

Northwest Indiana At-Grade Crossing Report



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Agenda

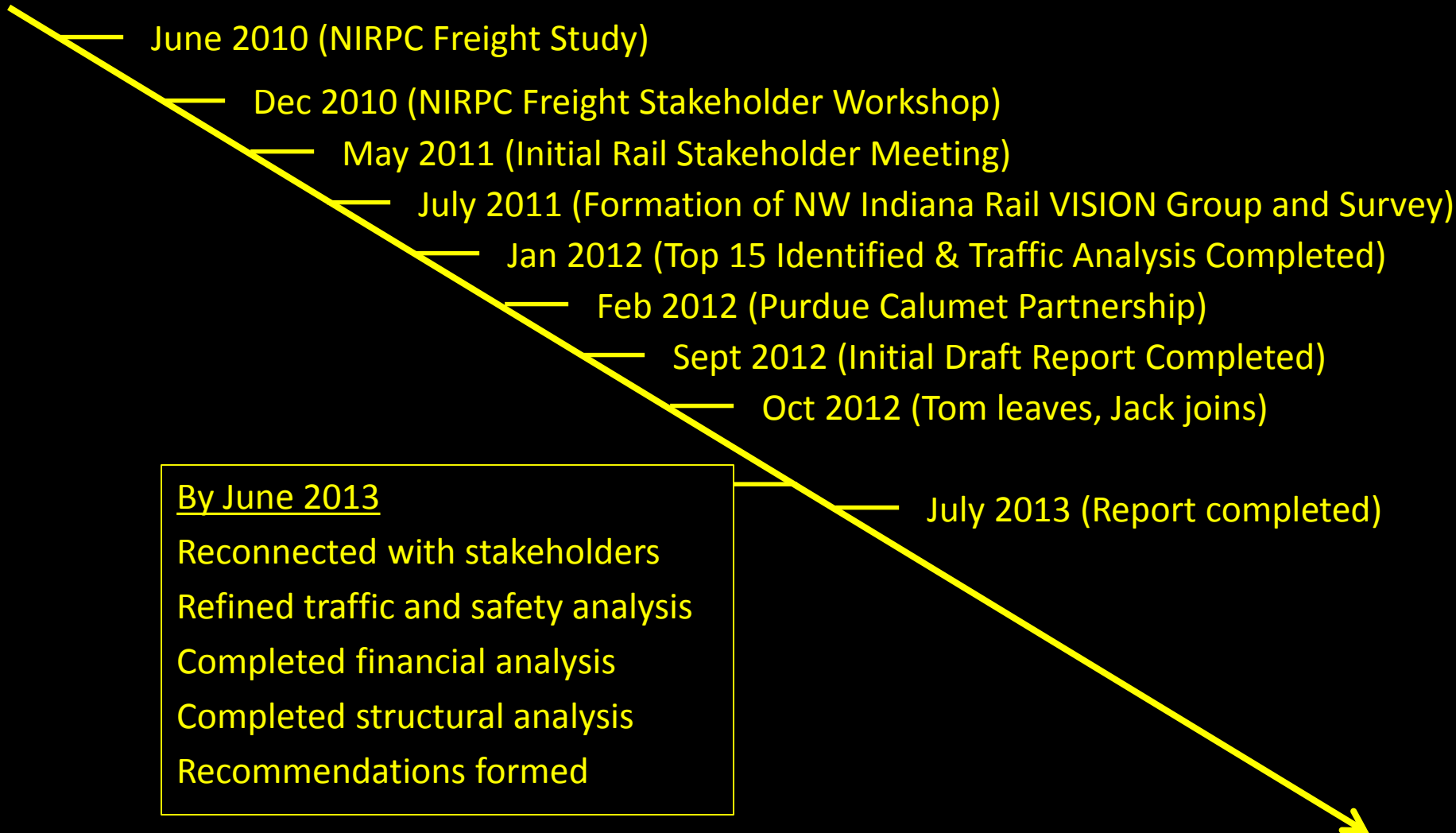
- Introduction
- Project timeline
- Delay & safety metrics
- Larger developments
- Structure selection process
- Cost calculation methodology
- Financing opportunities
- General findings
- Profiling the Top 15
- General recommendations



Introduction to the Report

- A regional inventory and feasibility study of the worst railroad/highway at-grade crossings in Northwest Indiana
- Serve as an established resource for potential at-grade crossing projects in the region

Project Timeline



Data Collection & Evaluation

- Delay & safety metrics
- Larger developments
- Structure selection process
- Cost calculation methodology
- Financing opportunities



Delay & Safety Metrics

- Average Delay per Motorist (PUC/NIRPC)
- Average Gate Down Time per Train (PUC/NIRPC)
- Amount of Delayed Vehicles (PUC/NIRPC)
- Delayed Vehicles to Total AADT (PUC/NIRPC)
- Accident Prediction Value (INDOT)
- RoadHAT Analysis (INDOT)



Larger Developments

Freight

- On a growth line for a Class I railroad
- On an intermodal line
- Clear connection to CREATE project

Public Transport

- On a proposed high speed rail line
- On a NICTD line

Public Roads

- Expansion project

Surrounding Land Use

- Downtown reinvestment
- Conservation



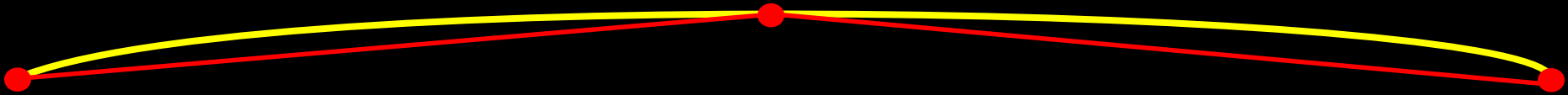
Structure Selection Process

- Review of typologies
 - Highway flyover or Railroad flyover
- Discussions with:
 - INDOT railroad & bridge engineers
 - City engineers and planners
 - Consultants working on those sites



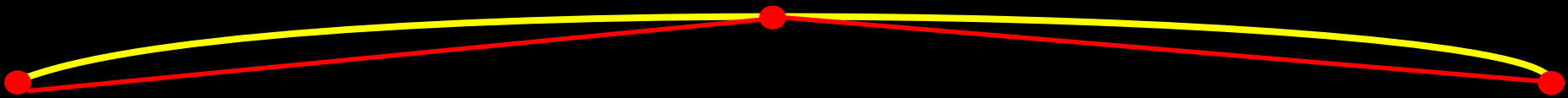
Cost Calculation Method

- INDOT cost per square foot data for:
 - Highway bridge over railroad
 - Railroad bridge over highway
 - Hard costs, soft costs, maintenance costs
- East Chicago Railroad Avenue Bridge as a cost comparison



Cost Calculation Method

- Use of Pythagorean Theorem as an approximation for a bridge parabola
 - Length of base and slightness of angle creates comparable square footage
 - 23 foot minimum clearance for double stack train
 - 5–7% grade is standard range
 - 6% grade would create a 766 foot bridge
- Created a Bridge Pro Forma to calculate average bridge lengths and project costs



Financing Opportunities

- Federal Transportation Apportionments
 - Surface Transportation Program
 - Ave Award: **\$5.5 mil**
 - Max Award: **\$9 mil**
 - Congestion Management & Air Quality Program
 - Ave Award: **\$2 mil**
 - Highway Safety Improvement Program
 - Ave Award: **\$1 mil**
 - FTA 5307 (State of Good Repair Funds)
 - Ave Award: **\$1 mil**

Financing Opportunities

- TIFIA
 - Federal transportation and infrastructure financing program
 - Direct loans, loan guarantees, lines of credit
 - Conventional Direct Loan
 - Up to 49% of the project cost
 - \$50 mil is the minimum eligible project cost
 - Interest at treasury rate (3.06% currently)
 - Max 35 year repayment period
 - Intended as a leveraging tool for big projects

Financing Opportunities

- Municipal Bonds
 - Standard General Obligation Bond
 - Financed primarily through property tax revenues
 - 15–20 year repayment period
 - Interest rates currently range from 2.5–4.5%
 - \$2 mil is the maximum amount a municipality can bond out without going through a petition remonstrations process
 - Only a consideration with a viable revenue source

Financing Opportunities

- Railroad Relocation Innovation Fund
 - Railroad relocation program
 - 35-yr repayment period, at treasury rates
- Railroad Cost Share
 - Federally–obligated to cover 5% of project costs
 - May cover more if it is worth it to them

Financing Opportunities

- Potential Sources

- TIF Revenues
- Lake County Local Option Income Tax Revenues
- Potential Economic Development District Revenues
- Regional Development Authority Funds
- Private financing

- Uncertain Sources

- INDOT's Bridge Program (undergoing a restructuring)
- INDOT's Railroad–Highway Crossing Fund
 - Never financed a grade separation project before

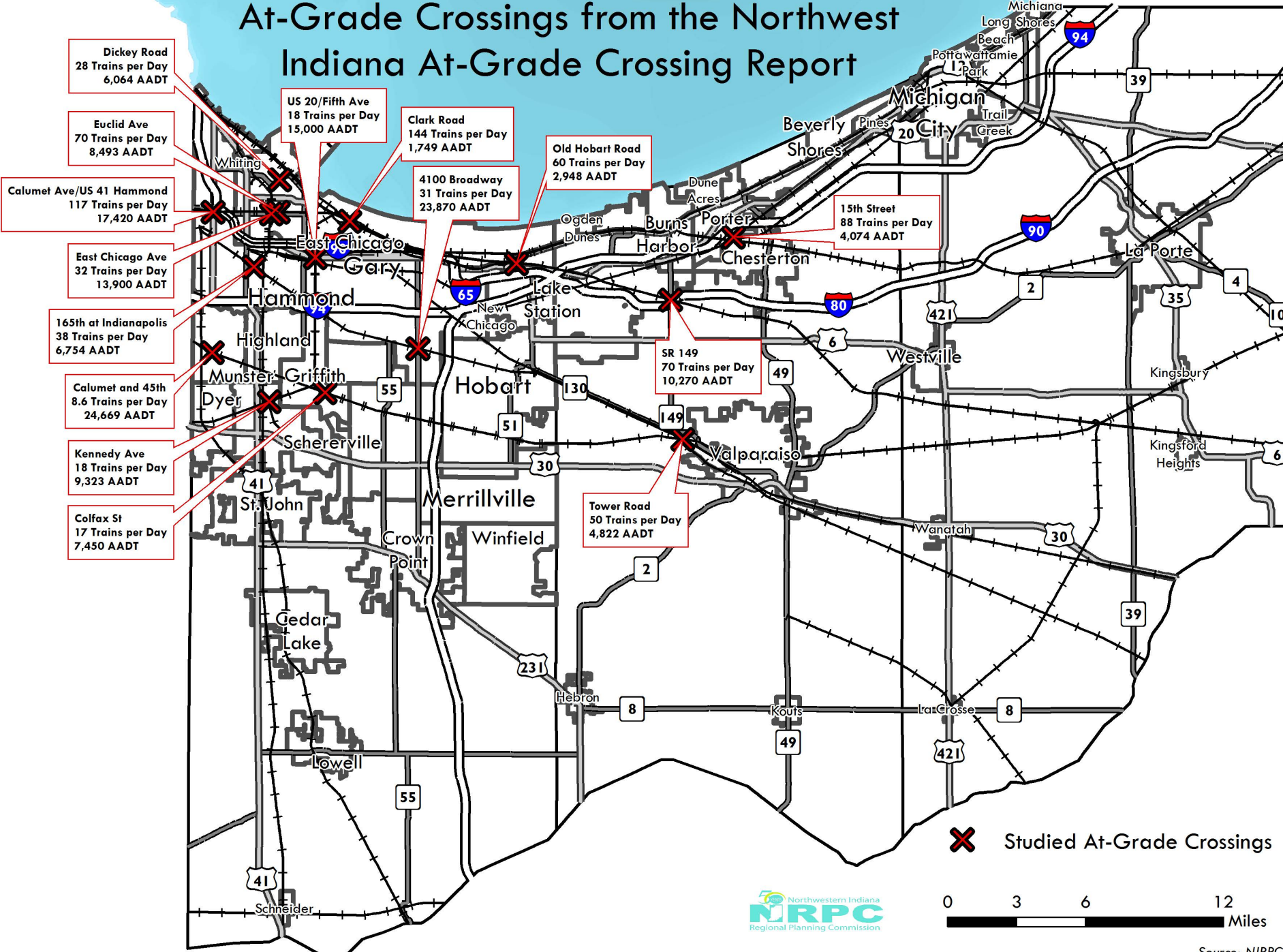
General Findings

- A crossing that was part of a greater plan had more community support and greater opportunities for financing
 - High speed rail, economic development, etc.
- At-grade crossings rarely happen without receiving heavy federal support
- Successful projects usually roll out in stages
- Flyover bridges in urban locations were typically more expensive
 - Sidewalks, extra lanes, utilities added cost

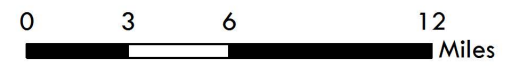
General Findings

- Successful projects often had a community–based advocacy component and/or regulatory entity
- More complicated projects may take longer, but can pull from a more diverse pool of funding
- It is generally understood that congestion and safety issues related to crossings will only get worse
- Delays are usually a result of EITHER long trains, slow trains or heavy car traffic, but rarely a combination

At-Grade Crossings from the Northwest Indiana At-Grade Crossing Report



X Studied At-Grade Crossings



Calumet Avenue (Hammond)

- US 41
- NICTD and CSX
- Ave Delay per Motorist: **1:19**
- Ave Gate Down Time: **2:23**
- Delayed Vehicles: **4,469**
- Delayed Vehicles/AADT: **26%**
- 4% chance of annual accident



Assessment

- **High Demand:** Heavy auto traffic, commuter trains, intermodal trains
- **Very Expensive:** Long and wide bridge, would need eminent domain
- **Recommendation:** Pursue grade separation as long term priority

1,016 foot bridge
\$19.7 million

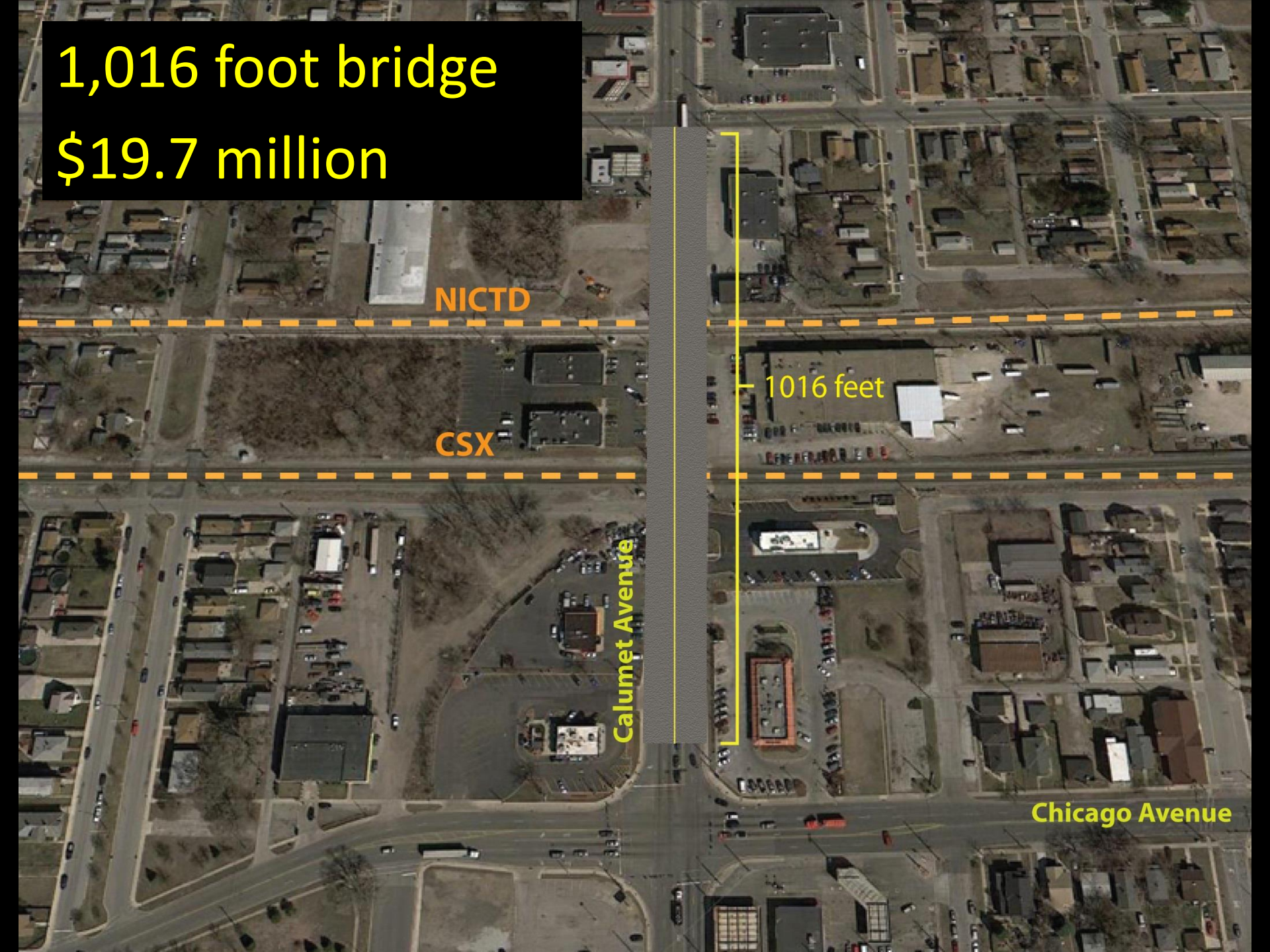
NICTD

CSX

Calumet Avenue

1016 feet

Chicago Avenue



165th Street (Hammond)

- Local road, east of Indy Blvd.
- IHB and NS
- Ave Delay per Motorist: :54
- Ave Gate Down Time: :54
- Delayed Vehicles: 275
- Delayed Vehicles/AADT: 3%
- 13% chance of annual accident



Assessment

- **Very Low Demand:** Delays rare, not heavy corridor
- **Occasional Accidents:** 10 in decade, 1 injury
- **Recommendation:** No grade separation, pursue other option to avoid accidents

1,216 foot and 766 foot bridge
\$14.9 million and \$8.9 million



Norfolk Southern

Indiana Harbor Belt

165th Street

1216 feet

Indiana Harbor Belt

766 feet

Calumet Avenue (Munster)

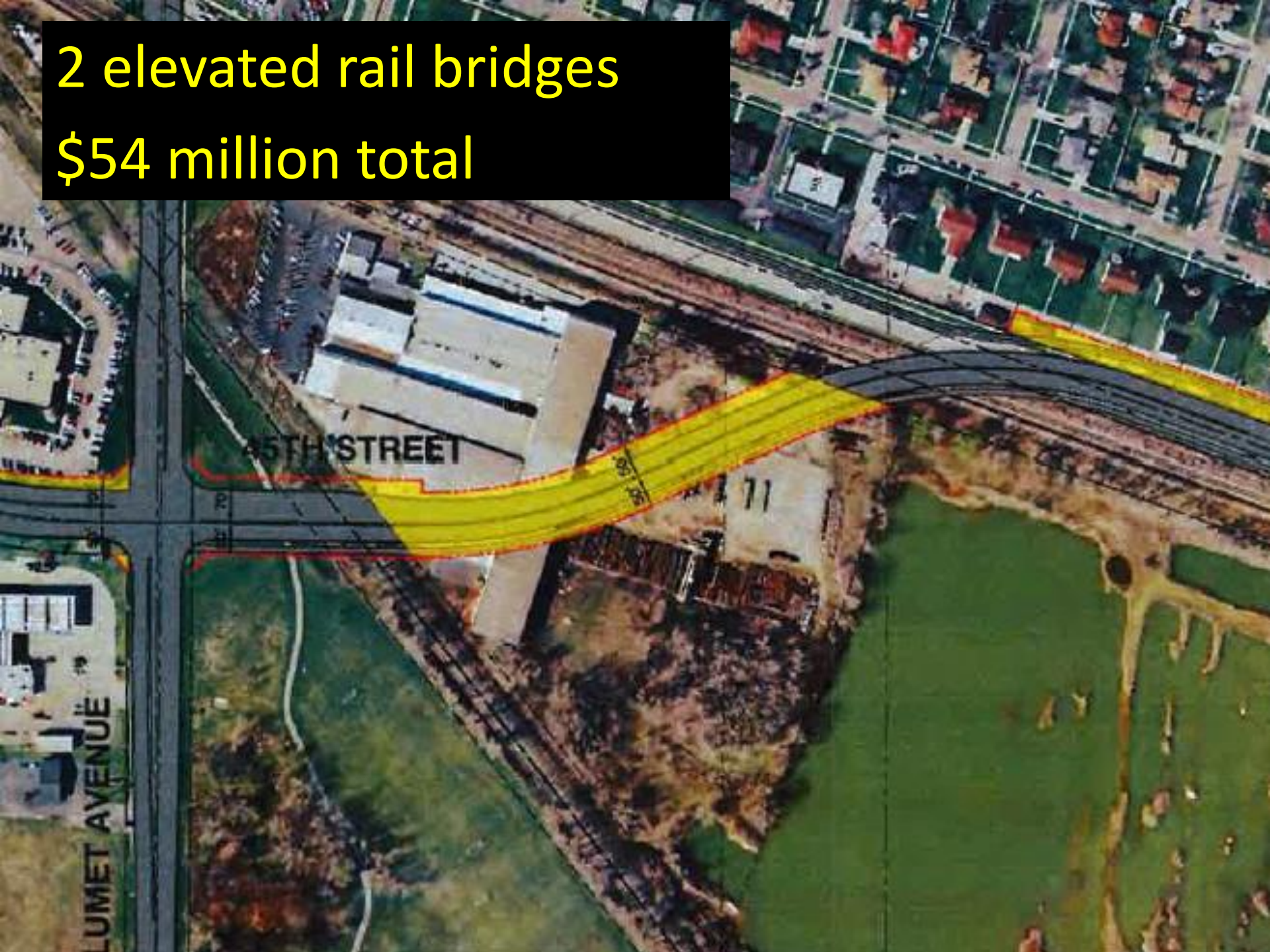
- Local road
- CN and CSX
- Part of larger redevelopment
- Ave Delay per Motorist: **1:54**
- Ave Gate Down Time: **2:57**
- Delayed Vehicles: **859**
- Delayed Vehicles/AADT: **3%**
- 4% chance of annual accident



Assessment

- **High Demand:** Heavy auto traffic, increasing intermodal trains, and clear community consensus
- **Very Expensive:** Two railroad flyovers
- **Recommendation:** Pursue grade separation through additional funding, as part of a broader plan

2 elevated rail bridges
\$54 million total



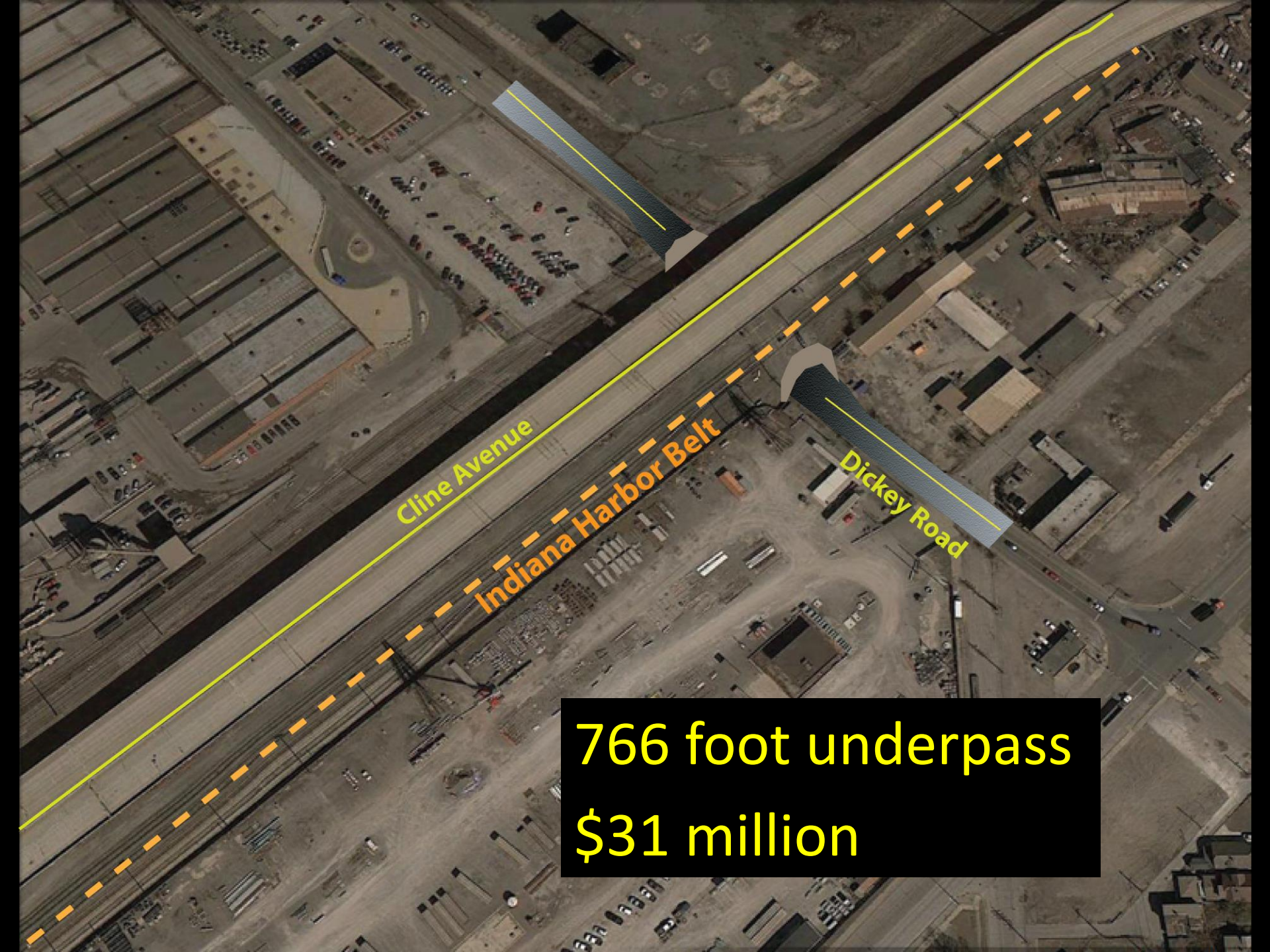
Dickey Road (East Chicago)

- Local road, below Cline Avenue
- IHB
- Ave Delay per Motorist: 4:06
- Ave Gate Down Time: 7:28
- Delayed Vehicles: 1,576
- Delayed Vehicles/AADT: 23%
- 11% chance of annual accident

Assessment

- **High Demand:** Worst delay times of the top 15
- **Very Expensive and Difficult:** Would have to be a highway underpass on a highly trafficked brownfield site
- **Recommendation:** Build a free nearby on-ramp to Cline Avenue when completed, instead of the underpass





Cline Avenue

Indiana Harbor Belt

Dickey Road

766 foot underpass
\$31 million

SR 312 (East Chicago)

- State highway
- CN & IHB
- Ave Delay per Motorist: 1:48/2:46
- Ave Gate Down Time: 3:16/5:02
- Delayed Vehicles: 101/2,329
- Delayed Vehicles/AADT: 1%/17%
- 17% chance of annual accident



Assessment

- **High Demand:** Heavily trafficked by cars and trains, with a relatively high count of accidents
- **Very Expensive:** Long and wide bridge
- **Recommendation:** Pursue grade separation as a long term priority

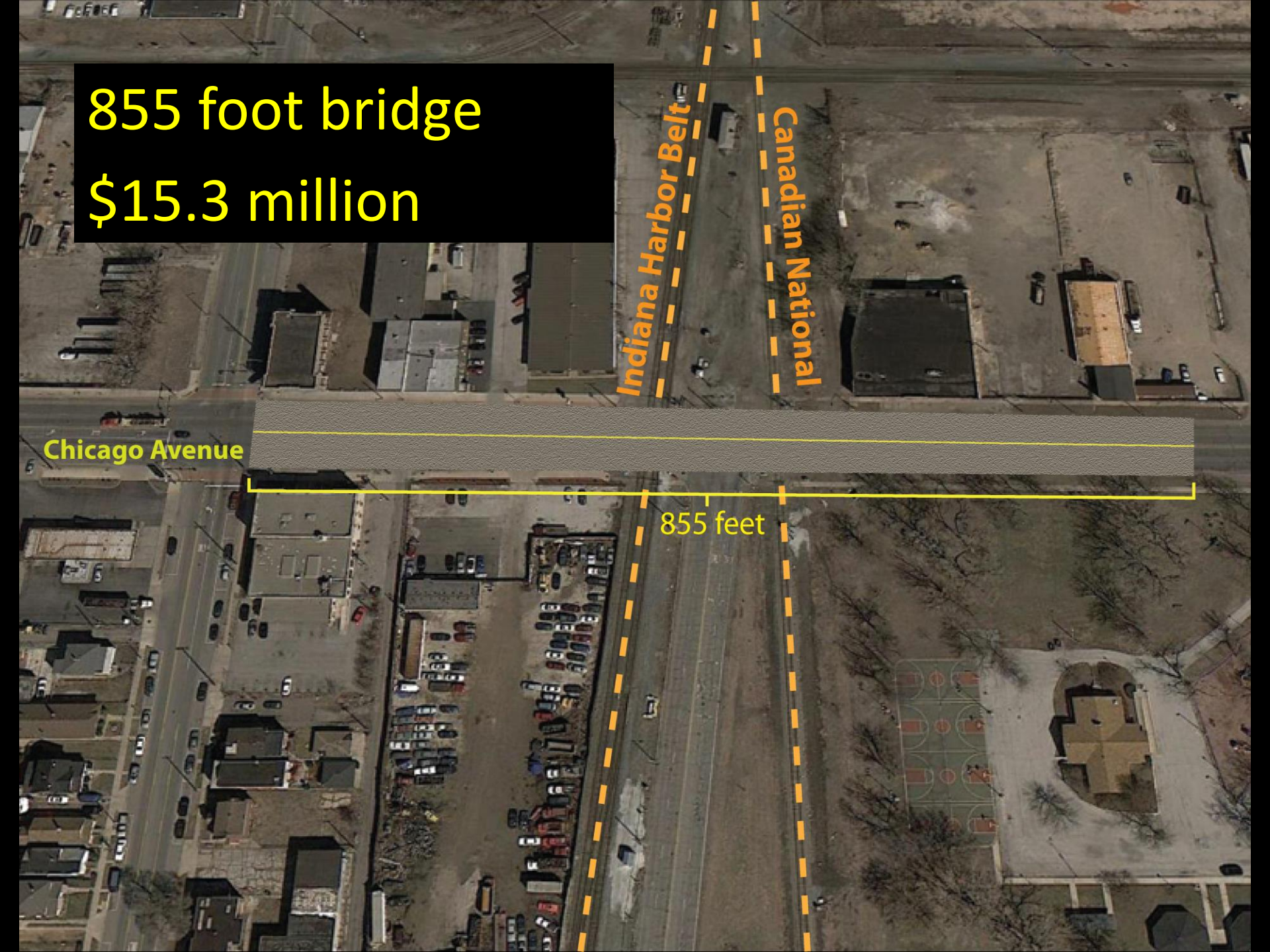
855 foot bridge
\$15.3 million

Indiana Harbor Belt

Canadian National

Chicago Avenue

855 feet



Euclid Road (East Chicago)

- Local Road
- CSX
- Ave Delay per Motorist: **1:29**
- Ave Gate Down Time: **2:43**
- Delayed Vehicles: **1,125**
- Delayed Vehicles/AADT: **13%**
- 17% chance of annual accident



Assessment

- **Mod. Demand:** Heavy train corridor, mod. truck traffic, with a relatively high count of accidents
- **Mod. Expensive:** Standard flyover bridge
- **Recommendation:** Should be grade separated, but not before SR 312

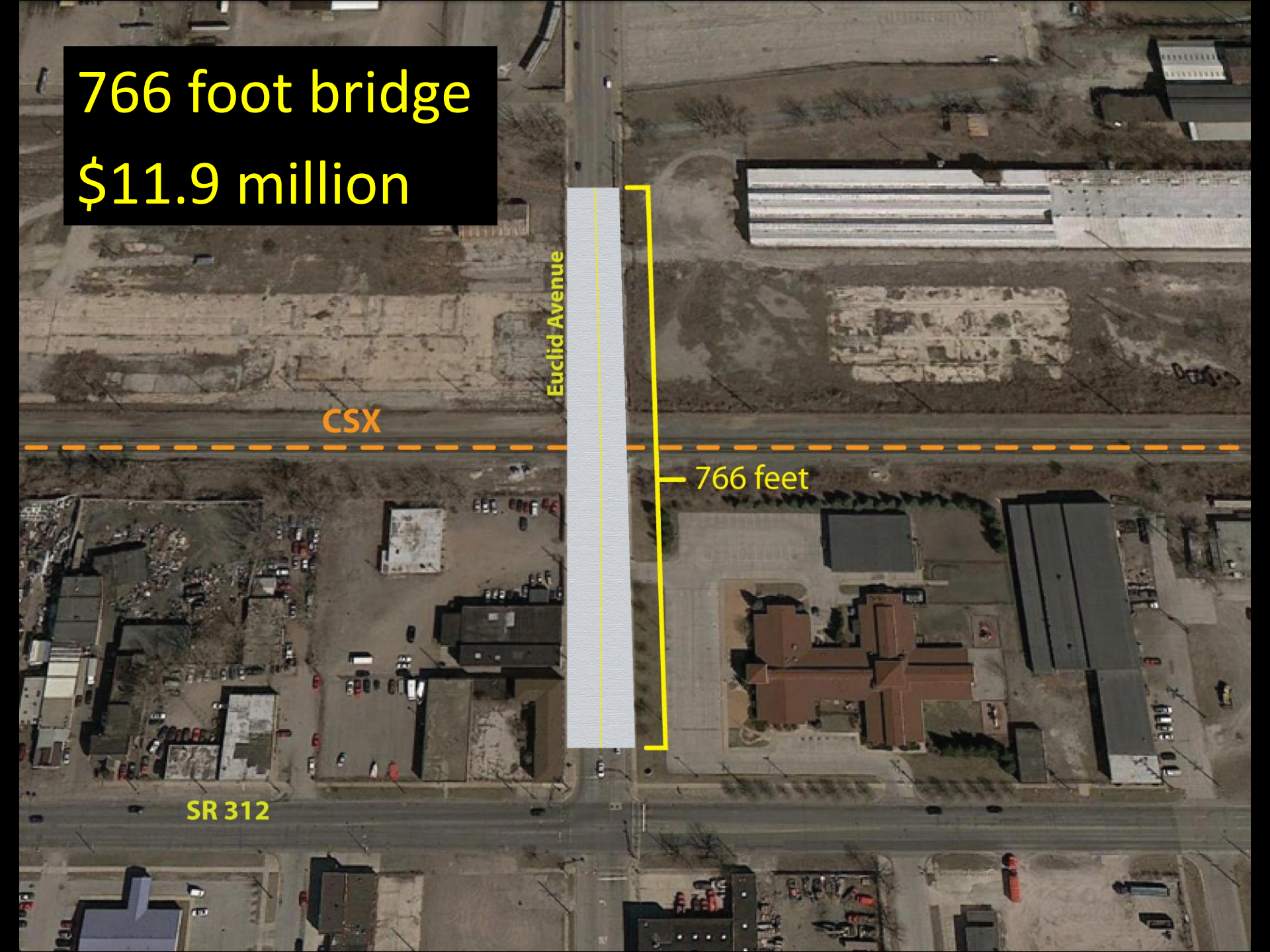
766 foot bridge
\$11.9 million

Euclid Avenue

CSX

766 feet

SR 312



Kennedy Avenue (Schererville)

- Local Road
- Part of potential redevelopment
- NS & CN
- Ave Delay per Motorist: 2:25
- Ave Gate Down Time: 4:23
- Delayed Vehicles: 809
- Delayed Vehicles/AADT: 9%
- 2% chance of annual accident



Assessment

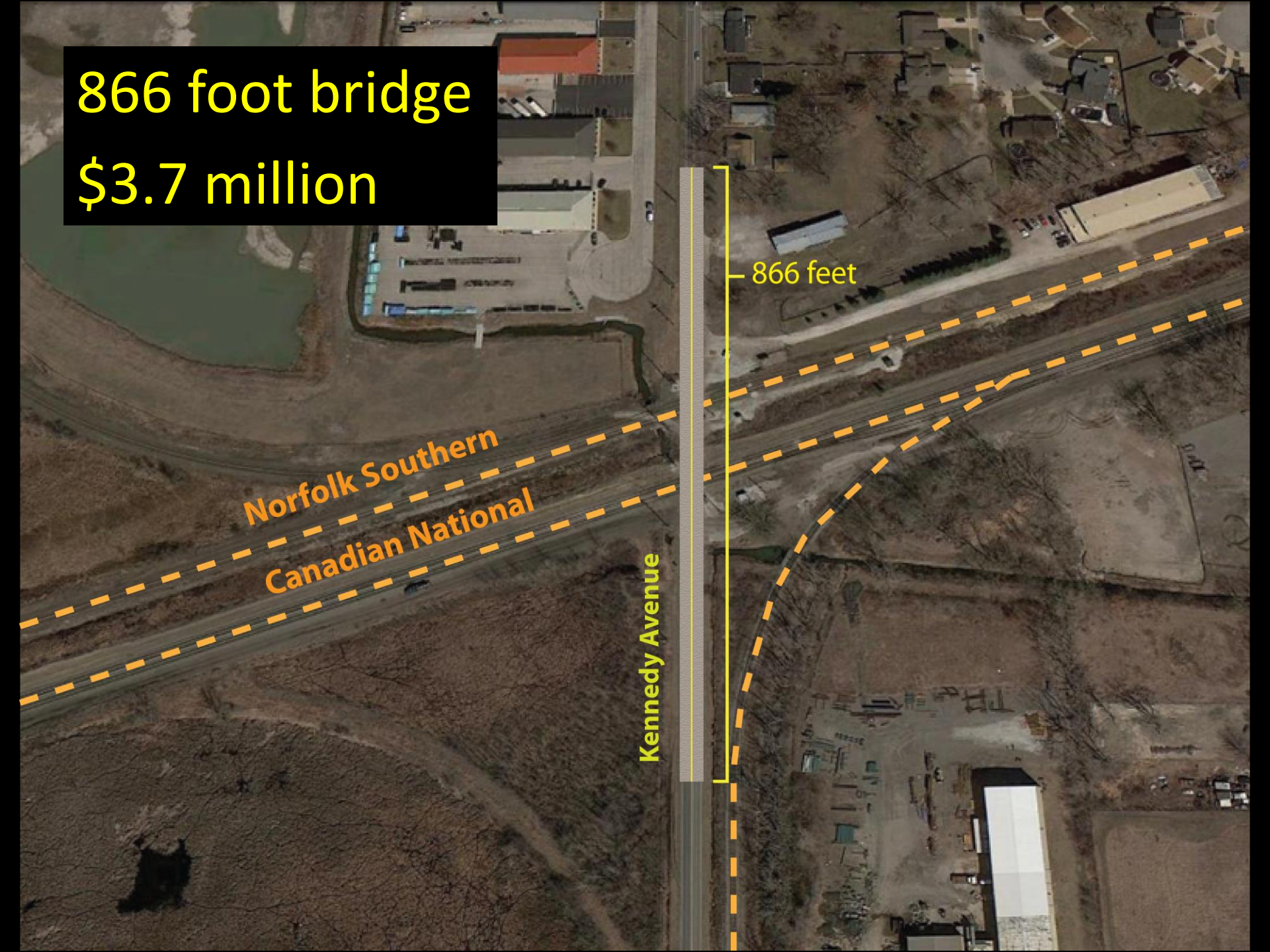
- **Current Demand Low:** Low traffic, low danger, moderate delay
- **Relatively Inexpensive:** Standard flyover bridge
- **Recommendation:** Grade separation contingent on success of road widening project

866 foot bridge
\$3.7 million

Norfolk Southern
Canadian National

Kennedy Avenue

866 feet



US 20/5th Avenue (Gary)

- Federal highway, east of Cline Ave
- CN
- Ave Delay per Motorist: **3:38**
- Ave Gate Down Time: **6:37**
- Delayed Vehicles: **1,241**
- Delayed Vehicles/AADT: **8%**
- 3% chance of annual accident



Assessment

- **High Demand:** Low traffic, low danger, moderate delay
- **Mod. Expensive:** Large but standard flyover bridge
- **Recommendation:** Pursue grade separation, with Kirk Yard related increases in train traffic, and Cline Ave reactivation

766 foot bridge
\$12.6 million

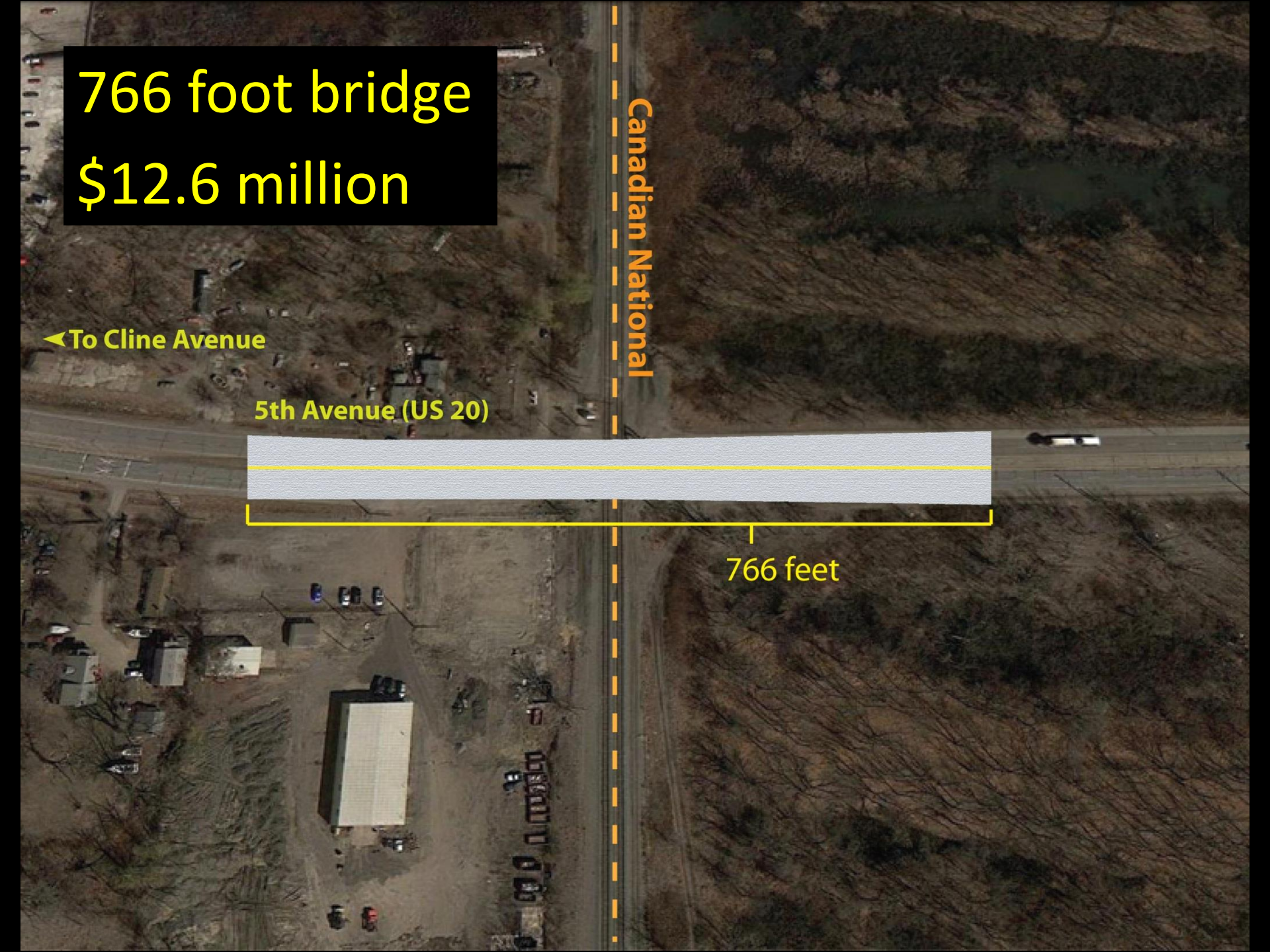
Canadian National

← To Cline Avenue

5th Avenue (US 20)



766 feet



Clark Road (Gary)

- Local Road
- NS, CSX, CN
- Ave Delay per Motorist: 2:10/1:28/:50
- Ave Gate Down Time: 3:56/2:40/1:30
- Delayed Vehicles: 1,111
- Delayed Vehicles/AADT: 31%
- 18% chance of annual accident



Assessment

- **High Demand:** Very heavy train corridor, delays, and a high proportion of accidents
- **Complications:** Huge bridge, threat to dune and swale, not a public road
- **Recommendation:** Work with US Steel and railroads on an access road alternative

1,488 foot bridge
\$9.9 million

Canadian National

Norfolk Southern

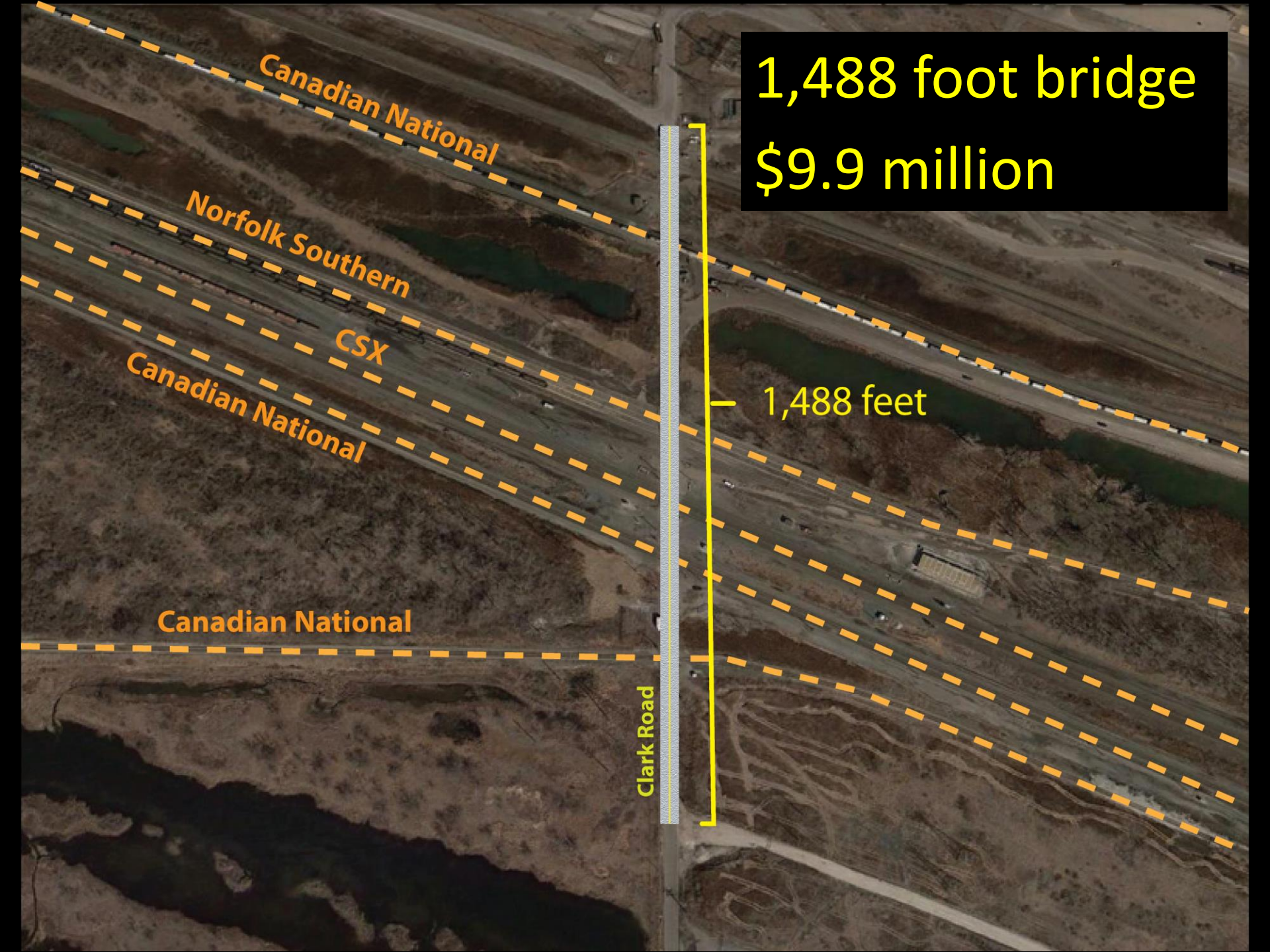
CSX

Canadian National

Canadian National

Clark Road

1,488 feet



Broadway Street (Gary)

- State highway
- NS
- Ave Delay per Motorist: **1:41**
- Ave Gate Down Time: **3:04**
- Delayed Vehicles: **1,576**
- Delayed Vehicles/AADT: **7%**
- 4% chance of annual accident



Assessment

- **Mod. Demand:** High auto and train traffic, but mod. delays
- **Very Expensive:** Long and wide bridge, would need eminent domain
- **Recommendation:** Consider other alternatives, and what the crossing should be in area's redevelopment plan

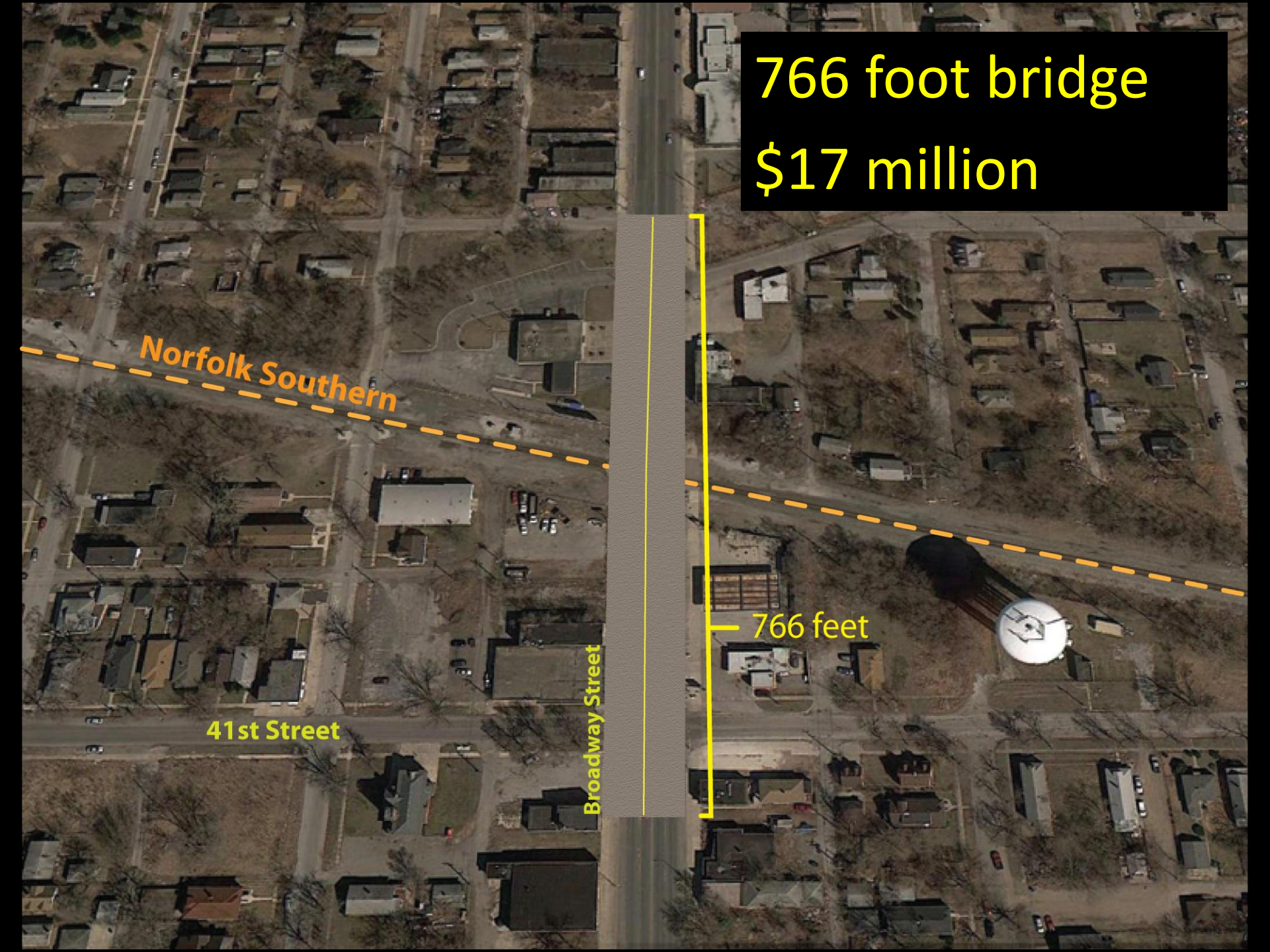
766 foot bridge
\$17 million

Norfolk Southern

41st Street

Broadway Street

766 feet



Old Hobart Road (Gary)

- Local Road
- CSX/CSSB
- Ave Delay per Motorist: 2:02
- Ave Gate Down Time: 3:42
- Delayed Vehicles: 478
- Delayed Vehicles/AADT: 15%
- 6% chance of annual accident



Assessment

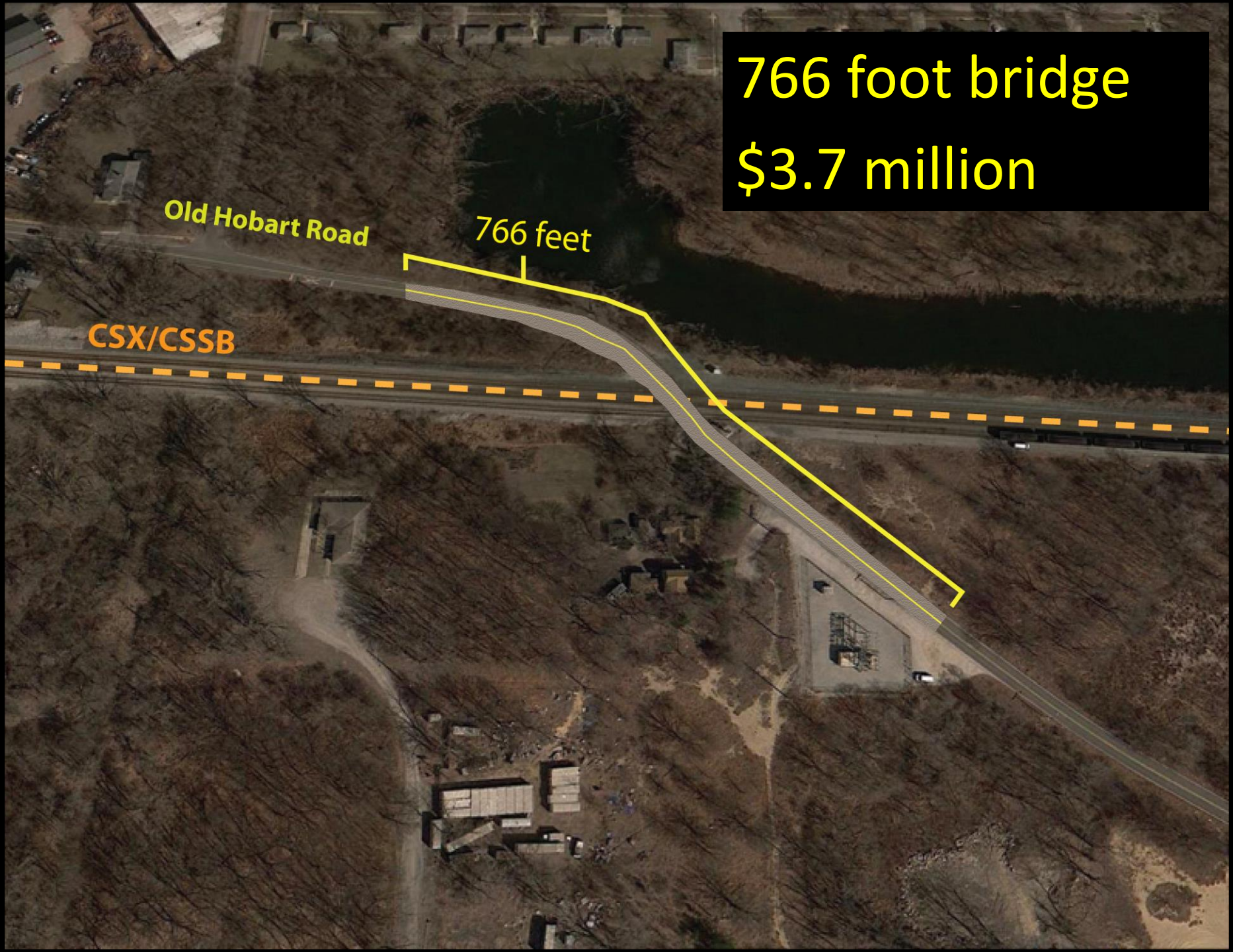
- **Mod. Demand:** High train traffic, but low auto traffic, curve in road creates safety hazard (1 fatality in last decade)
- **Relative Inexpensive:** Small bridge
- **Recommendation:** Pursue other crossing safety enhancement measures

766 foot bridge
\$3.7 million

Old Hobart Road

766 feet

CSX/CSSB



Colfax Road (Griffith)

- Local Road
- CN
- Ave Delay per Motorist: 1:44
- Ave Gate Down Time: 3:09
- Delayed Vehicles: 281
- Delayed Vehicles/AADT: 4%
- 2% chance of annual accident



Assessment

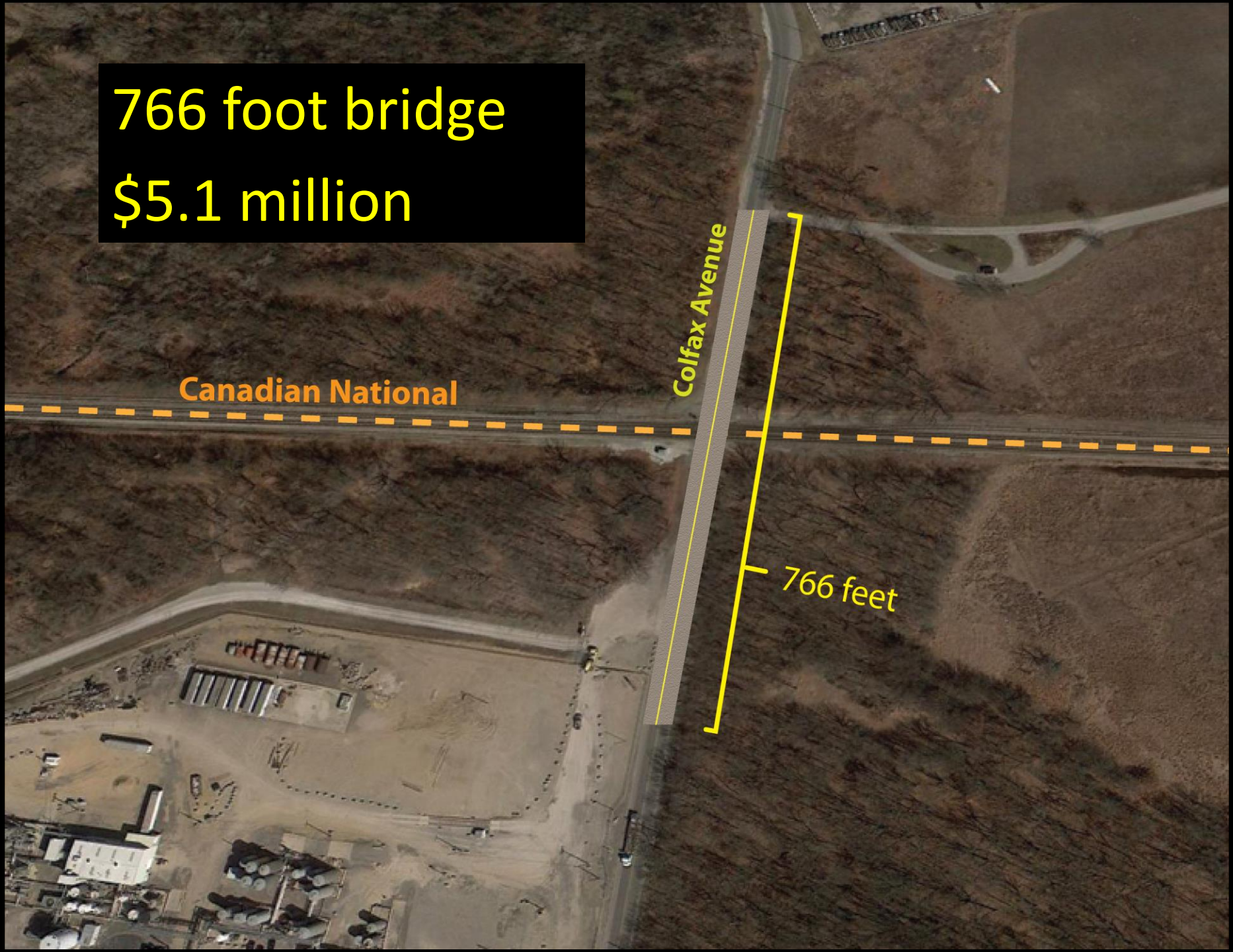
- **Low Demand:** High train traffic, but low auto traffic, and accident rate
- **Relative Inexpensive:** Small bridge, but conservation land might create barriers
- **Recommendation:** Pursue other enhancement option

766 foot bridge
\$5.1 million

Canadian National

Colfax Avenue

766 feet



Francis/15th (Chesterton/Porter)

- Local Road
- Area redevelopment plan, HSR plan
- Amtrak, CSX, NS
- Ave Delay per Motorist: **1:41/2:11**
- Ave Gate Down Time: **3:04/3:58**
- Delayed Vehicles: **88/789**
- Delayed Vehicles/AADT: **8%/21%**
- 3% chance of annual accident



Assessment

- **Mod. Demand:** High train traffic, but low auto traffic, high delay
- **Relatively Inexpensive but difficult:** Small bridge, but eminent domain would be necessary (18th/Busse flyover)
- **Recommendation:** Pursue at-grade separation only if it is in line with Chesterton & Porter's Redevelopment Plans



Amtrak

CSX

Norfolk Southern

15th Street

946 feet

946 foot bridge
\$5.3 million

SR 149 (Porter County)

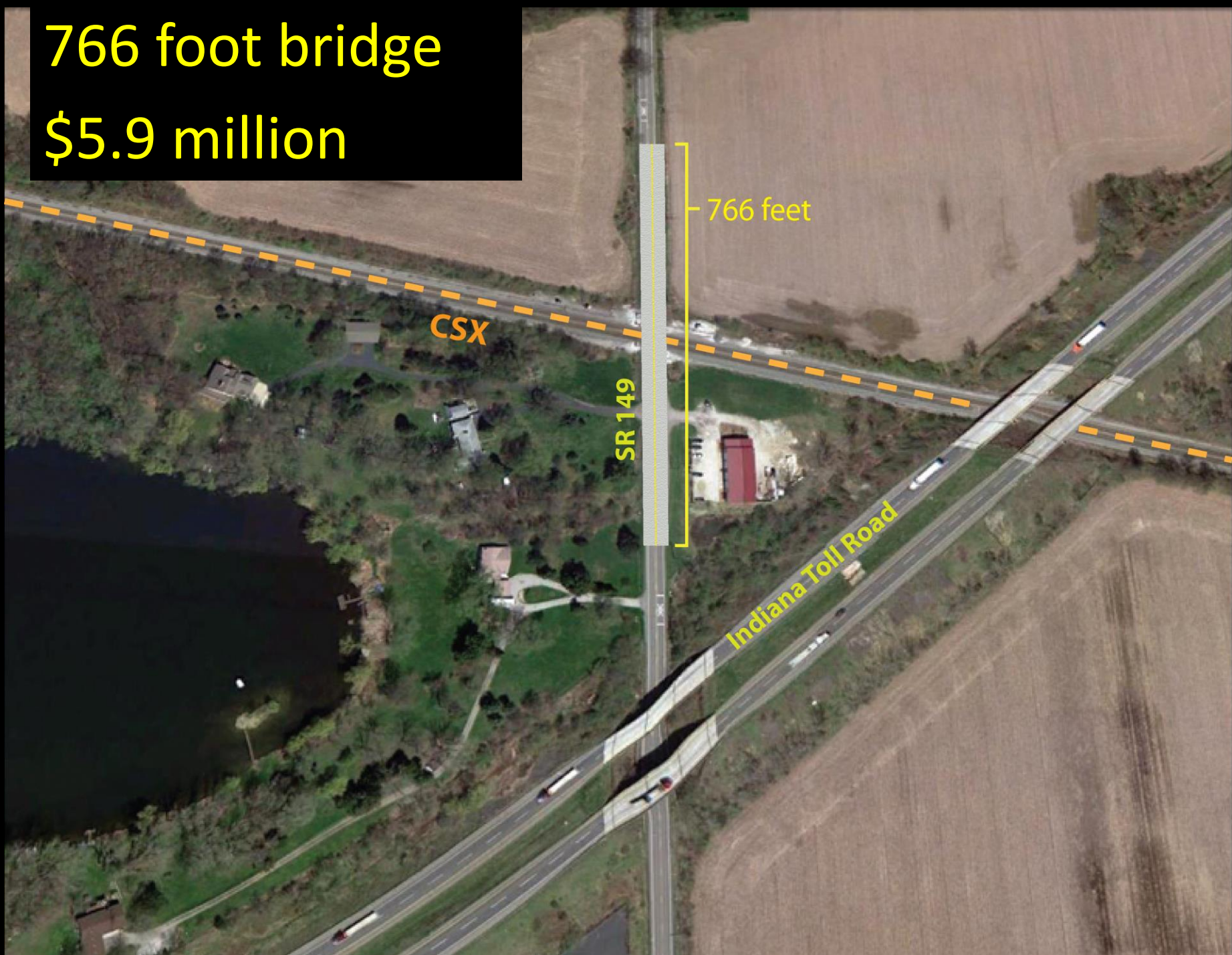
- State highway, north I-90
- CSX
- Ave Delay per Motorist: 1:23
- Ave Gate Down Time: 2:30
- Delayed Vehicles: 1,248
- Delayed Vehicles/AADT: 12%
- 26% chance of annual accident



Assessment

- **High Demand:** High auto and train traffic, dangerous intersection
- **Relatively Inexpensive:** Standard flyover bridge, not much development around
- **Recommendation:** Pursue at-grade separation

766 foot bridge
\$5.9 million



766 feet

CSX

SR 149

Indiana Toll Road

Tower Road (Porter County)

- County road
- CFE, CN, NS
- Ave Delay per Motorist: **N/A**
- Ave Gate Down Time: **N/A**
- Delayed Vehicles: **N/A**
- Delayed Vehicles/AADT: **N/A**
- 6% chance of annual accident



Assessment

- **Uncertain Demand:** High train traffic, uncertain delay data
- **Relatively Inexpensive but Enormous:** Standard flyover bridge, but 1600 feet in length
- **Recommendation:** Pursue other enhancement options



1600 foot bridge
\$7.7 million

Greatest Impact (Delays)

- Calumet Ave, Hammond
- Dickey Rd, East Chicago
- SR 312, East Chicago
- 5th Ave, Gary
- Clark Rd, Gary
- Old Hobart Rd, Gary
- Kennedy Ave, Schererville
- Francis/15th St,
Chesterton/Porter



Greatest Impact (Safety)

- SR 149, Porter County
- Clark Rd, Gary
- SR 312, East Chicago
- Euclid Ave, East Chicago
- 165th St, Hammond
- Dickey Rd, East Chicago



Structurally Simple

- Euclid Ave, East Chicago
- Kennedy Ave, Schererville
- 5th Ave, Gary
- Broadway St, Gary
- SR 149, Porter County



Structurally Complicated

- Calumet Ave, Hammond
- 165th Ave, Hammond
- Dickey Rd, East Chicago
- SR 312 East Chicago
- Calumet Ave, Munster
- Clark Rd, Gary
- Old Hobart Rd, Gary
- Colfax Ave, Gary
- Francis/15th, Chesterton/Porter
- Tower Rd, Porter County



Most Expensive

- Calumet Ave, Munster (\$54m)
- Dickey Rd, East Chicago (\$31m)
- 165th St, Hammond (\$24m)
- Calumet Ave, Hammond (\$19m)
- Broadway St, Gary (\$17m)
- SR 312, East Chicago (\$15m)
- 5th Ave, Gary (\$12m)
- Euclid Ave, East Chicago (\$12m)
- Clark Rd, Gary (\$10m)



Least Expensive

- Kennedy Ave, Schererville (\$4m)
- Old Hobart Rd, Gary (\$4m)
- Colfax Ave, Griffith (\$5m)
- Francis/15th, Chesterton/Porter (\$5m)
- SR 149, Porter County (\$6m)
- Tower Rd, Porter County (\$7m)



Gap Financing Scenarios

- Listed Sources Adequate
 - Calumet Avenue (Munster)
 - Kennedy Avenue (Schererville)
 - Clark Road (Gary)
 - Old Hobart Road (Gary)
 - Colfax Avenue (Griffith)
 - Francis St/15th St (Porter/Chesterton)
 - SR 149 (Porter County)
 - Tower Rd (Porter County)

Gap Financing Scenarios

- Other Sources Needed
 - Calumet Avenue (Hammond)
 - 165th Street (Hammond)
 - Euclid Avenue (East Chicago)
 - SR 312 (East Chicago)
 - Dickey Rd (East Chicago)
 - Broadway Street (Gary)
 - 5th Ave (Gary)

Crossing Recommendations

Pursue Grade Separation
as Long Term Goal

- Calumet Ave (Hammond)
- Calumet Ave (Munster)
- SR 312 (East Chicago)
- Euclid Ave (East Chicago)
- 5th Ave (Gary)
- SR 149 (Porter County)



Crossing Recommendations

Pursue Grade Separation,
Contingent on Broader
Redevelopment

- Clark Rd (Gary)
- Kennedy Ave (Schererville)
- Old Hobart Rd (Gary)



Crossing Recommendations

Pursue Grade Separation,
if truck rerouting fails

- Dickey Road (East Chicago)
- 15th/ Francis
(Chesterton/Porter)



Crossing Recommendations

Pursue other option:

- 165th St (Hammond)
- Colfax Ave (Griffith)
- Tower Rd (Porter County)



General Recommendations

- A construction authority be formed to implement at-grade crossing separations in Northwest Indiana
 - Similar to ACE Program in CA
- At-grade separations be congruent with a community's local plans



General Recommendations

- Assistance be provided to communities in creating commissions to help implement at-grade crossing projects
- More dedicated local sources be identified to drive projects



General Recommendations

- Engage local industry as a primary stakeholder for crossings where they are directly tied



An aerial photograph of a large rail yard. The yard is filled with numerous freight trains, each consisting of many railcars. The tracks are arranged in a grid-like pattern, and the railcars are of various colors, including blue, red, and silver. The text "Questions/Comments" is overlaid in the center of the image in a large, bold, yellow font.

Questions/Comments