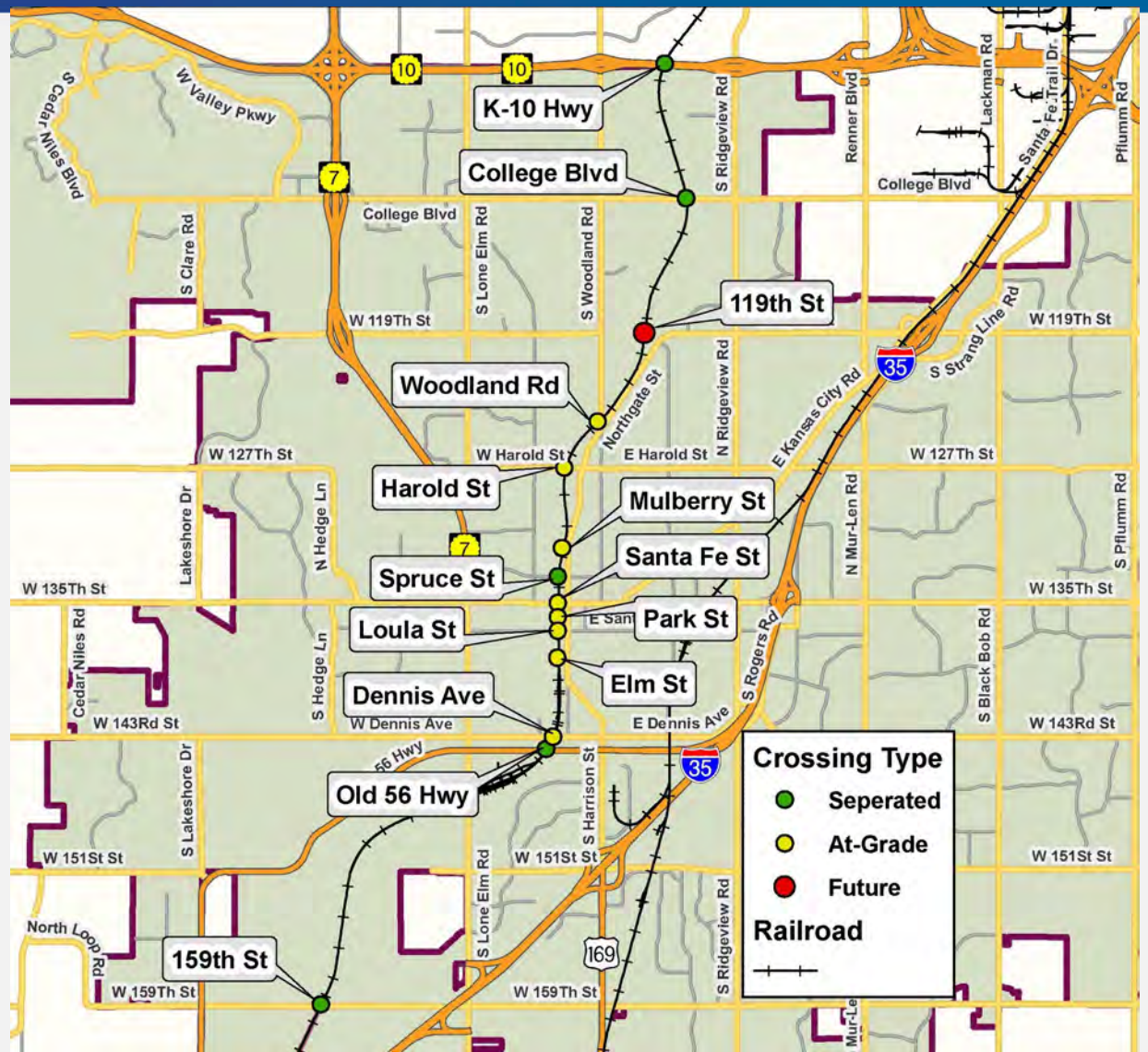
Attachment A

BNSF Emporia Subdivision (West Tracks) Grade Separation Options

Nate Baldwin, P.E.
Assistant City Engineer
February 18, 2020

OLATHE
KANSAS

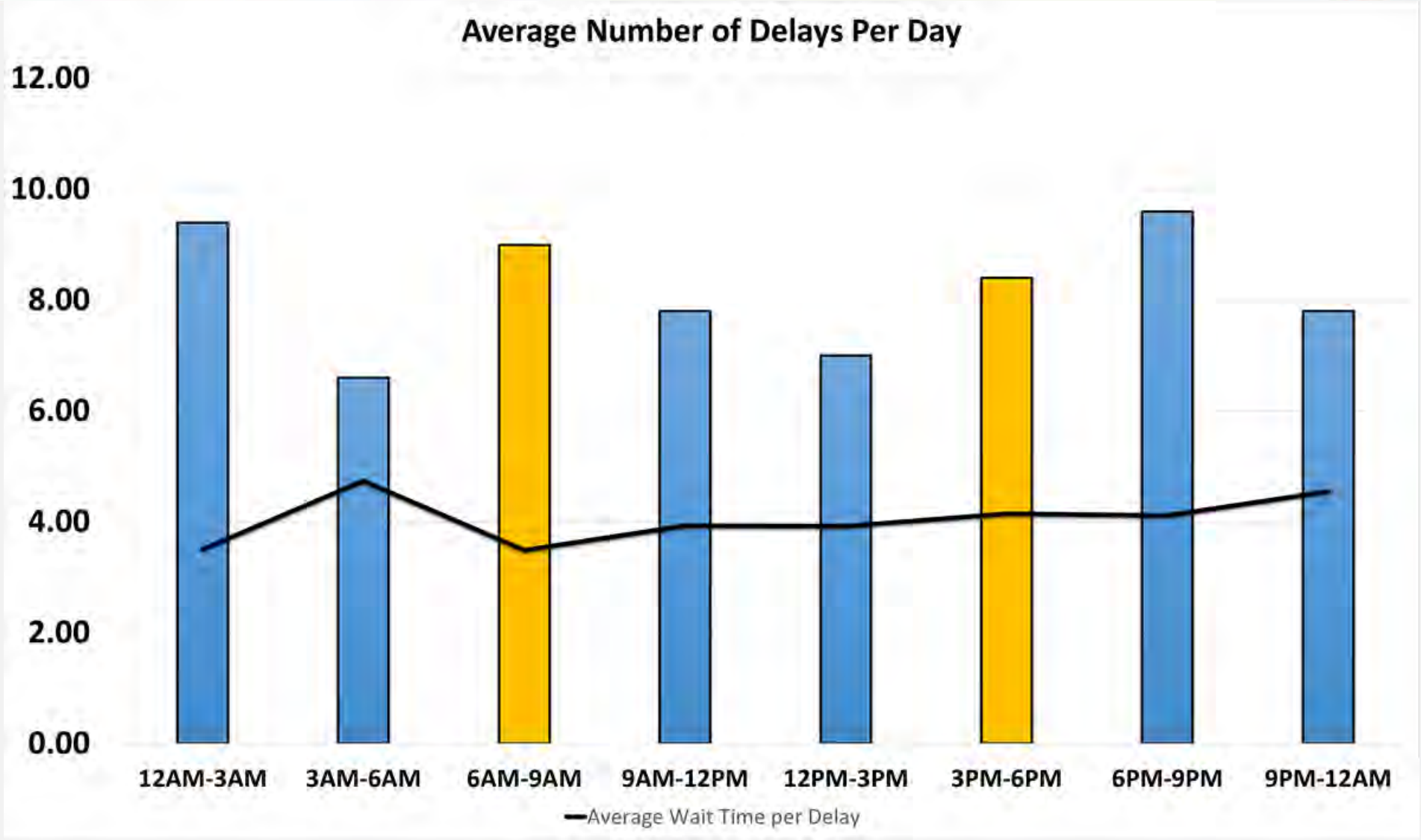
BNSF Emporia Subdivision (West Tracks)



- 88 Trains/Day – expected to increase
- One of BNSF's busiest rail lines
- 8 "At Grade" Crossings
- 5 Grade Separated Crossings
- 1 Future Crossing

OLATHE
KANSAS

Average Number of Delays Per Day and Average Wait Time Per Day



OLATHE
KANSAS

Potential Decision Factors

- Project cost and total cost of ownership
- Increases traffic capacity
- Modification of existing access
- Land acquisition – loss of homes and businesses
- Appearance
- Noise impacts
- BNSF buy-in

“Raise the Rail” Concept Engineering

- In 2004, TranSystems prepared a concept to elevate the West Tracks similar to the project to elevate the East Tracks
    - o Estimated Cost - $125M in 2004
- In 2019, the City of Olathe worked with TranSystems to reexamine their concept and look at other alternatives.
- 5 “Raise the Rail” alternatives were examined

2004 Update – Alternative #1

<u>Raise the tracks from Dennis Avenue to Woodland Road</u>

- Includes seven (7) grade separations at:
  - Harold St.
  - Mulberry St.
  - Spruce St.
  - Santa Fe
  - Park St.
  - Loula St.
  - Elm St.
- Does **not** include grade separation at Woodland Road
- Estimated Total Cost (2020) - $220 Million
- Total length of new track - 11,500 feet (2.2 miles)

OLATHE
KANSAS

2004 Update – Alternative #2

<u>Raise the tracks from Dennis Avenue to Woodland Road</u>

- Includes only three (3) grade separations at:
  - Harold St.
  - Spruce St.
  - Santa Fe
- Does **not** include grade separation at Woodland Road
- **Eliminates crossings at Mulberry, Park, Loula, and Elm in effort to save money**
- Estimated Total Cost (2020) - $200 Million
- Total length of new track - 11,500 feet (2.2 miles)

OLATHE
KANSAS

Raise It All – Alternative #3

<u>Raise the tracks from Dennis Avenue to College Boulevard</u>

- Includes eight (8) grade separations at:
  - **Woodland Rd.**
  - Harold St.
  - Mulberry St.
  - Spruce St.
  - Santa Fe
  - Park St.
  - Loula St.
  - Elm St.
- Estimated Total Cost (2020) - $240 Million
- Total length - 20,000 feet (3.8 miles)

OLATHE
KANSAS

Woodland and Harold – Alternative #4

<u>Raise the tracks from Mulberry Street to College Boulevard</u>

- Includes grade separations at:
  - Woodland Rd.
  - Harold St.
- No additional grade separations through downtown
- Estimated Total Cost (2020) - $115 Million
- Total length - 14,000 feet (2.7 miles)

Lower the Railroad – Alternative #5

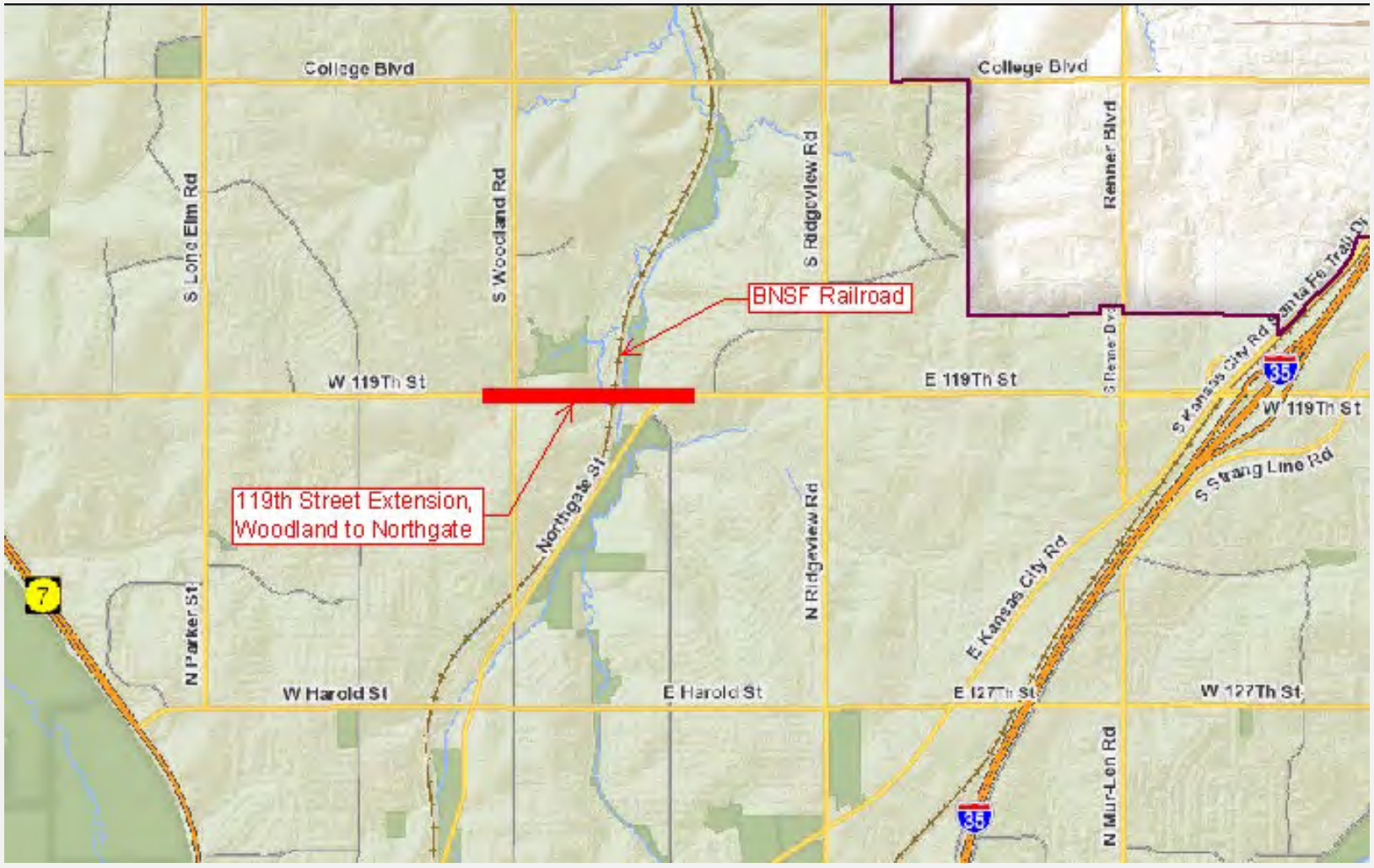
<u>Lowers the tracks from Dennis Avenue to Harold Street</u>

- Only grade separation is at Santa Fe
- Estimated Total Cost (2020) - $250 Million
- Total length - 7,300 feet (1.4 miles)

Individual Grade Crossing Options

- Examined individual grade crossings alternatives
- 9 alternatives were examined
- Options range from $20M to $45M

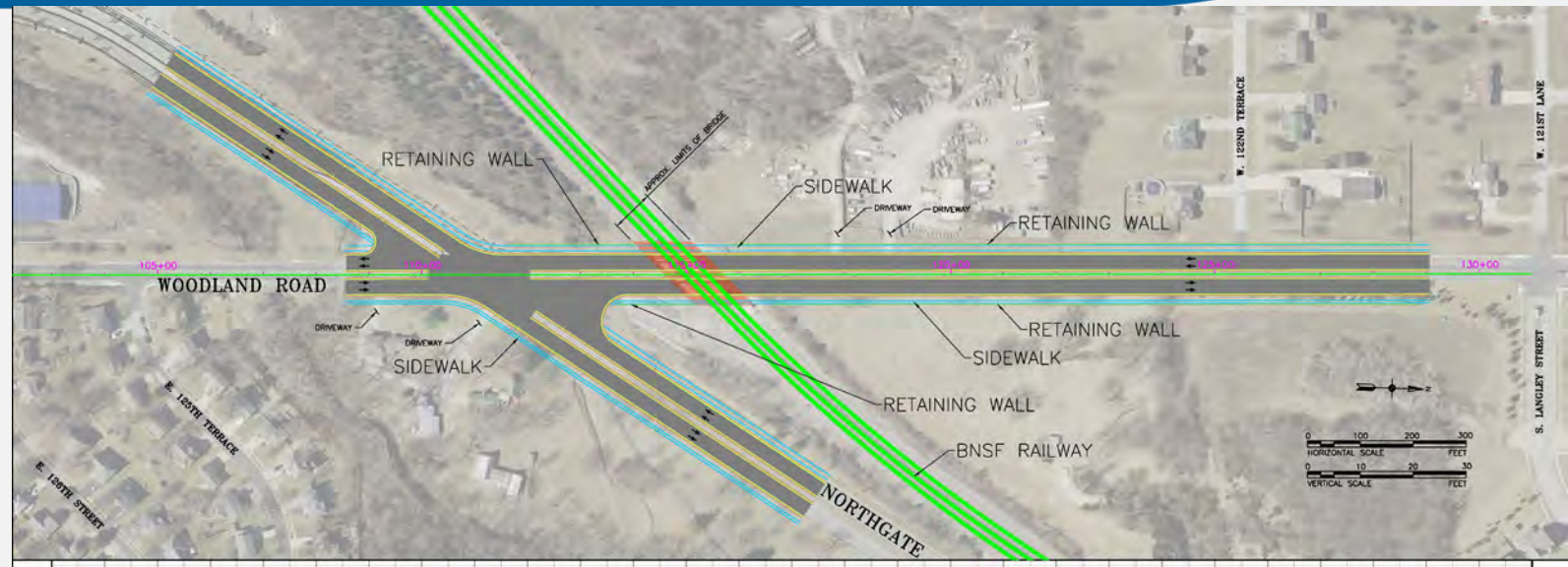
119th Street Extension, Woodland to Northgate Alternative #6

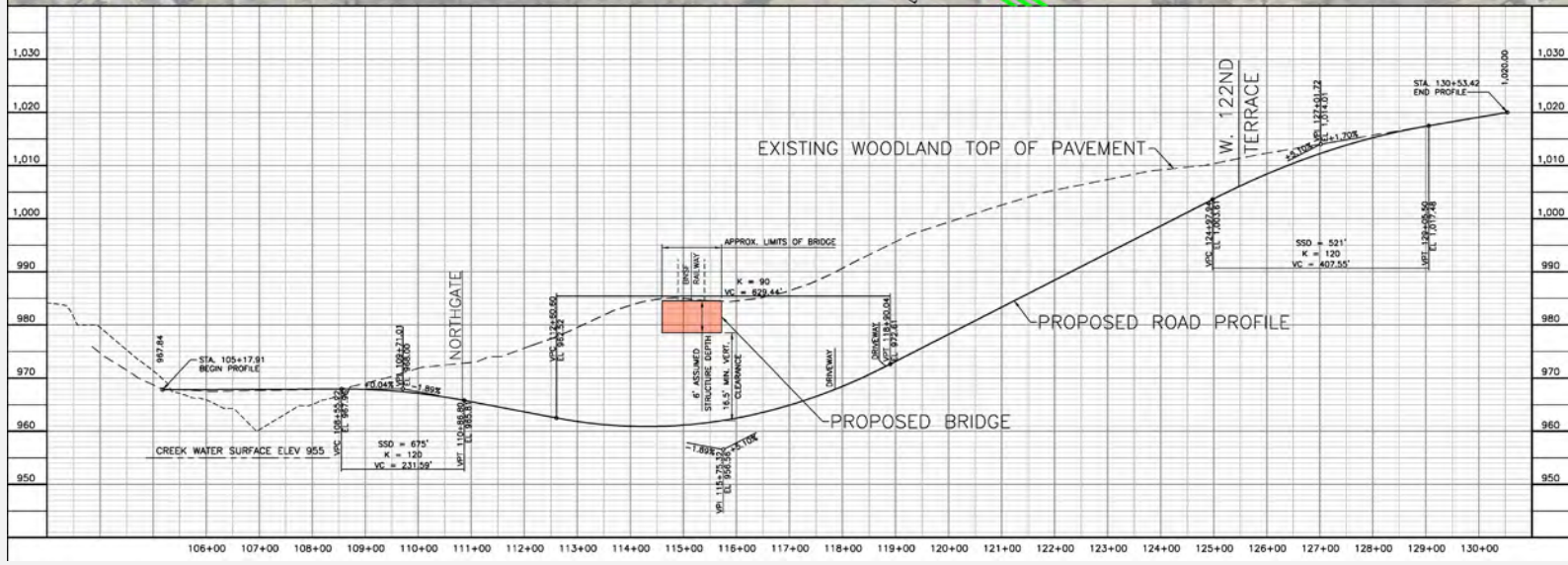


- Total Project Cost (2020) - $40 Million
- Pros
  - o Adds east-west travel capacity
  - o Provides connectivity from K-7 to I-35
  - o High priority in TMP
  - o Reduces need for grade separation at Woodland and Harold
- Cons
  - o Increases the need to widen 119th Street to 4-lanes from K-7 to Woodland

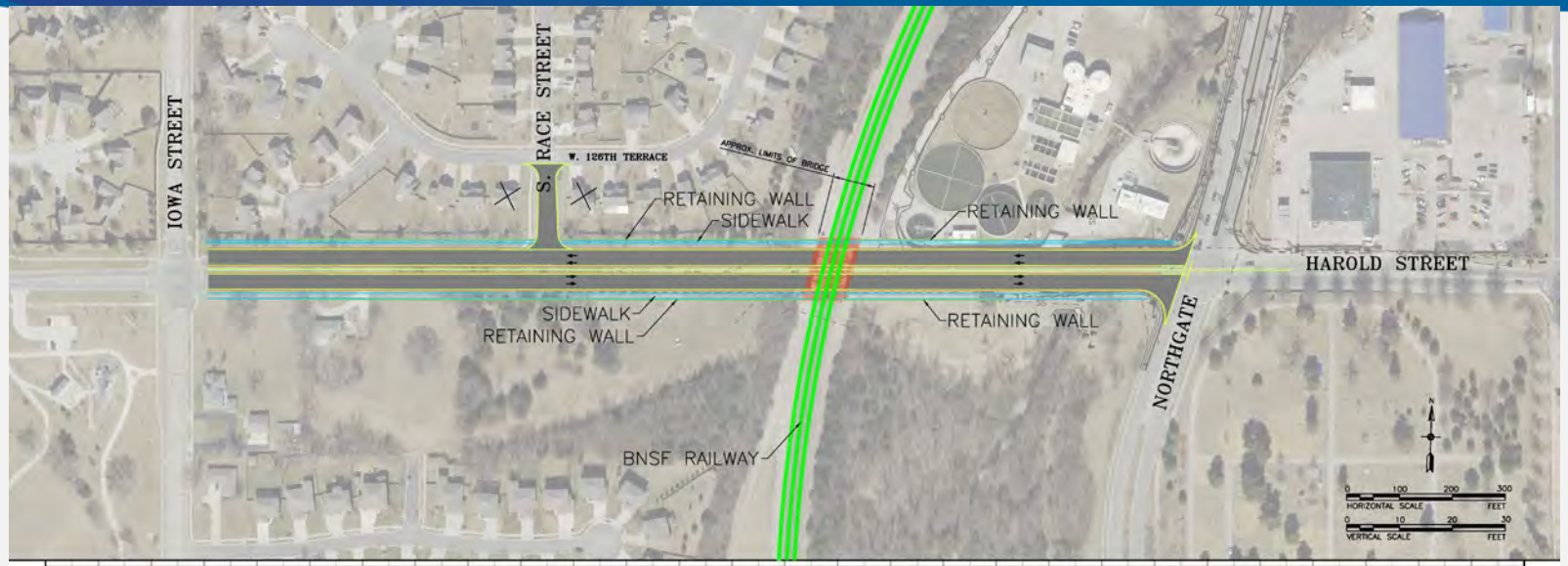
Woodland Underpass – Alternative #7

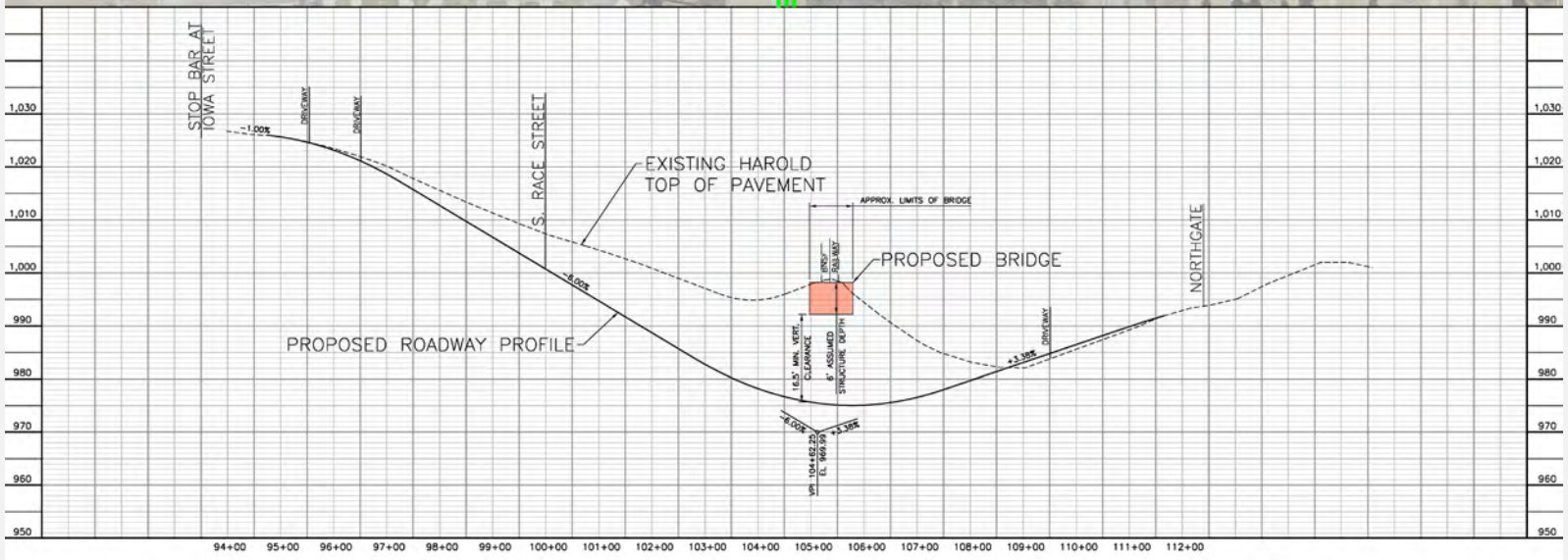
- Total Project Cost (2020) - $35 Million
- Pros
  - Provides grade separation at Woodland
- Cons
  - Retaining walls of 20+ feet
  - 5% grade
  - Cuts off driveway access to property on NW and SE corners of intersection – potential for large land acquisition
  - Significant rock excavation





Harold Underpass – Alternative #8





- Total Project Cost (2020) - $30 Million
- Pros
  - o Provides grade separation at Harold
- Cons
  - o Retaining walls of 15+ feet
  - o 6% grade
  - o Requires stormwater pump and gates
  - o Potential sanitary sewer conflict
  - o Significant rock excavation

Lower Spruce Street – Alternative #9

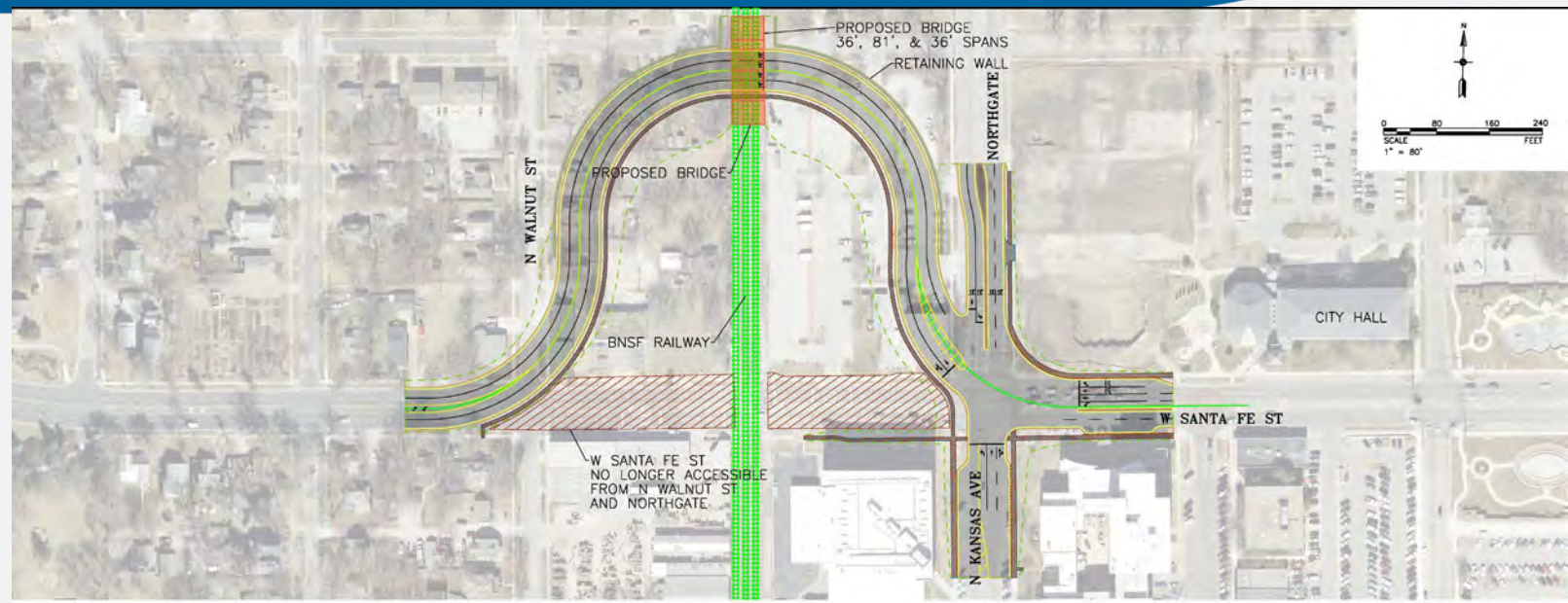
- Total Project Cost (2020) - $18 Million
- Pros
  - Provides adequate truck clearance
- Cons
  - Not needed for cars
  - Trucks hit bridge and affect traffic flow only 3 times/year
  - Requires stormwater pump and gates
  - Significant rock excavation

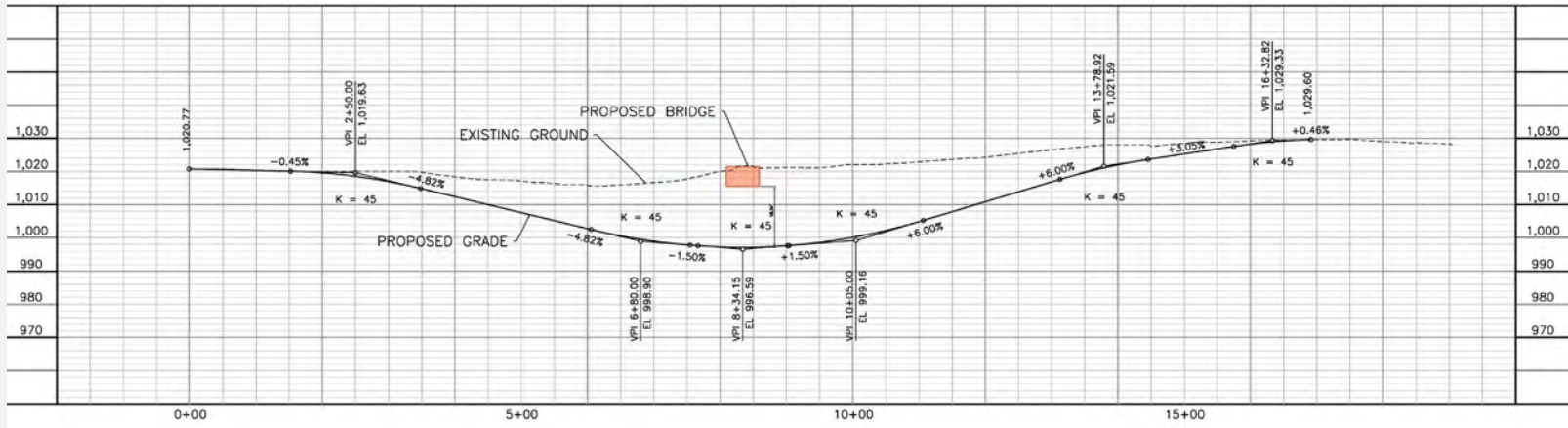
Widen/Lower Spruce Street – Alternative #10

- Total Project Cost (2020) - $35 Million
- Pros
  - Provides adequate truck clearance
  - Becomes 4-lane alternative to Santa Fe
- Cons
  - Not needed for cars
  - Trucks hit bridge and affect traffic flow only 3 times/year
  - Lots of rock excavation
  - Requires stormwater pump and gates
  - Significant rock excavation

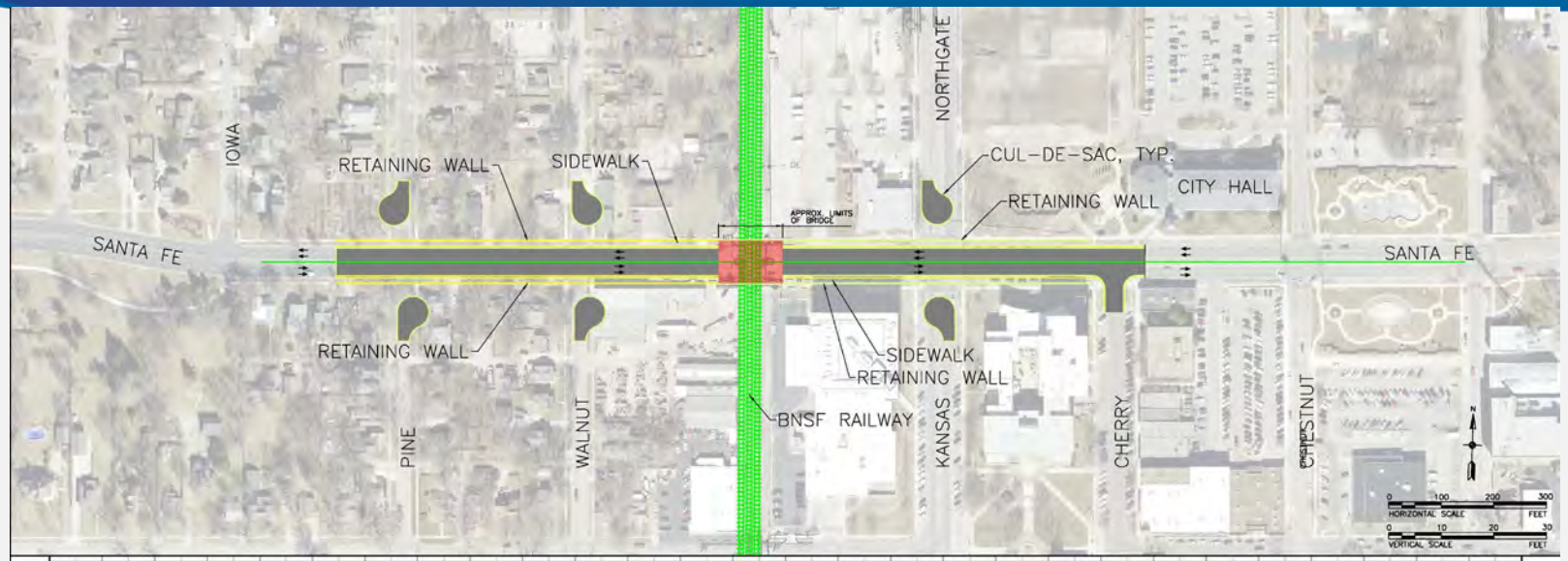
Santa Fe Realignment – Alternative #11

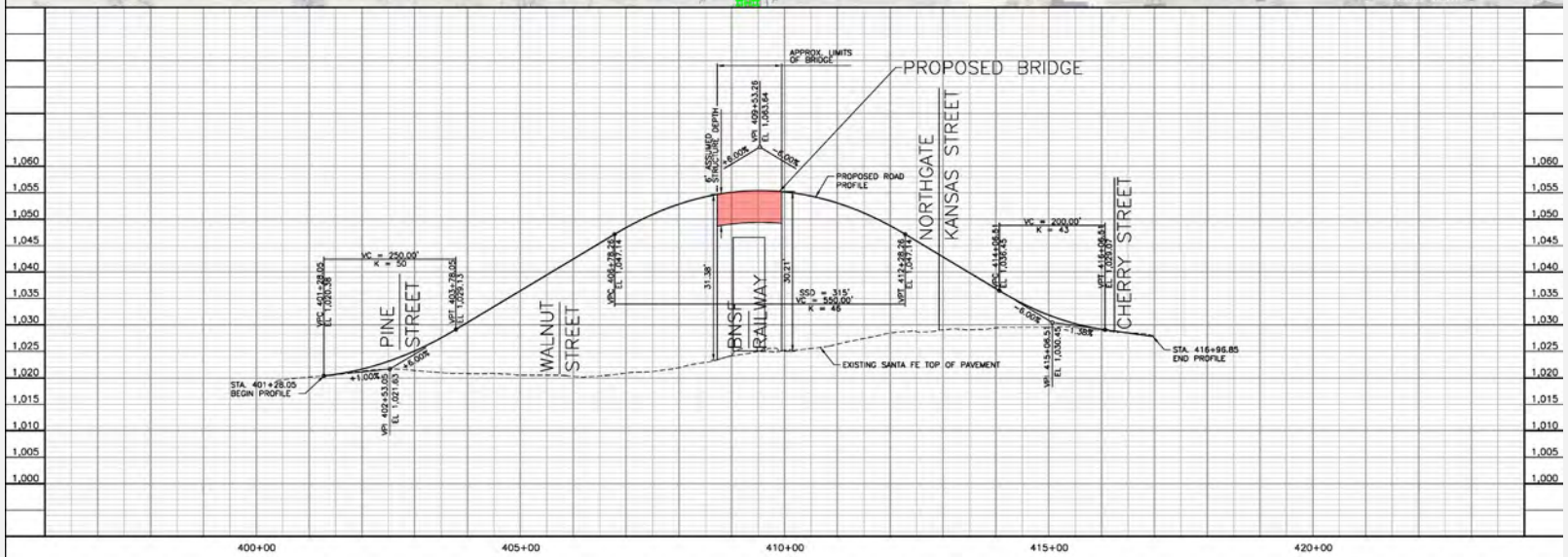
- Total Project Cost (2020) - $45 Million
- Pros
  - Provides grade separation at Santa Fe
- Cons
  - 25 mph design speed
  - Cannot turn SB to WB or EB to NB
  - Requires stormwater pump and gates
  - Retaining walls of up to 20 feet
  - 6% grade
  - Significant rock excavation
  - Access issues with jail and Acme Brick
  - Significant loss of homes and businesses





Santa Fe Overpass 1 – Alternative #12

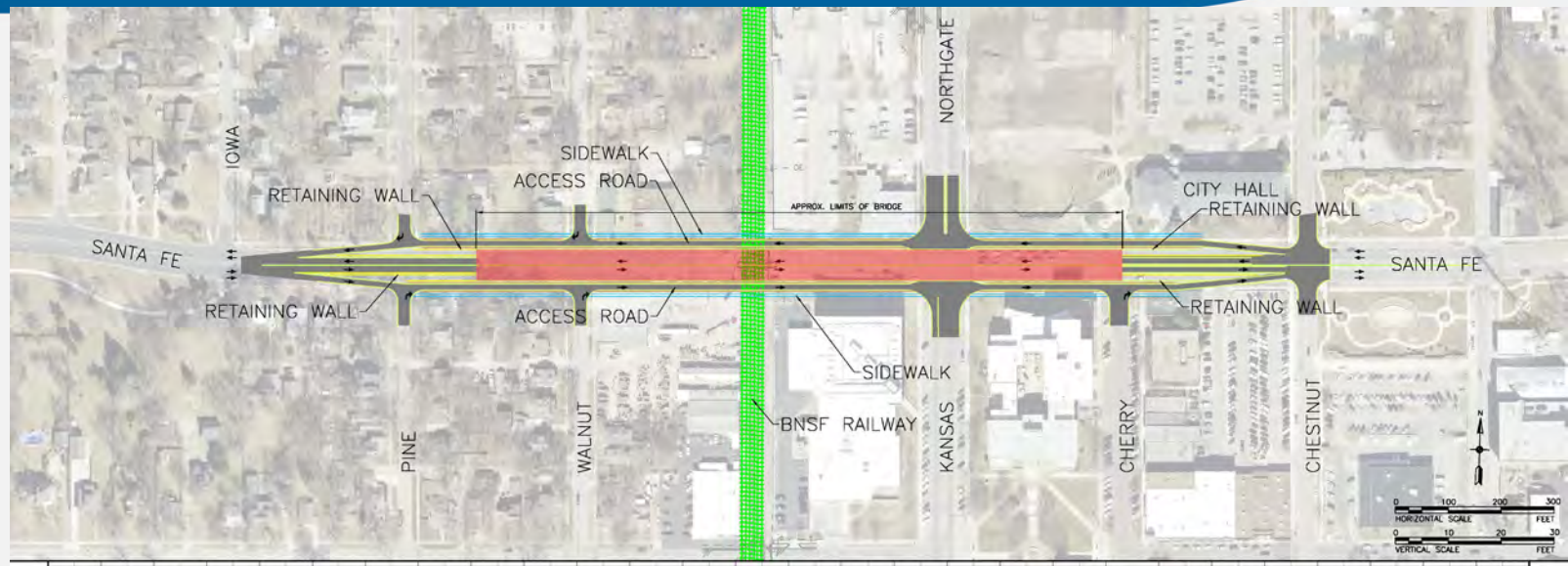


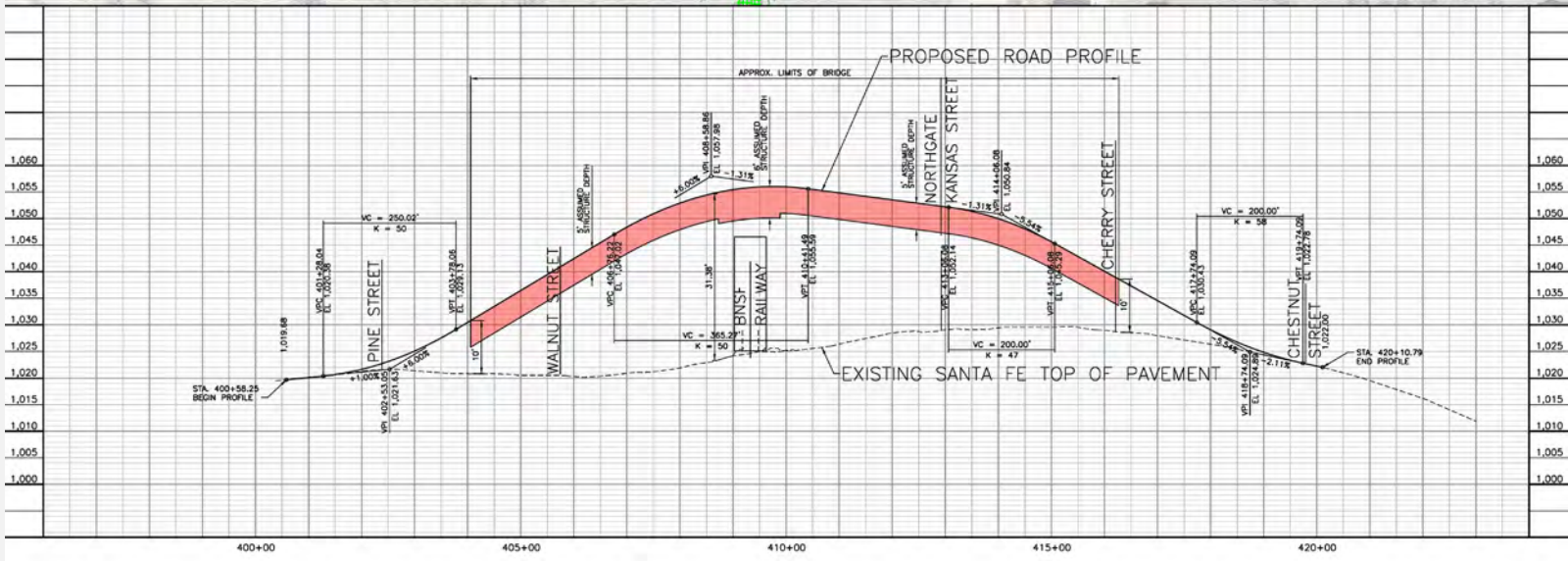


- Total Project Cost (2020) - $25 Million
- Pros
  - o Provides grade separation at Santa Fe
- Cons
  - o Retaining walls of 30+ feet
  - o 6% grade
  - o Divides downtown
  - o Eliminates access from Santa Fe to Pine, Walnut, Kansas

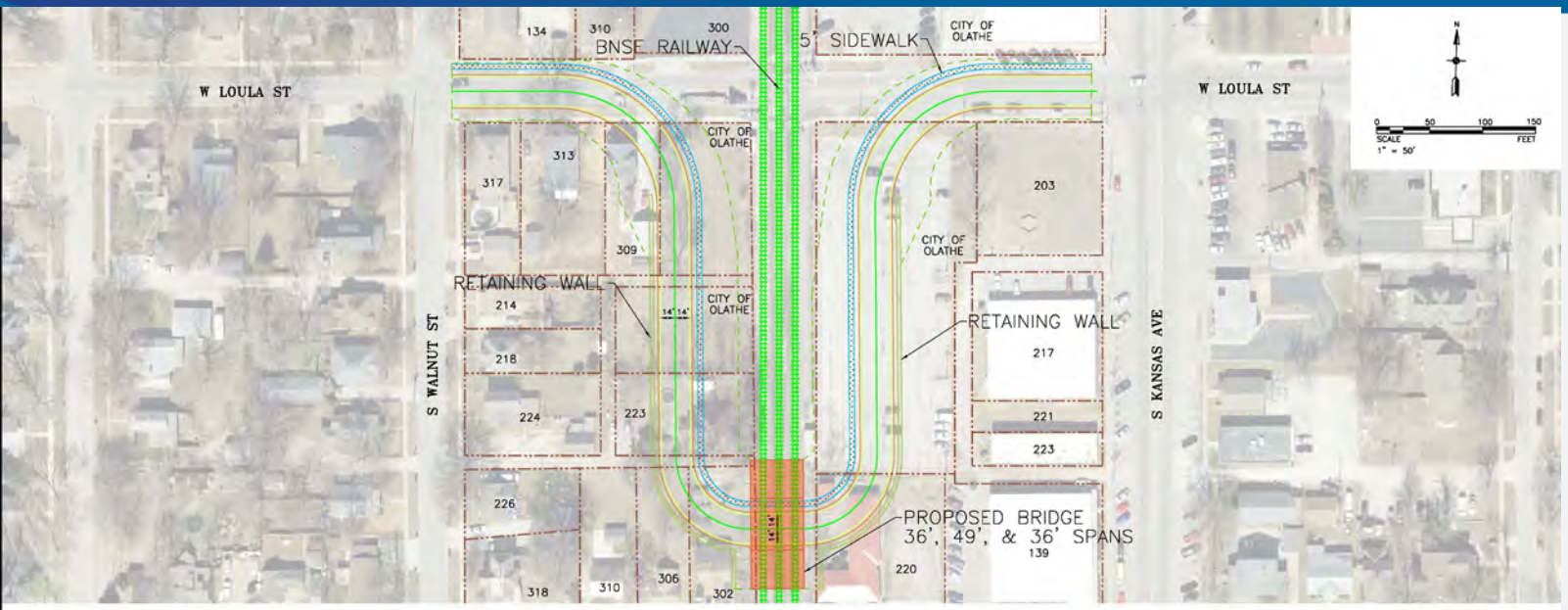
Santa Fe Overpass 2 – Alternative #13

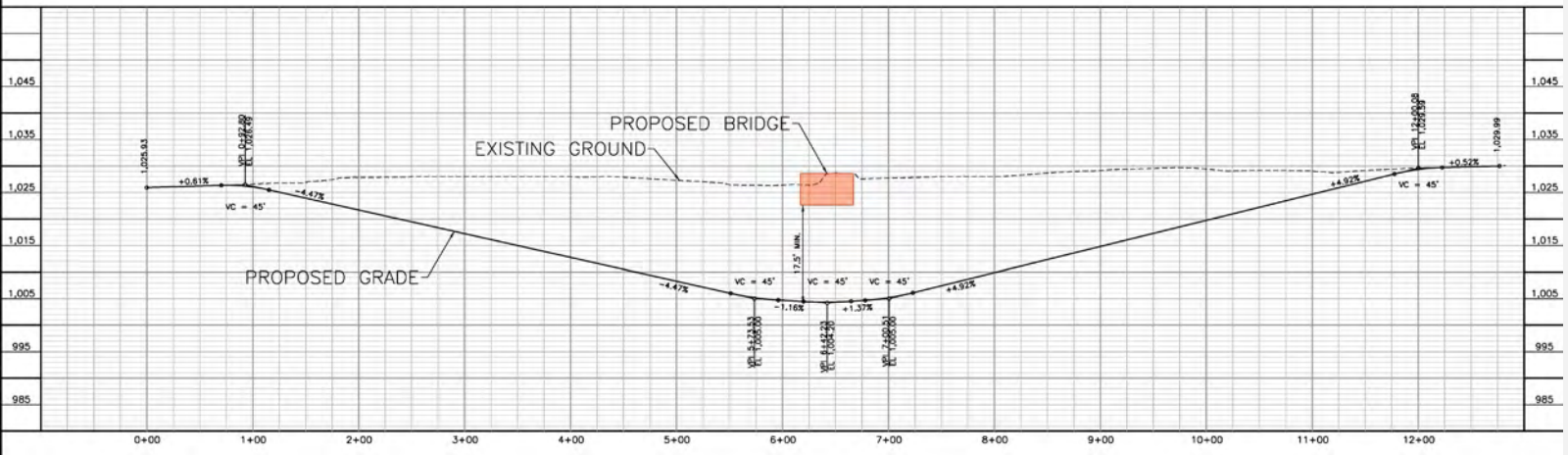
- Total Project Cost (2020) - $35 Million
- Pros
  - o Provides grade separation at Santa Fe
  - o Keeps access from Santa Fe to Pine, Walnut, and Kansas
- Cons
  - o Bridge 30+ feet in air in heart of downtown
  - o 6% grade
  - o May not be supported by BNSF – does not eliminate at-grade crossing





Loula Loop – Alternative #14





- Total Project Cost (2020) - $35 Million
- Pros
  - Provides grade separation at Santa Fe
- Cons
  - 15 mph design speed
  - No trucks
  - Cars need to backup to allow firetruck through
  - Requires stormwater pump and gates
  - Retaining walls of up to 20 feet

Next Steps

- Dot poll
- CIP - further engineering on preferred options
- Approach BNSF