

Grade Crossings

The issue

Research and analysis

Prioritization

Planning and Environmental Linkages (PEL) Studies

The Issue

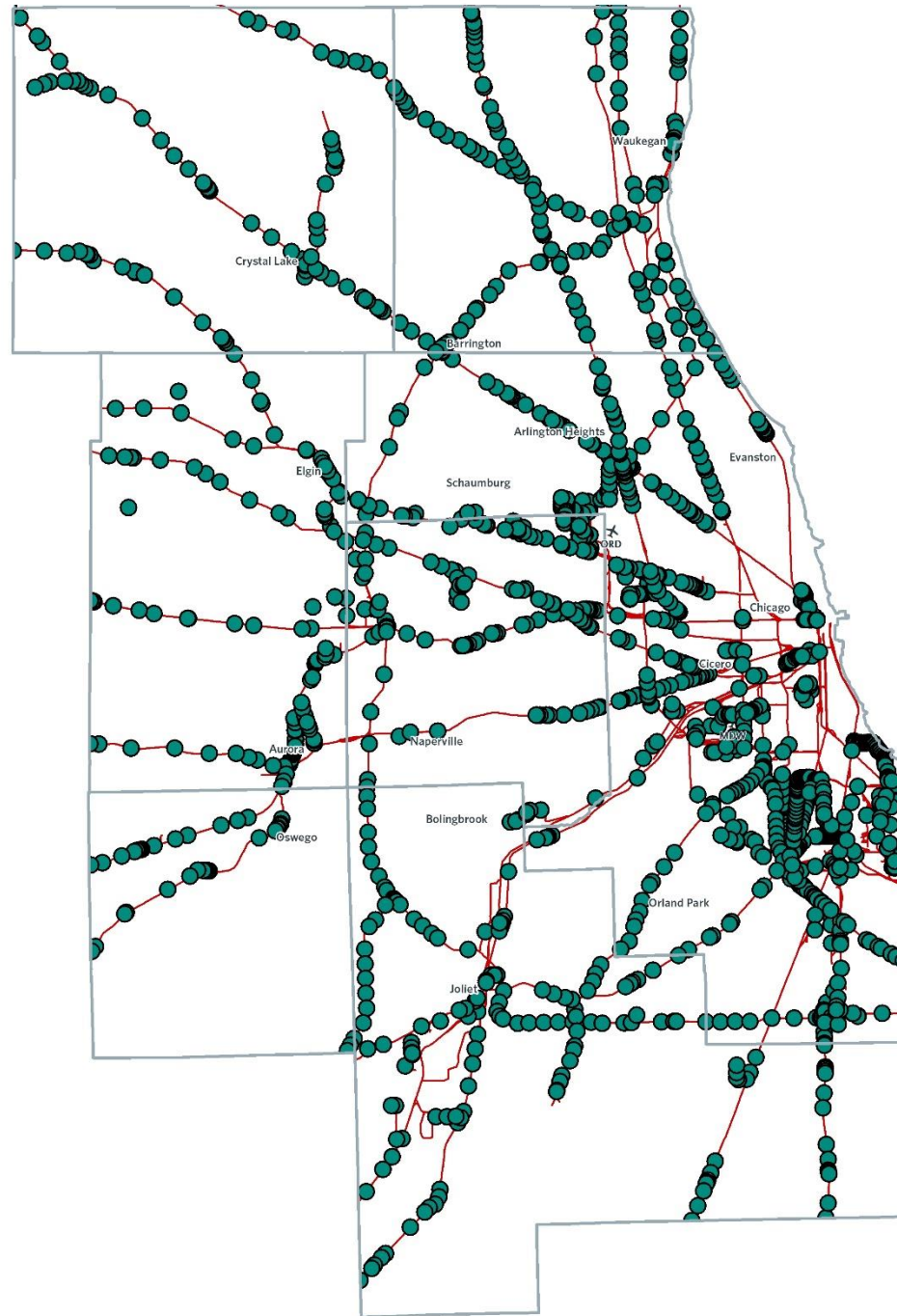


Highway-Rail Grade Crossings

- Grade Crossings
- Railroads

Sources: ICC, FRA, CMAP

There are 1,646 highway-rail grade crossings and more than 1200 daily trains in the 7-county Chicago region.



Regional indicator: Motorist delay

Indicator:
Motorist delay at highway-rail
grade crossings

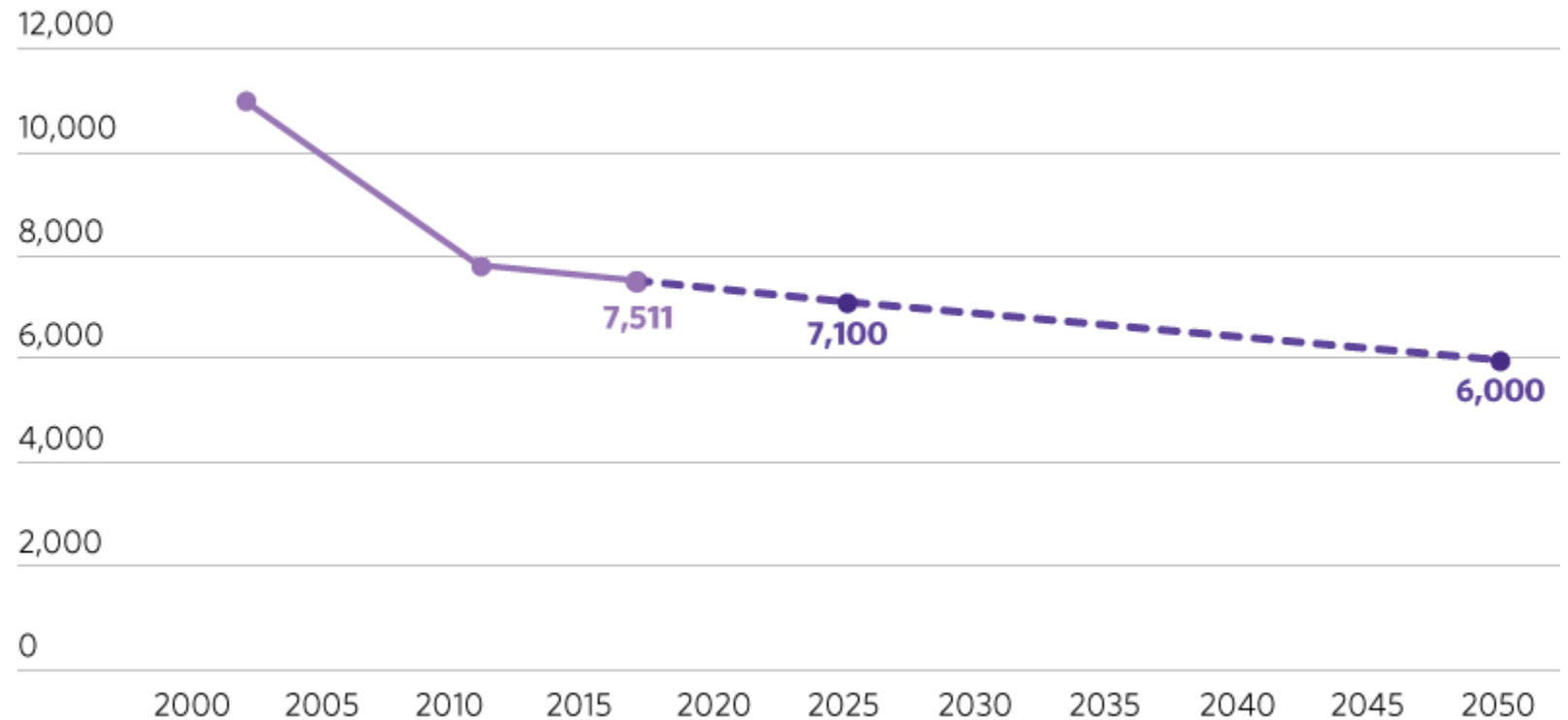
Key:

Actual

Target

Source: CMAP analysis of Illinois
Commerce Commission data

Hours of Delay per Weekday



Long gate-blockage events

- Gate blockages longer than 10 minutes are commonplace. We observed blockages longer than 60 minutes.
- There are now few policy levers available to address long blockages. Congress is considering legislative action.

Number of 2015 CN/EJE Blockages > 10 Minutes, Select Crossings

Location	Blockages > 10 Minutes, 2015	Location	Blockages > 10 Minutes, 2015
Washington St, Joliet	1,231	Liberty St, Aurora	971
N Rowell Ave, Joliet	611	Oakland Ave (Crest Hill)	597
Hawthorne Ave (West Chicago)	550	W Washington St (West Chicago)	352

Pedestrian safety and delay



Research and Analysis

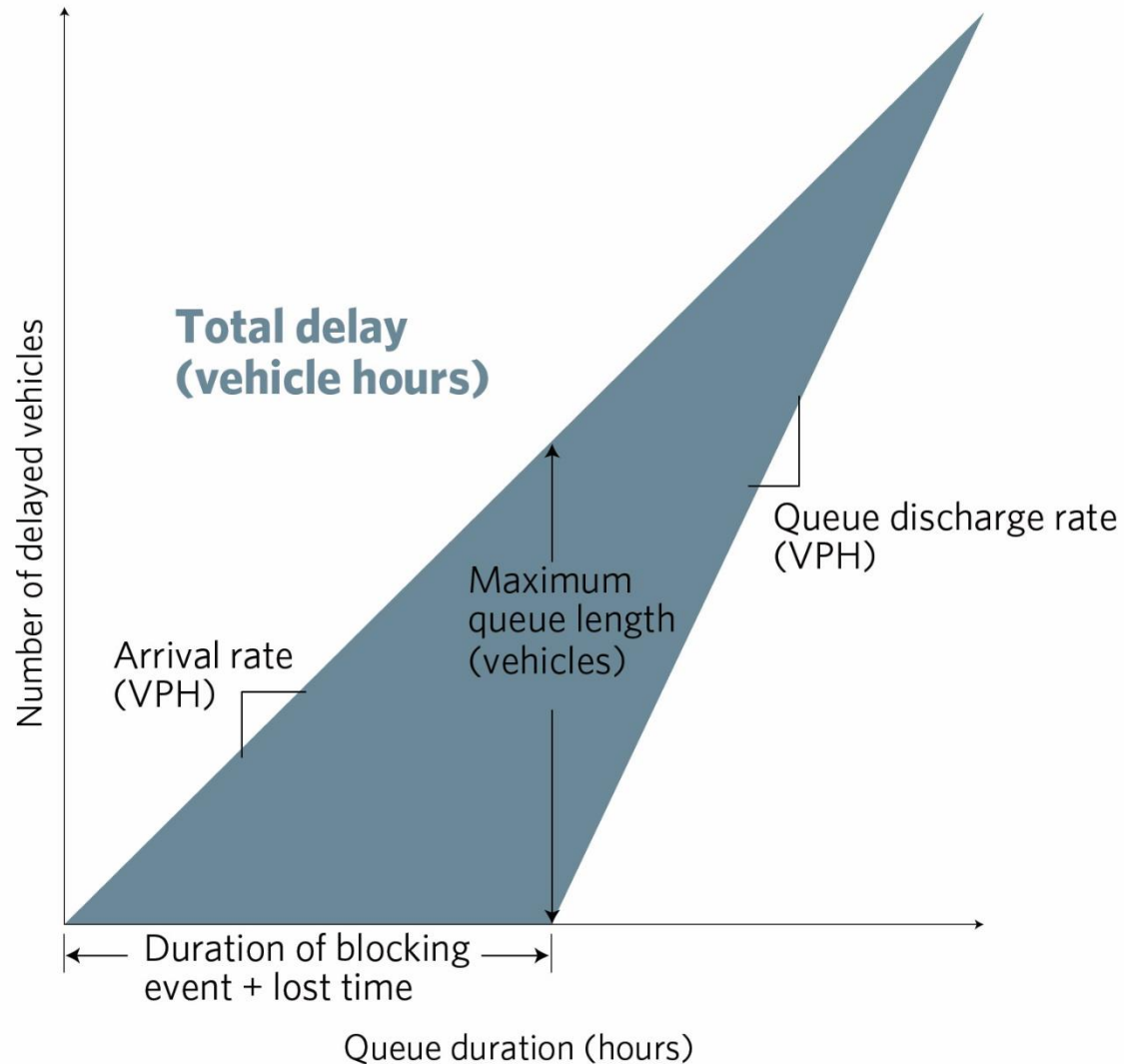


Estimating average delay

Estimating grade crossing delay

Note: VPH means "vehicles per hour."

Source: Chicago Metropolitan Agency for Planning analysis of Okitsu, Louie, and Lo, "Simulation-Free Railroad Grade Crossing Delay Analyses," 2010.

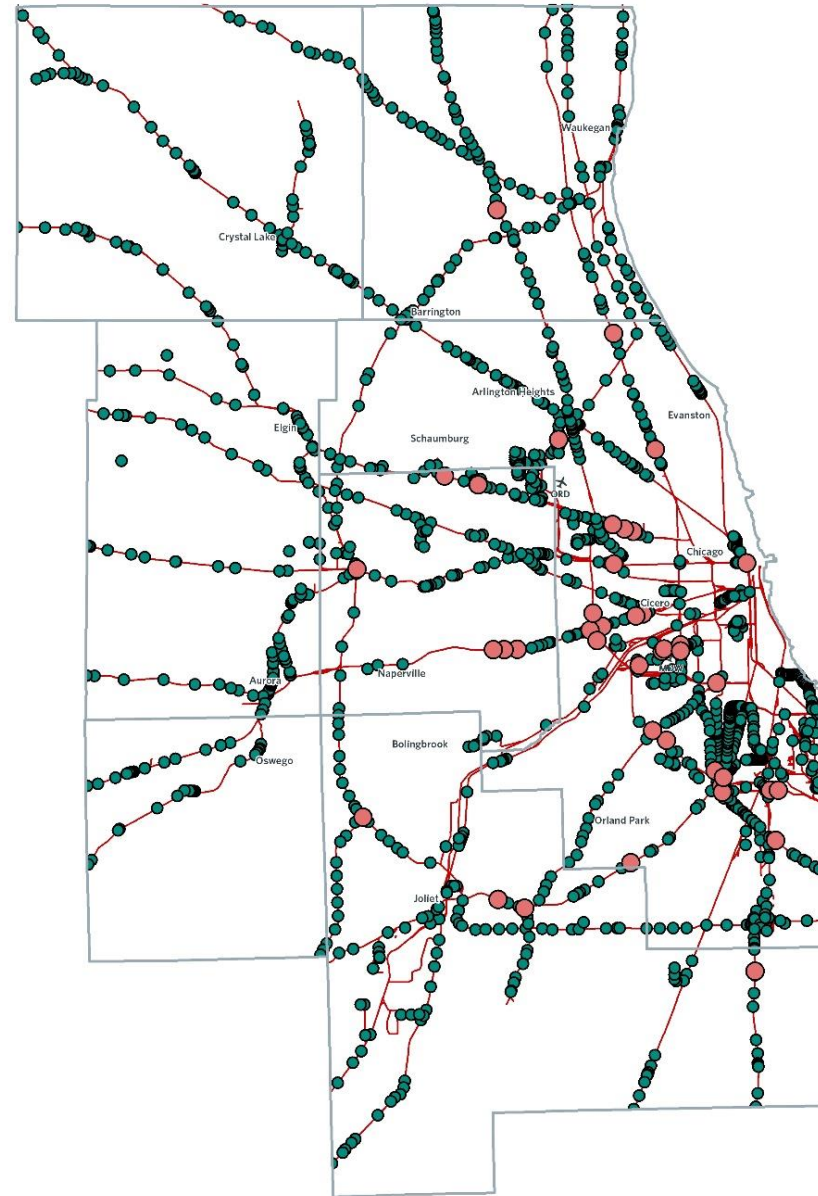


Highway-Rail Grade Crossings

- Grade Crossings
- Data Collection Sites
- Railroads

Sources: ICC, FRA, CMAP

Data was collected over two summers at 40 sites, primarily by summer interns.

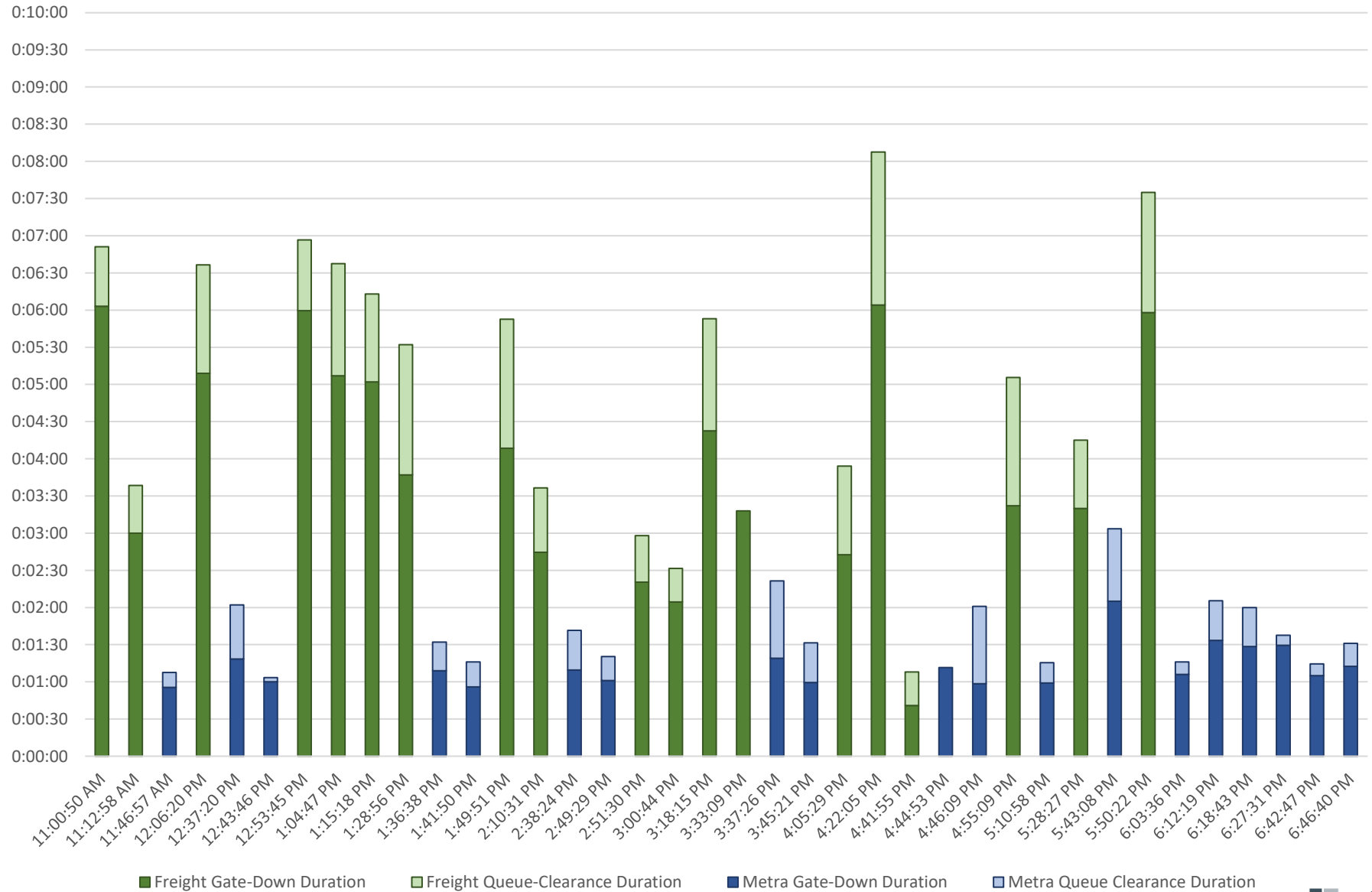


Crossings 174973G, 260541T - Washington St. UP/CN (West Chicago)
 Gate-Down and Queue-Clearance Durations by Type (Minutes, 2017)

Freight trains are slower than expected.

Queue-clearance times are substantial.

At this crossing, ICC-estimated average gate-down times were 1:00 for Metra trains and 2:24 for freight trains.



■ Freight Gate-Down Duration ■ Freight Queue-Clearance Duration ■ Metra Gate-Down Duration ■ Metra Queue Clearance Duration

Results: Motorist delay per crossing

Average of Old Estimates of Delay

46 hours

per

weekday

Range 2 - 182

Average of New Estimates of Delay

120 hours

per

weekday

Range 2 - 430

Percent Change

↑160%

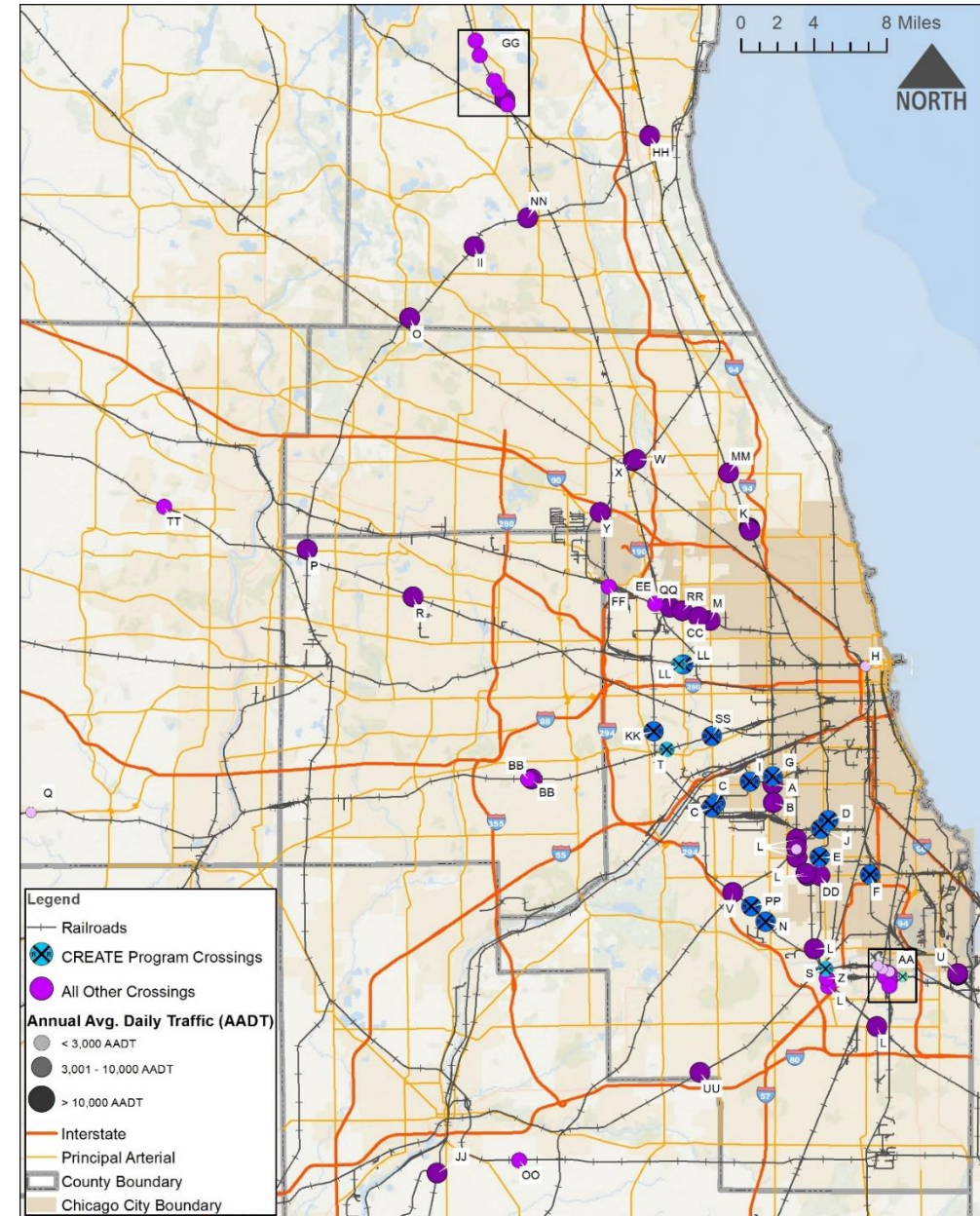
Prioritization



Grade crossing prioritization

Numeric analysis of all 1646 crossings:

- estimate of crossing delay
- estimate of crash risk
- truck exposure
- transit impact
- initial analysis of likely impacts
- status of project development

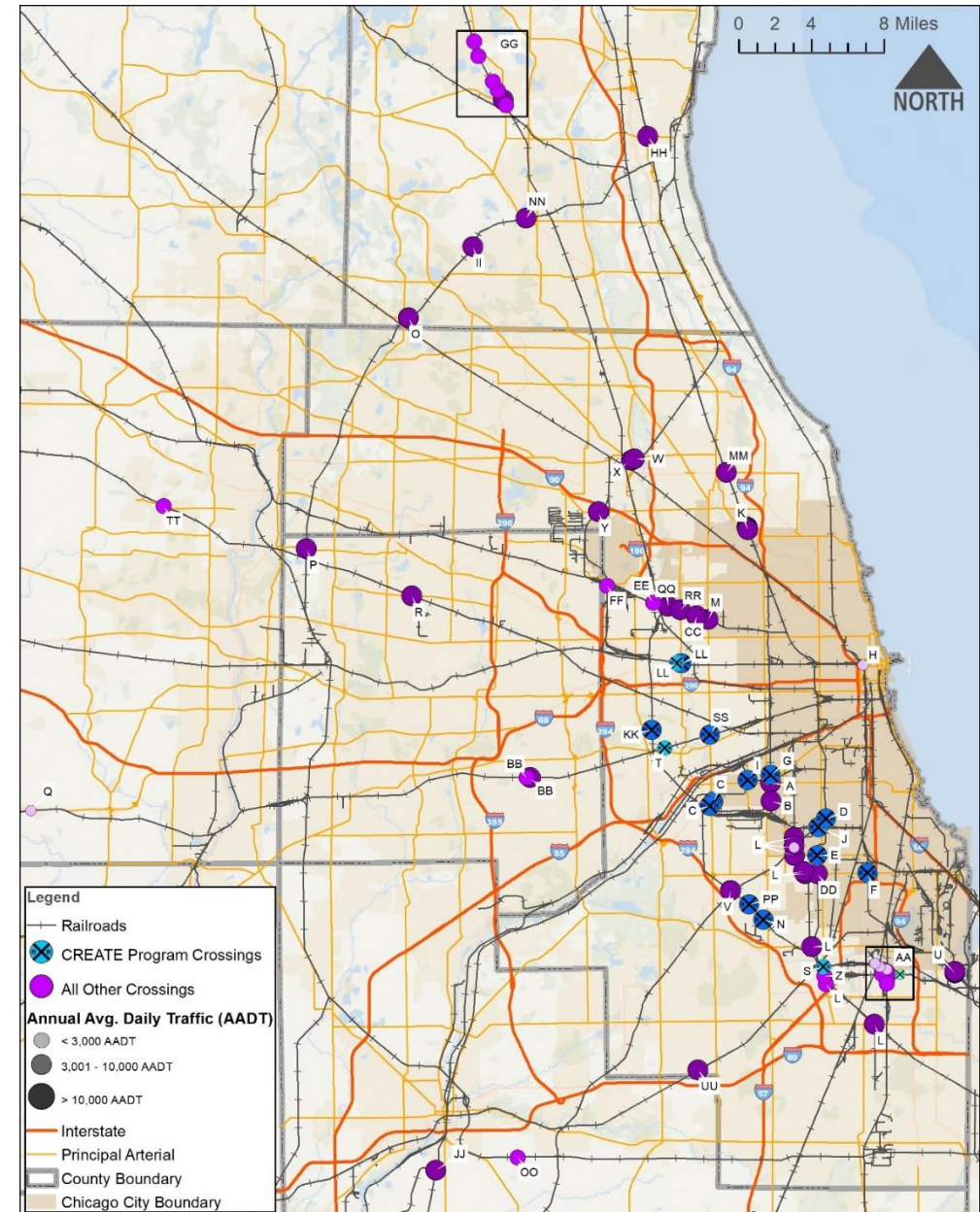


Grade crossing prioritization

Qualitative review of top 150 crossings:

- focus on grade separations
- detailed review of each crossing by five public agencies
- initial analysis of likely impact
- status of project development, if any
- review and comment by stakeholders

Result: 47 prioritized locations



Planning and Environmental Linkages (PEL) Studies



How to reduce crossing delay

Improve railroad performance

Highway improvements

Pedestrian separations

Full grade separations



Grand Ave, Franklin Park

How to reduce crossing delay (2)



US 30, Lynwood



Rollins Road, Round Lake Beach

How to reduce crossing delay (3)



130th St at Torrence Ave, Chicago



130th St at Torrence Ave, Chicago

PEL Studies

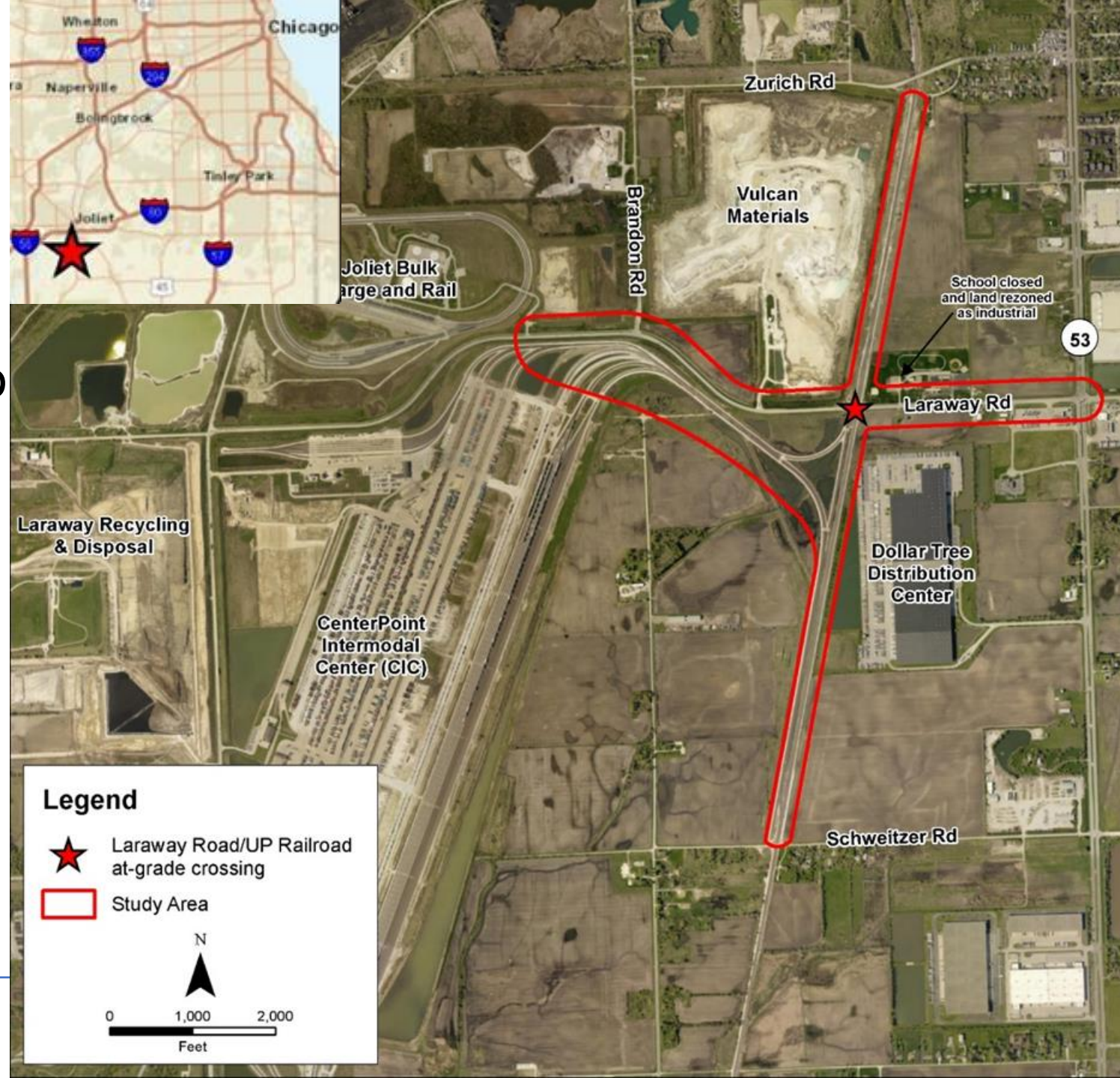
Initiate grade crossing studies

- Public engagement
- Define "purpose and need"
- Identify alternatives
- Screen alternatives
- Using Planning and Environmental Linkages process.

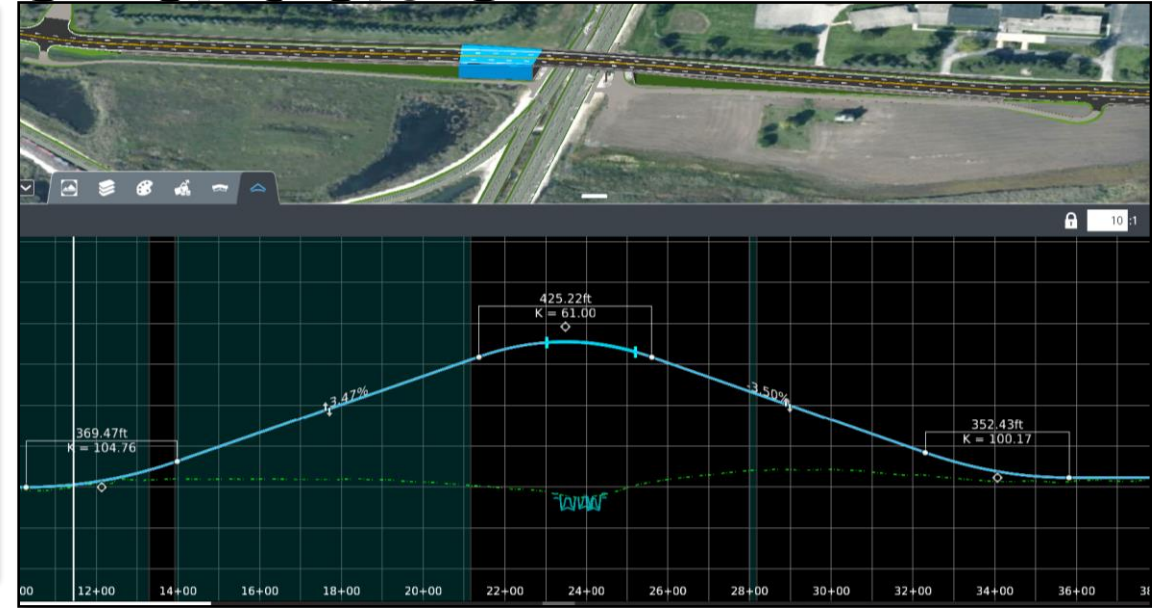
Because of the cost and disruption association with grade separations, some of these studies will likely recommend lower levels of investment than full grade separations.

Laraway Road PEL Study

- PEL study extends 1.3 miles from Brandon Road to IL Route 53
- At-grade railroad crossing with Union Pacific Railroad (UPRR)
- >75% truck traffic on Laraway Road
- UPRR comprised of 2 mainline tracks and a spur line to the CenterPoint Intermodal Center.
- Source: Jacobs Engineering



Four alternatives for evaluation



- Road raised over railroad grade
- Railroad raised over road grade
- Road lowered under railroad grade
- Railroad lowered under road grade

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