GLXS 2014

Global Level Crossing Safety and Trespass Prevention Symposium

Hanson Professional Services

HANSON

Aug. 3, 2014

SPRINGFIELD RAIL IMPROVEMENTS PROJECT

RAIL CONSOLIDATION TO ELIMINATE LEVEL CROSSINGS

Springfield Rail Improvements Project

Springfield Illinois


Illinois Department of Transportation
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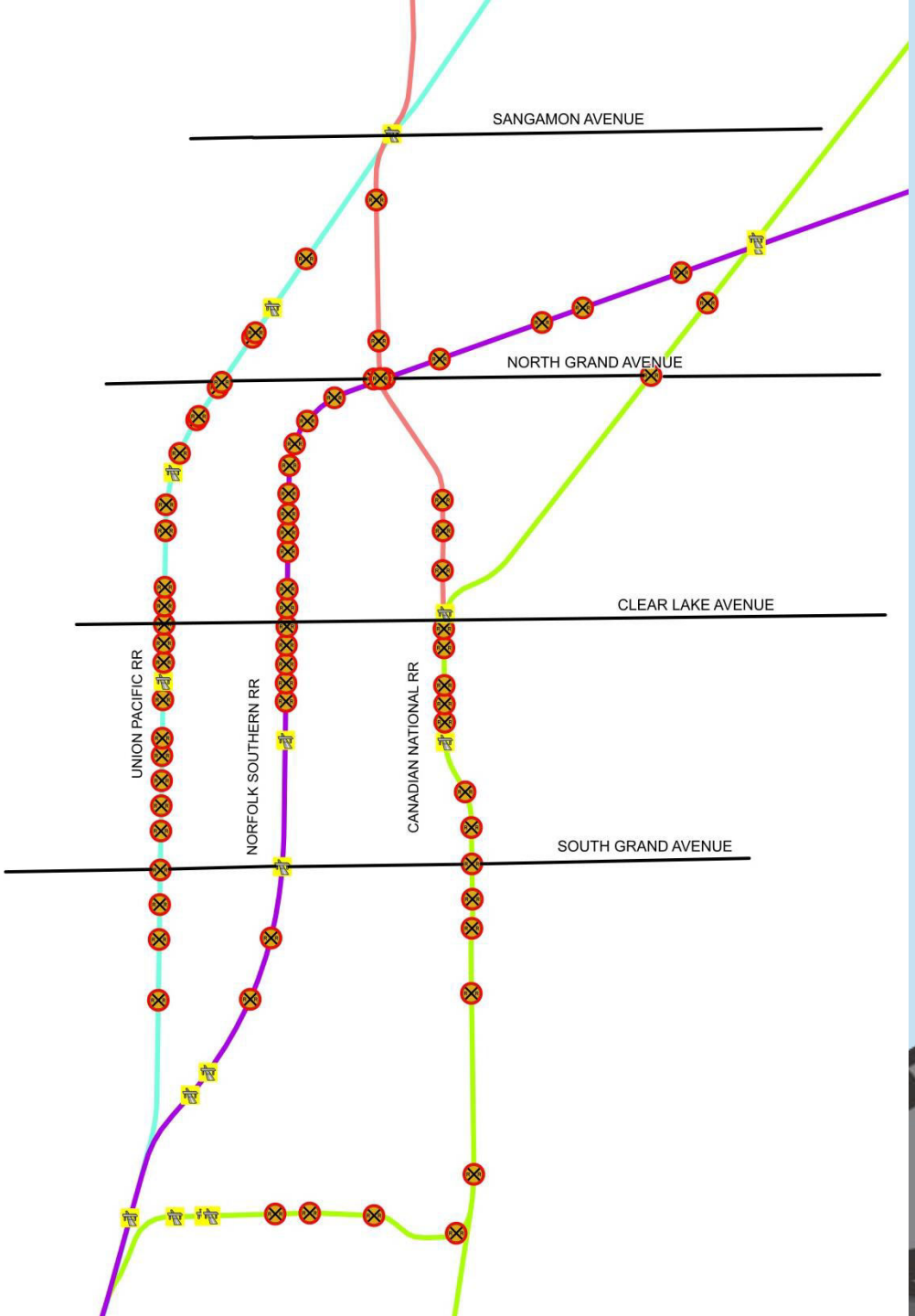
Springfield Rail Improvements Project
Existing Conditions
Sangamon
IM
5th
6th
9th
11th
North Grand
Carpenter
Madison
Jefferson
Lawrence
South Grand
Laurel
Ash
Stanford
Clearlake
Cook
Lanphier High School
Memorial Hospital
St. John's Hospital
State Capitol
Amtrak
Old State Capitol
Hilton
County Building
UP (3rd St.)
NS (10th St.)
NS Rail Yard
Iles Park
Southeast High School
CN (19th St.)
Bunn Park
N
SPRINGFIELD
RAIL IMPROVEMENTS PROJ



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RAIL IMPROVEMENTS PRO

PROBLEM STATEMENT

- **Existing problems**
  - 3 parallel corridors
  - 68 at-grade crossings
- **Changing conditions**
  - Rail traffic will more than double over the next 20 years
  - 40 trains per day on UP will require two tracks
  - Train speeds to double on UP
- **Study objective**
  - Determine best location to accommodate existing and increased rail traffic through Springfield, Ill.

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NE
AY


30

	Current (2010) Rail Traffic	Projected (2030) Rail Traffic (Build)
Union Pacific	10 Passenger 5 Freight	18 Passenger 27 Freight
Norfolk Southern	16 Freight	27 Freight
Canadian National	4 Freight	9 Freight
Total	35 Trains	81 Trains

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VEHICLE DELAY ESTIMATES

- Constructed a spreadsheet that included each crossing
  - Hourly traffic
  - Crossing blockage time in each hour
- Used the city's traffic model to determine effects of queing
- Delays are a function of the square of the time the crossing is blocked "T" .

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VEHICLE DELAY ESTIMATES

- The number of vehicles blocked is the average traffic volume (Vol) multiplied by “T” = (Vol.)(T)
- Average delay per vehicle = T/2
- Total delay = (Vol)(T)(T/2) = (Vol)(T^2)
- A six - minute train causes twice as much delay as two three - minute trains

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VEHICLE DELAYS AT RAILROAD CROSSINGS

2010

Total = 13,800 vehicle minutes

2030

Total = 47,500 vehicle minutes

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VEHICLE – TRAIN CRASH PREDICTION

- USDOT crash prediction method
- Illinois DOT Rail – Highway Crossing Resource Allocation Procedure
- Estimated crashes per year for each crossing

VEHICLE – TRAIN CRASHES

2010

Total = 1.58 crashes / year

2030

Total = 2.53 crashes / year

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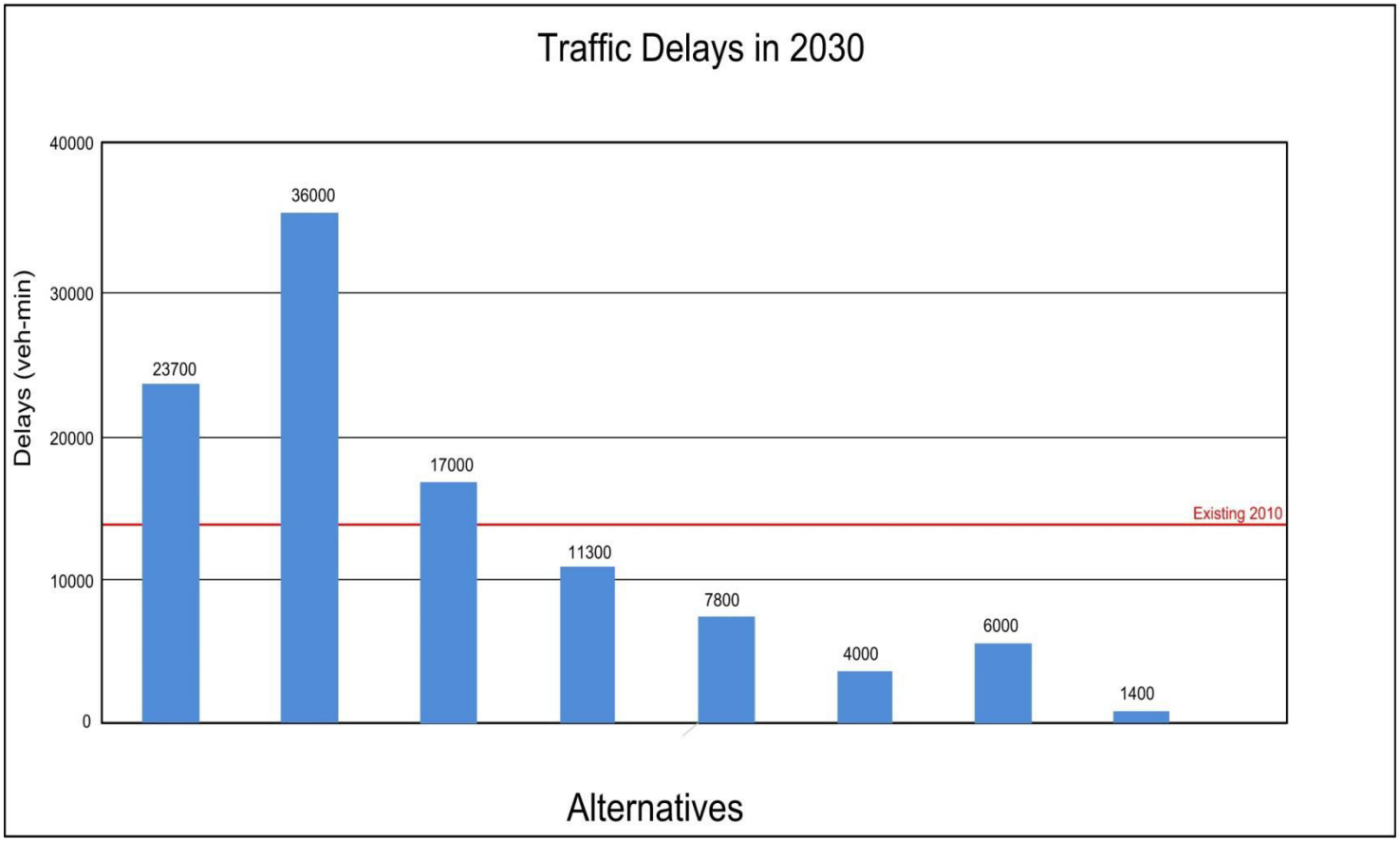
TRAFFIC DELAYS



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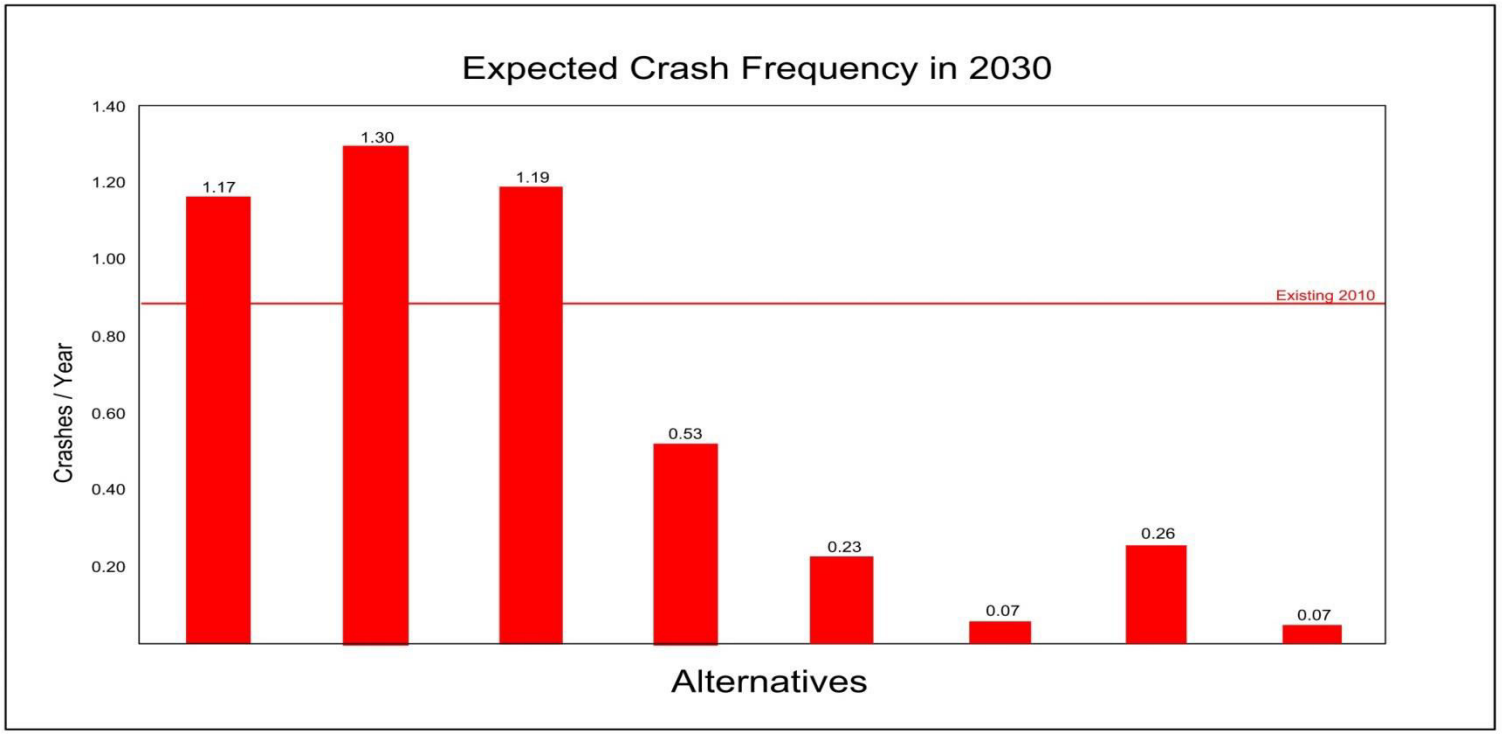
EXPECTED CRASH FREQUENCY



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CONSOLIDATION CAN REDUCE DELAYS AND IMPROVE SAFETY

- Move tracks to lower traffic corridor
- Double the effectiveness of grade separations or crossing safety improvements

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Engaging the Public

COMMUNICATIONS & OUTREACH VEHICLES

- **Public Engagement Team Developed**
  - Informational video
  - Web site
  - Study newsletter (2)
  - Open house postcards
  - Open house door hangers
  - Open house posters
  - Open house fliers
  - Traveling kiosks (4)

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CORRIDOR MAP

Environmental Studies

ENVIRONMENTAL RESOURCES

- Community impacts
- Historic structures and archaeological sites
- Noise & vibration analysis
- Section 4(f) impacts
- Special waste sites
- Natural resources


Illinois Department of Transportation
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Springfield Rail Improvements Project
Approved Alternative
Sangamon
IM
Lanphier High School
5th
6th
North Grand
9th
11th
Carpenter
Memorial Hospital
St. John's Hospital
Madison
Jefferson
SMTD Transfer Facility
Amtrak
Clearlake
State Capitol
Old State Capitol
Hilton
County Building
Cook
Lawrence
UP (10th St.)
NS
South Grand
Laurel
Ash
Iles Park
Southeast High School
CN (19th St.)
Bunn Park
N
Stanford
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Estimated Delays in 2030 (Vehicle-Minutes / Day)		
	No-Build	Recommended Alternative
Total	47,500	13,500
Estimated Car-Train Collisions in 2030 (Collisions / Year)		
	No-Build	Recommended Alternative
Total	2.53	0.26

GRADE SEPARATIONS AT 10TH STREET

GRADE SEPARATIONS AT 19TH STREET

RECOMMENDED ALTERNATIVE

- Shift UP to new corridor adjacent to NS
- Construct six new grade separations in NS corridor
- Close five crossings in NS corridor
- Build two new grade separations in CN corridor
- Reduce level crossings by 36 from 68 to 32
- Right of way fenced for length of corridor

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RECOMMENDED ALTERNATIVE

- Total cost $315 million
- Total displacements 167
- Project built in useable segments
- Carpenter Street underpass is the first useable segment, which begins construction in August 2014
- Future segment depends on funding

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