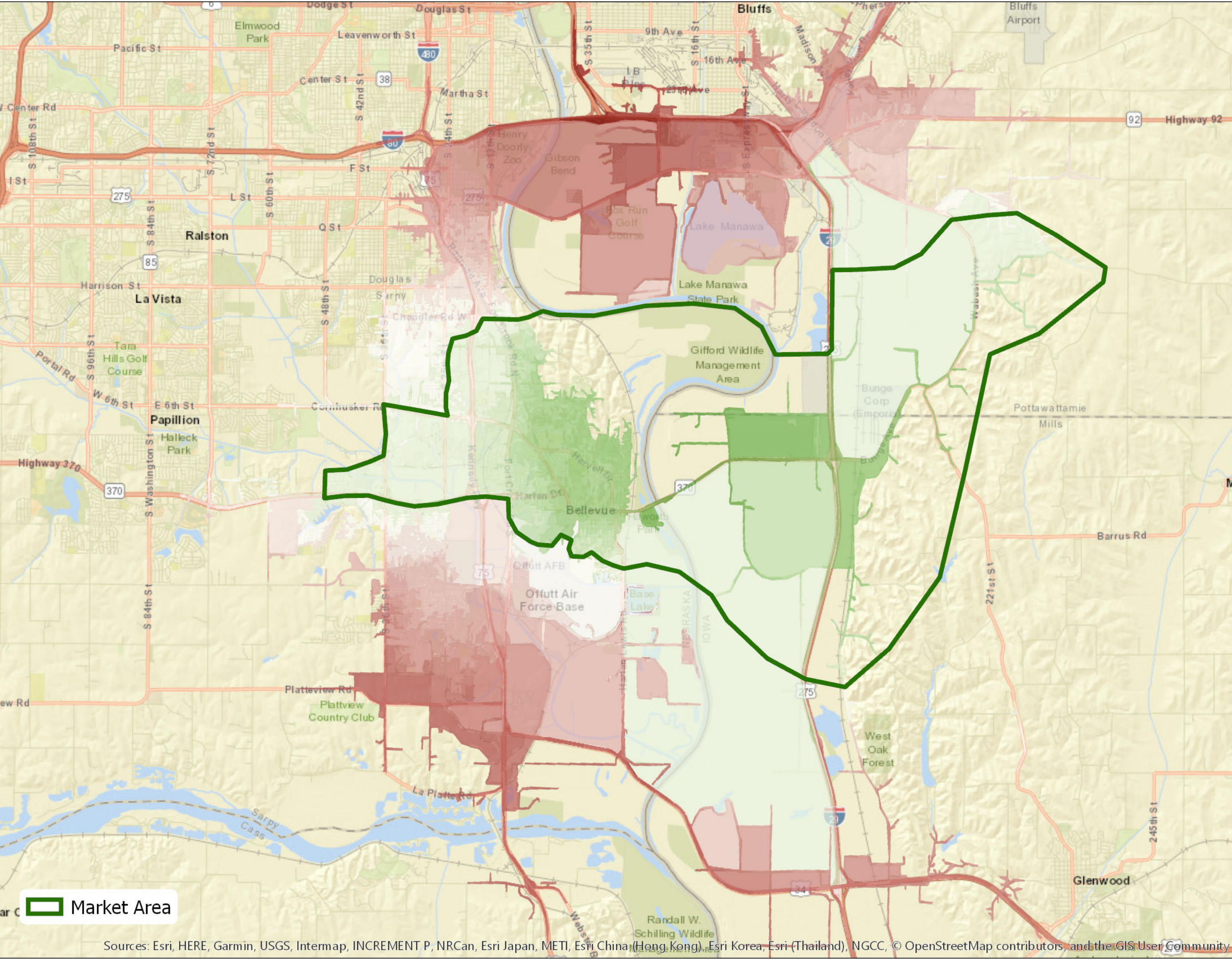


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### COST-BENEFIT ANALYSIS:

#### Market Area



#### Assumptions:

##### Fiscal Benefits

- 2% of 5,000 Average Daily Vehicular Trips shop in Bellevue  
› \$25 daily per vehicle spent (gas, food, etc.)
- 50% of 200 Average Daily Bicycle Trips During Peak Months  
› \$25 daily per bicyclist spent (food, goods, etc.)

##### Societal Costs

- Value of Time (\$22.42 per hour car/\$29.92 per hour truck)
- Vehicle Operations (\$0.62 per mile car/\$1.09 per mile truck)
- CO2 Emissions (\$0.02 per mile car/\$0.07 per mile truck)

##### Maintenance Costs

- \$209,948 annually for a new bridge
- \$41,990 annually for the existing bridge

### COST BENEFIT ANALYSIS OVER 10 YEAR PERIOD (STARTING IN 2040)\*\*

	TOTAL COST	BENEFITS	NET BENEFITS	COST BENEFIT RATIO*
Conversion to Bike/Pedestrian	\$7,058,532	\$926,088	(\$6,132,444)	0.13
New Bridge, Old to Bike/Pedestrian	\$70,492,659	\$100,214,387	\$29,721,727	1.42
New Bridge, Demolish Old	\$ 70,892,659	\$100,214,387	\$29,321,727	1.41

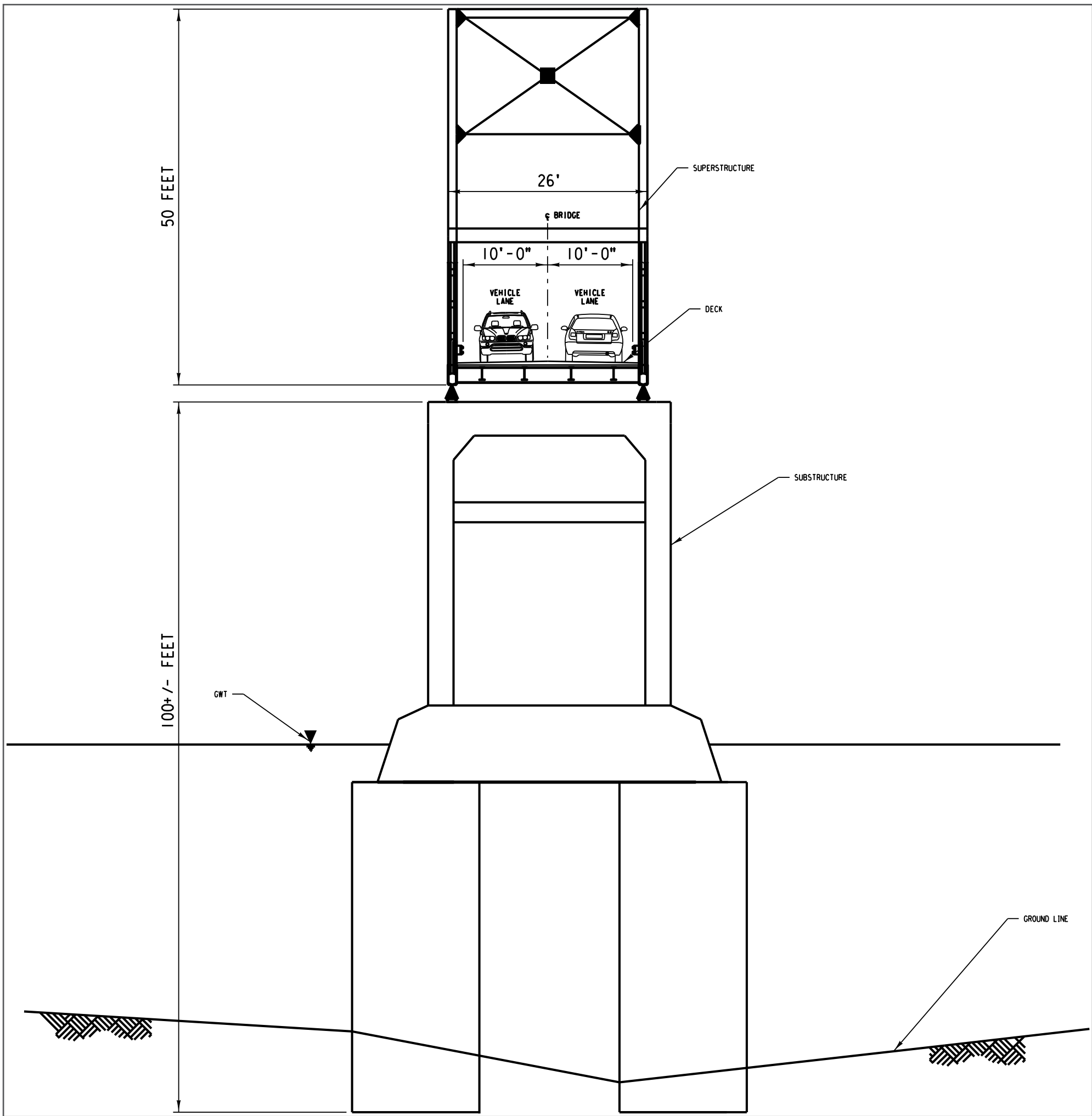
\* The CBA assumption is a comparison of building the bridge versus not building the bridge.

\*\* Higher Cost Benefit Ratios are expected over the 50-75 year expected life of a future bridge.

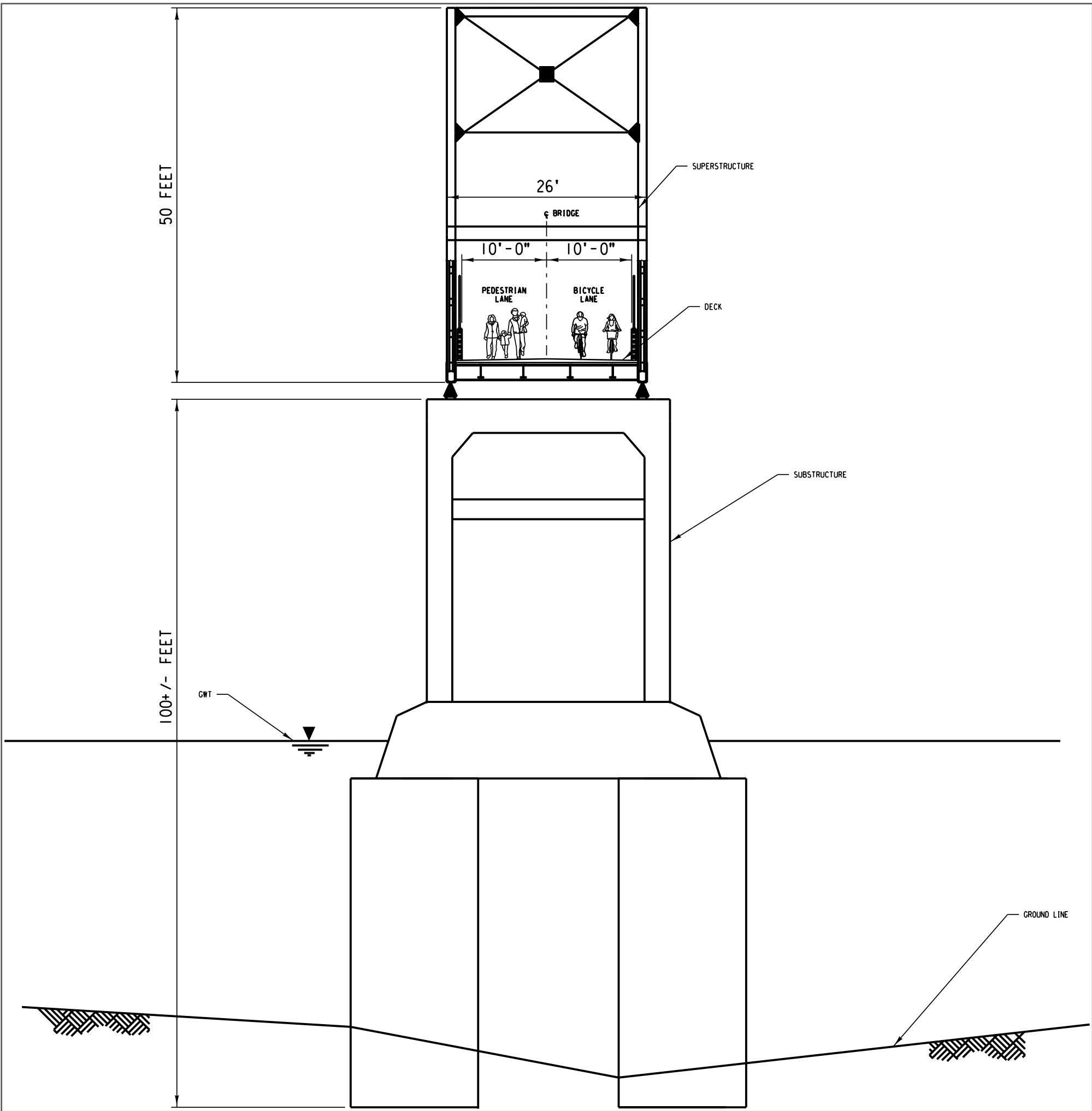


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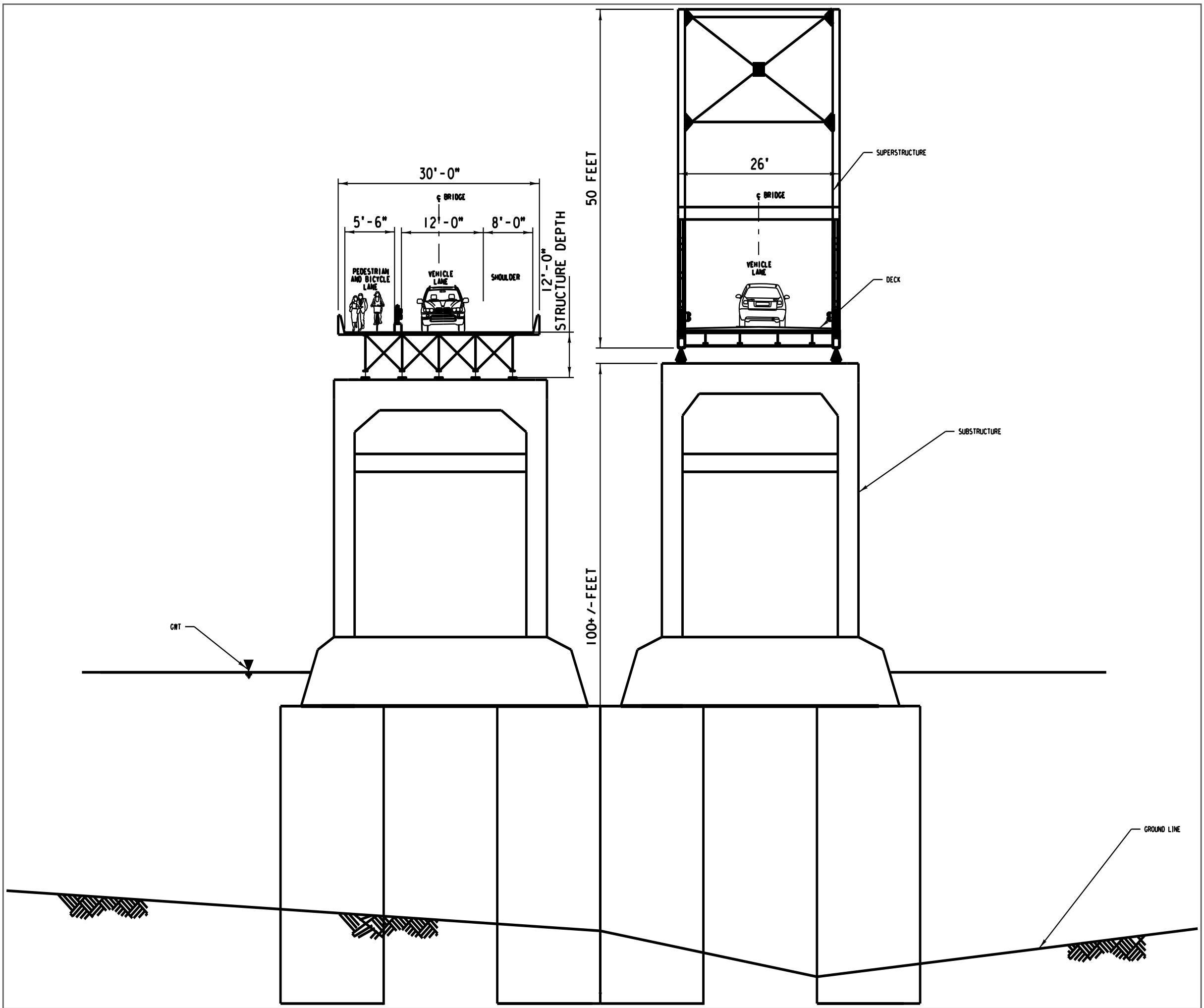
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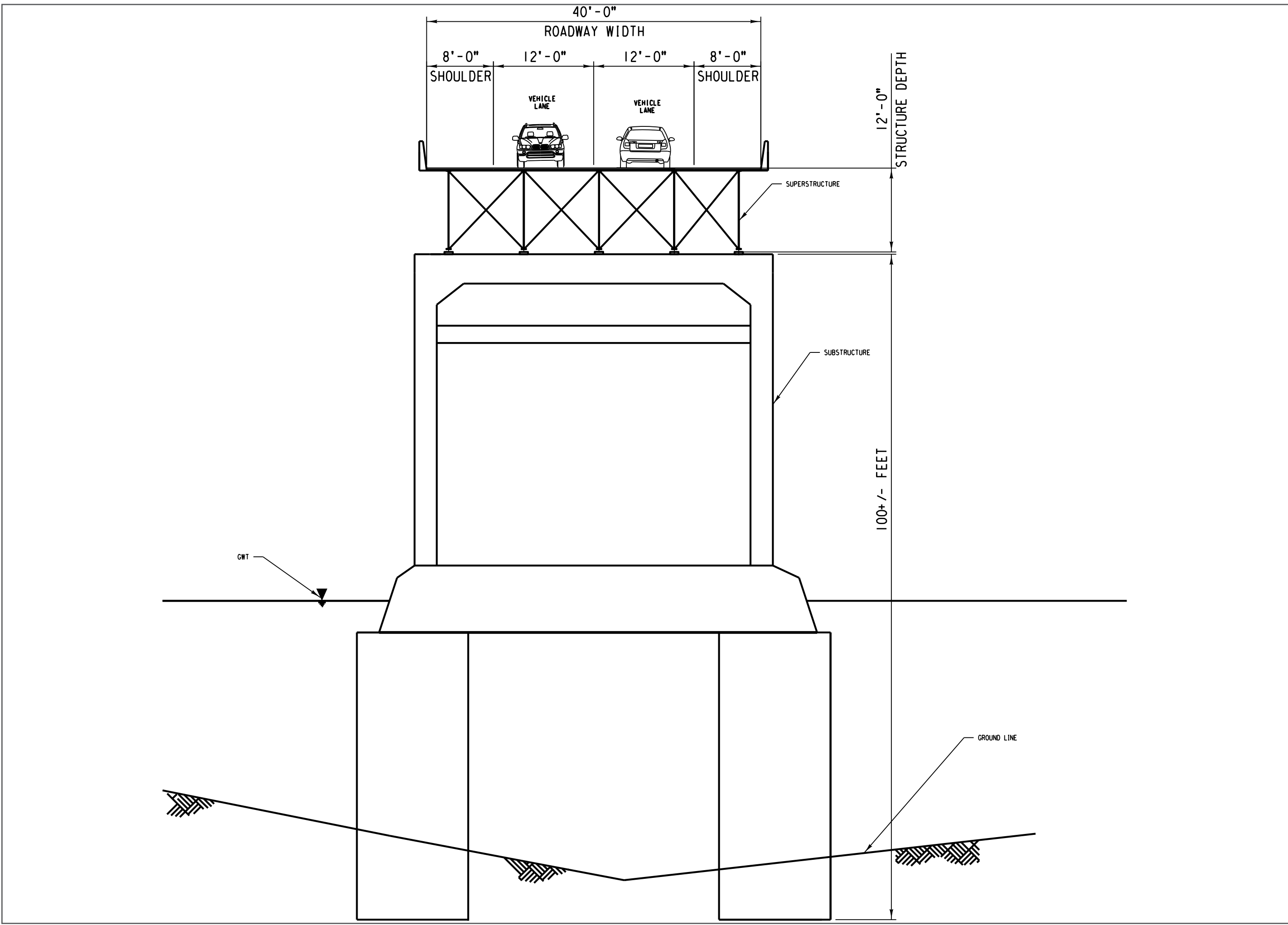
Existing Bridge Maintenance  
\$3 million



Convert Bridge to Recreational Trail  
\$9.8 million

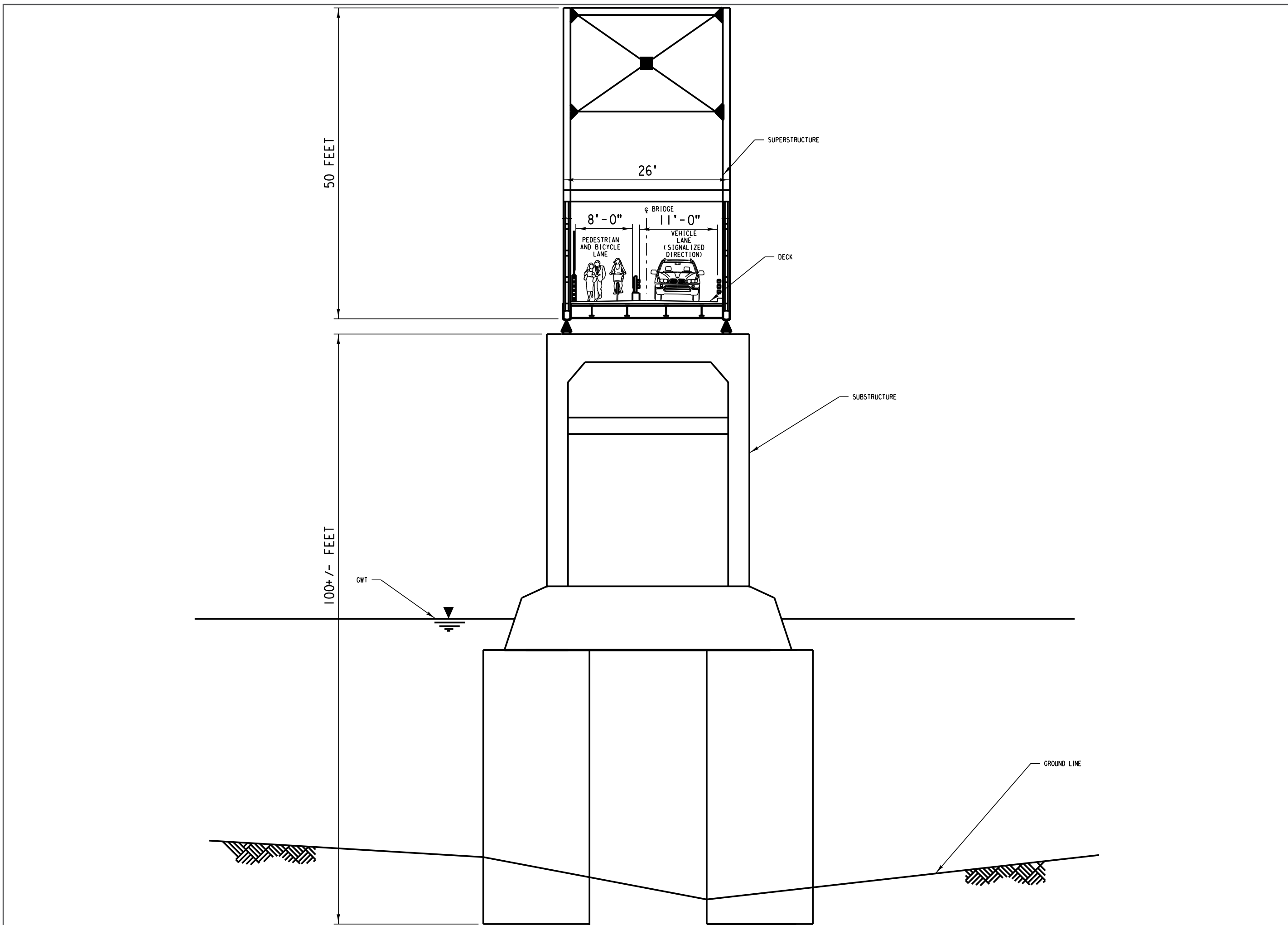


Expansion of Piers for Twin Bridges  
\$46.4 million



New Bridge Construction

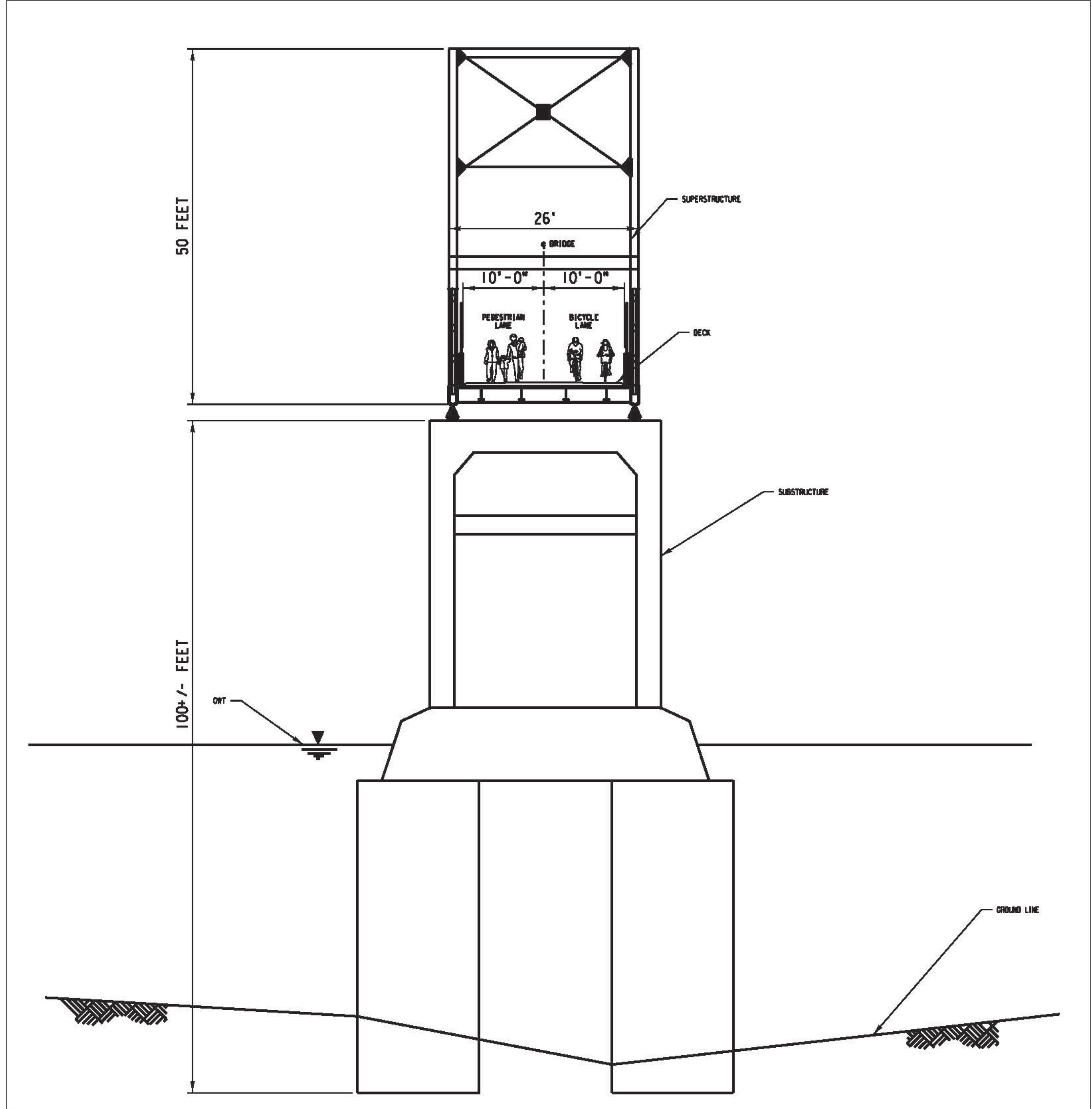
- Separate Bike/Pedestrian Lanes \$73.7 million
- Existing Bridge to Bike/Pedestrian \$71.9 million



Upgrade Bridge Superstructure for Additional Lane  
and Bike/Pedestrian Path \$10.2 million

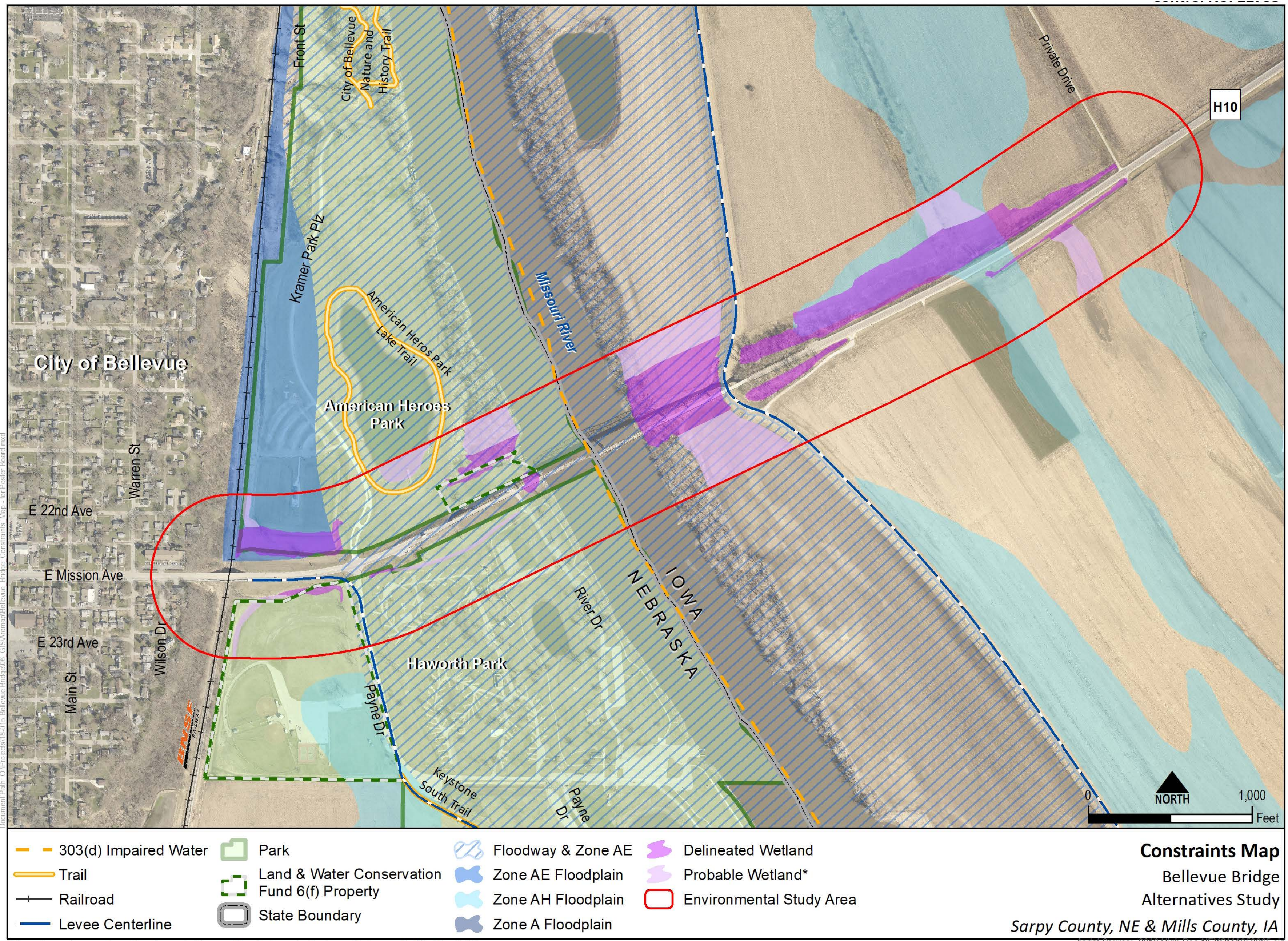
\* All estimates are in 2040 dollars





### Cost Estimates (2040 Dollars)

- \$6.7 Million (2040 Dollars)





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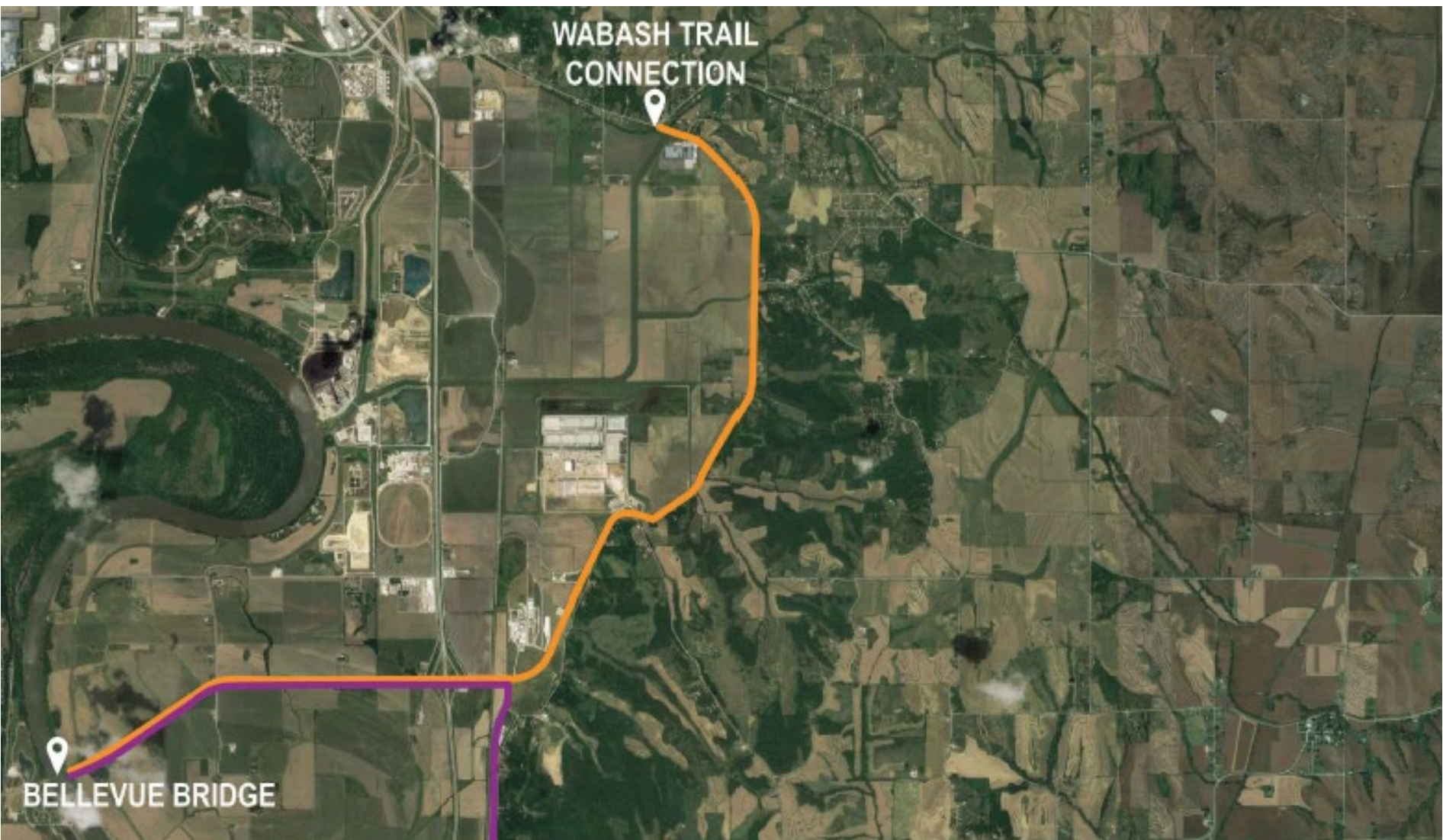
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### TRAIL CONNECTIONS:

Strategic trail connections will be necessary to create active bicycle and pedestrian users on the Bellevue Bridge if funding is spent to convert the bridge to bicycle/pedestrian only or if bicycle lanes are provided.

### Trail Connection < I-29 to Destinations

- Wabash Connection



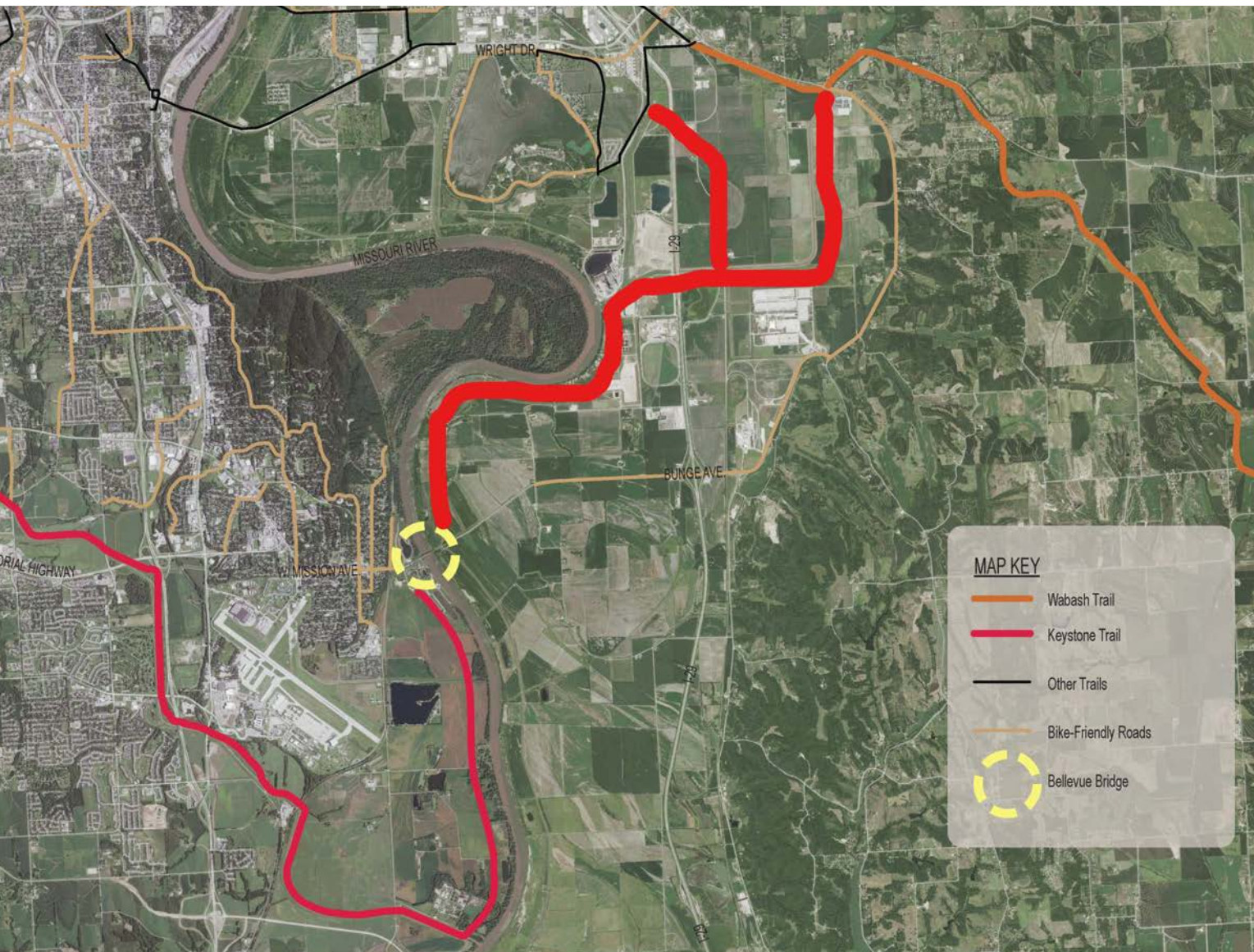
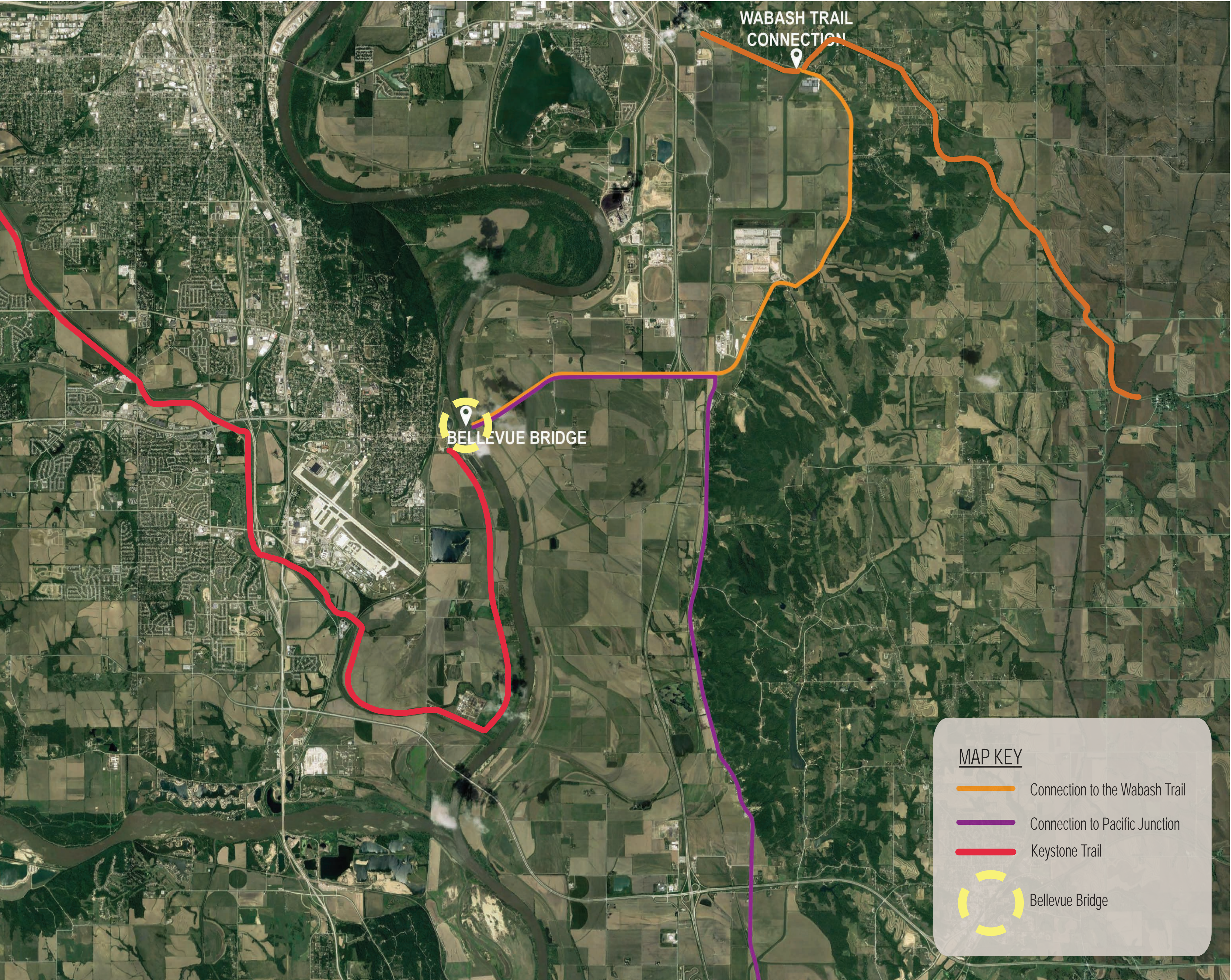
I-29 Bridge to Wabash Trail Connection Option				
5' concrete shoulders both sides of road - includes grading	48,000	LF	\$35.00	\$1,680,000
Signage	1	LS	\$10,000.00	\$10,000
Pavement Markings -	1	LS	\$1,500.00	\$1,500
Seeding	22.00	AC	\$3,000.00	\$66,000

### Trail Connection < I-29 to Destinations

- Pacific Junction Connection



I-29 Bridge to Pacific Junction Option				
5' concrete shoulders both sides of road - includes grading	65,300	LF	\$35.00	\$2,285,500
Signage	1	LS	\$10,000.00	\$10,000
Pavement Markings -	1	LS	\$1,500.00	\$1,500
Seeding	30.00	AC	\$3,000.00	\$90,000



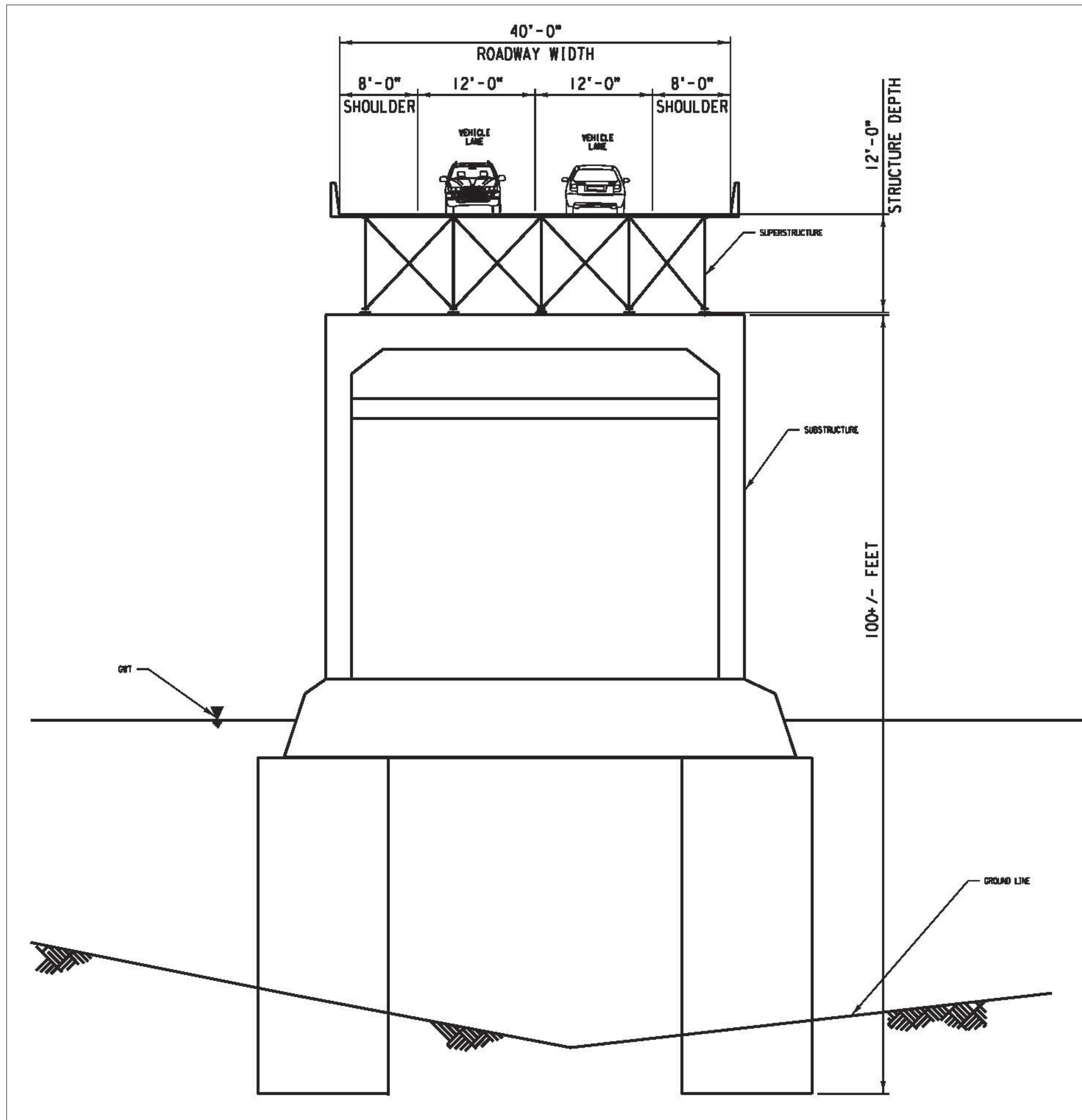
- Potential connection of the Keystone Trail to the Wabash Trail needs further exploration to determine viability



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## BRIDGE ALTERNATIVES STUDY

### NEW BRIDGE:



### Cost Estimates (2040 Dollars)

- \$71.9 Million convert old bridge to bike/pedestrian
- \$73.7 Million demolish old bridge

