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

Northwest Indiana At–Grade Crossing Report
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

June 2010 (NIRPC Freight Study)

Dec 2010 (NIRPC Freight Stakeholder Workshop)

May 2011 (Initial Rail Stakeholder Meeting)

July 2011 (Formation of NW Indiana Rail VISION Group and Survey)

Jan 2012 (Top 15 Identified & Traffic Analysis Completed)

Feb 2012 (Purdue Calumet Partnership)

Sept 2012 (Initial Draft Report Completed)

Oct 2012 (Tom leaves, Jack joins)

By June 2013
Reconnected with stakeholders
Refined traffic and safety analysis
Completed financial analysis
Completed structural analysis
Recommendations formed

July 2013 (Report completed)

Northwest Indiana At–Grade Crossing Report
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

Northwest Indiana At–Grade Crossing Report
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 remonstration 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 or EITHER long trains, slow trains or heavy car traffic, but rarely a combination
At-Grade Crossings from the Northwest Indiana At-Grade Crossing Report

- Dickey Road: 28 Trains per Day, 6,064 AADT
- Euclid Ave: 70 Trains per Day, 8,493 AADT
- US 20/Fifth Ave: 18 Trains per Day, 15,000 AADT
- Clark Road: 144 Trains per Day, 1,749 AADT
- Old Hobart Road: 60 Trains per Day, 2,948 AADT
- 4100 Broadway: 31 Trains per Day, 23,870 AADT
- 15th Street: 88 Trains per Day, 4,074 AADT
- Calumet Ave/US 41: 117 Trains per Day, 17,420 AADT
- East Chicago Ave: 32 Trains per Day, 13,900 AADT
- Calumet and 45th: 8.6 Trains per Day, 24,669 AADT
- Kennedy Ave: 18 Trains per Day, 9,323 AADT
- Colfax St: 17 Trains per Day, 7,450 AADT

Studied At-Grade Crossings

Source: NRPC
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
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
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
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
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
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
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
Clark Road (Gary)

- Local Road
- NS, CSX, CN
- Ave Delay per Motorist: 2:10/1:28/3:50
- 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
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
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
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
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
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/15\textsuperscript{th}, 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:

- 165\textsuperscript{th} 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
Questions/Comments

Northwest Indiana At–Grade Crossing Report