



Planning and Environmental Linkages Studies

February, 2021



Planning and Environmental Linkages Studies

Introduction: grade crossing issues

Overview: Planning and environmental linkages (PEL) studies

Timelines

Comments

Introduction: grade crossing issues

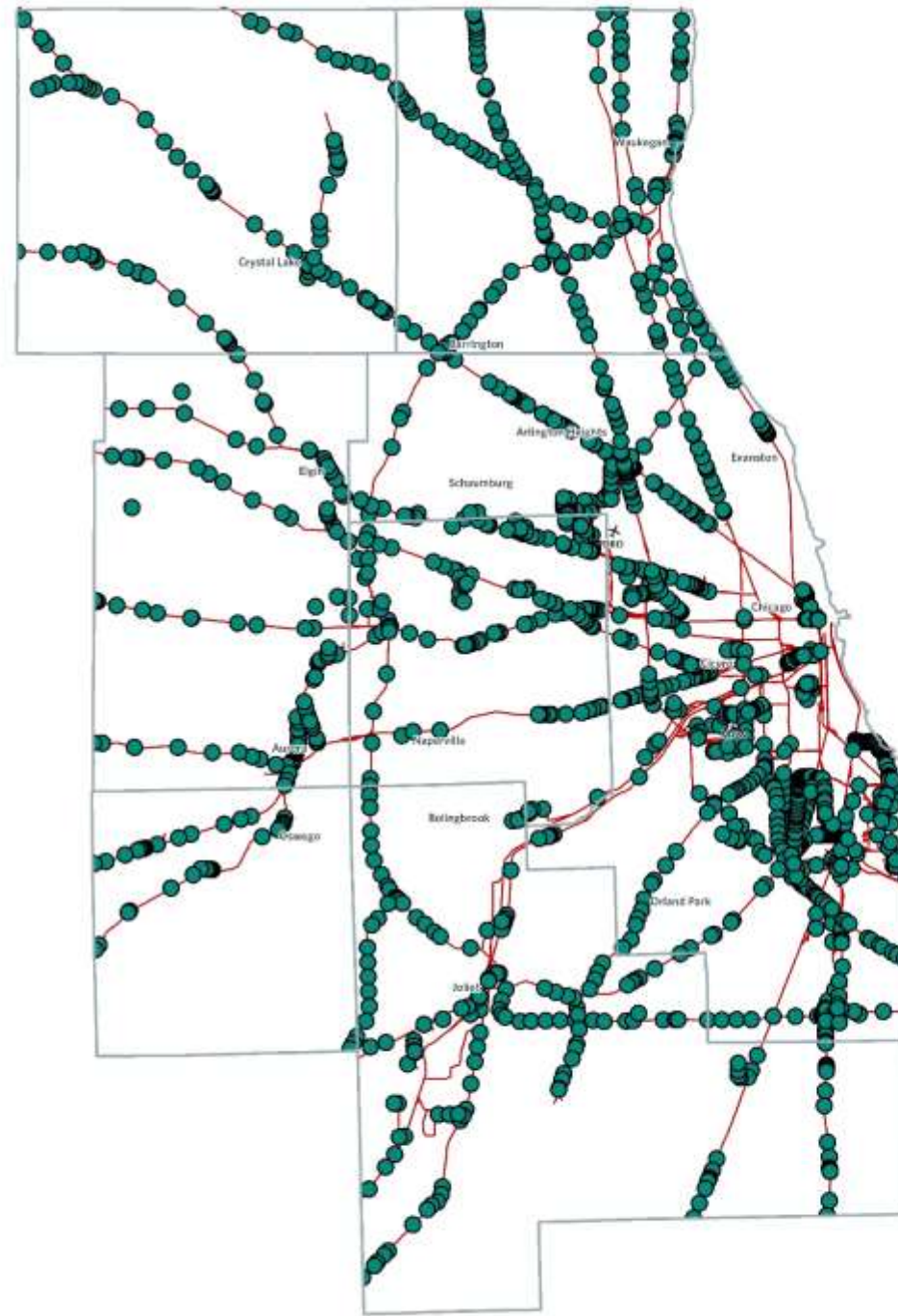


Highway-Rail Grade Crossings

- 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

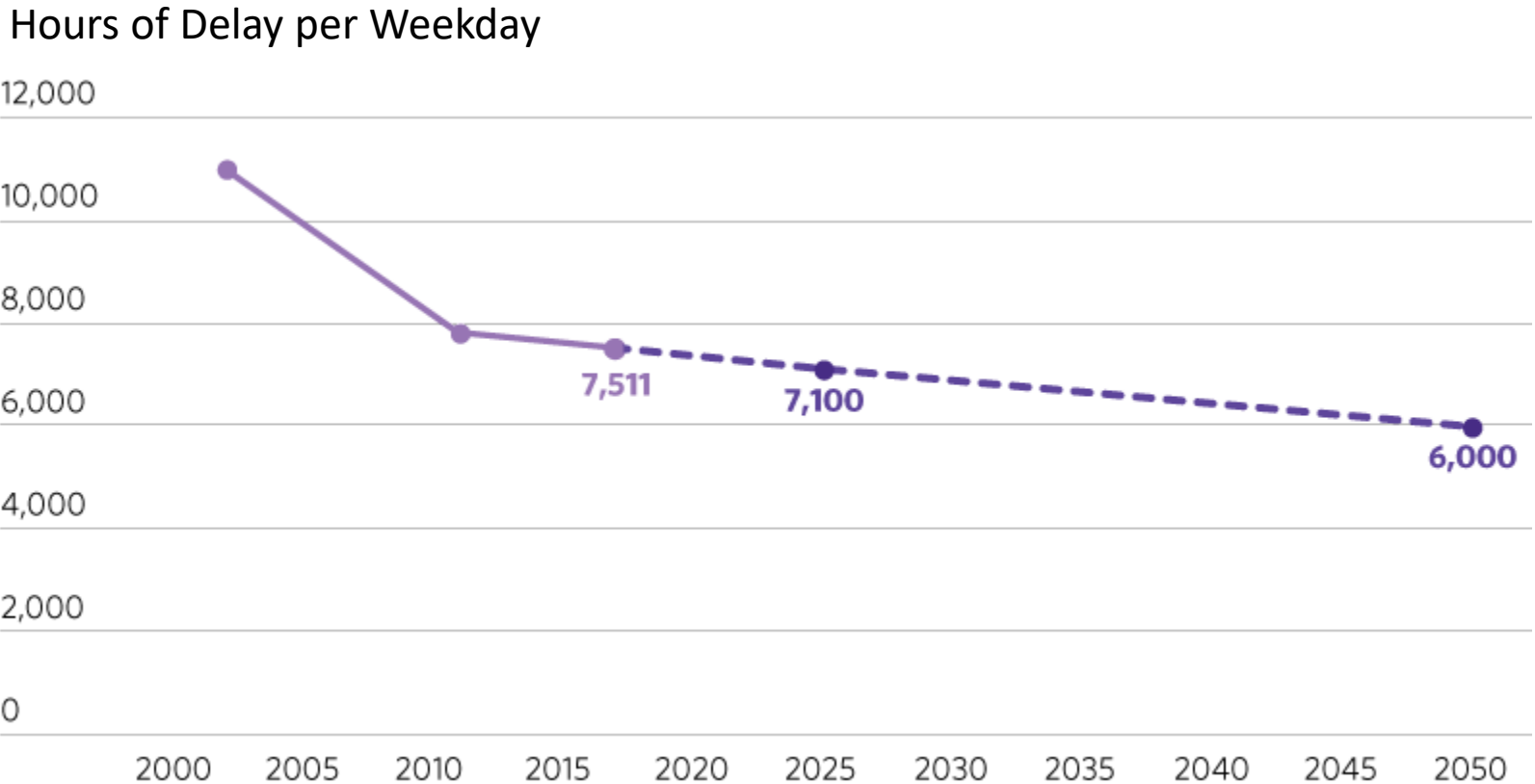
Indicator:
Motorist delay at highway-rail
grade crossings

Key:

 Actual

 Target

Source: CMAP analysis of Illinois
Commerce Commission data



Long gate-blockage events

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

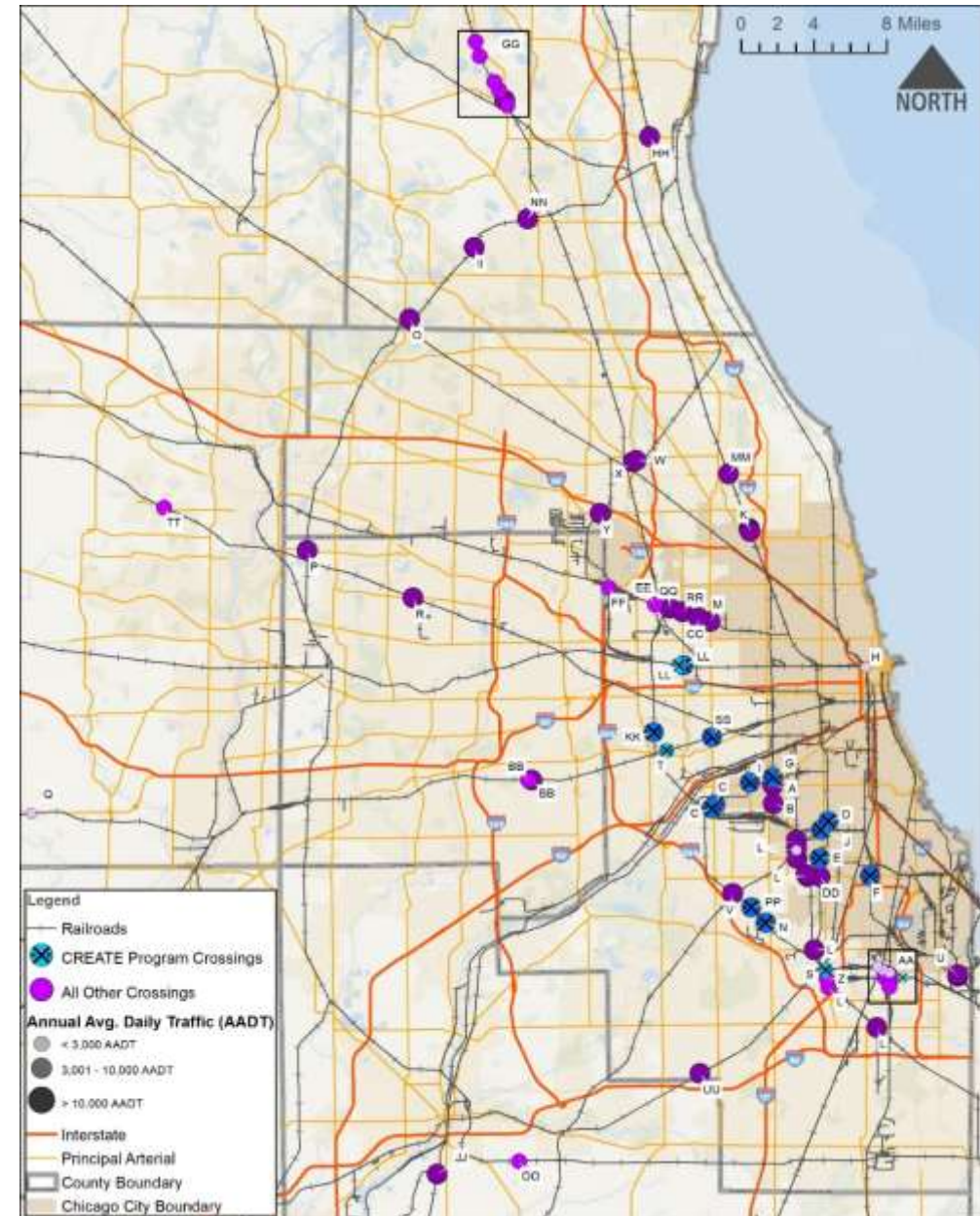
Number of 2015 CN/EJE Blockages > 10 Minutes, Select Crossings

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

Grade crossing prioritization

Numeric analysis of all 1646 crossings:

- estimate of crossing delay
- estimate of crash risk
- truck exposure
- transit impact

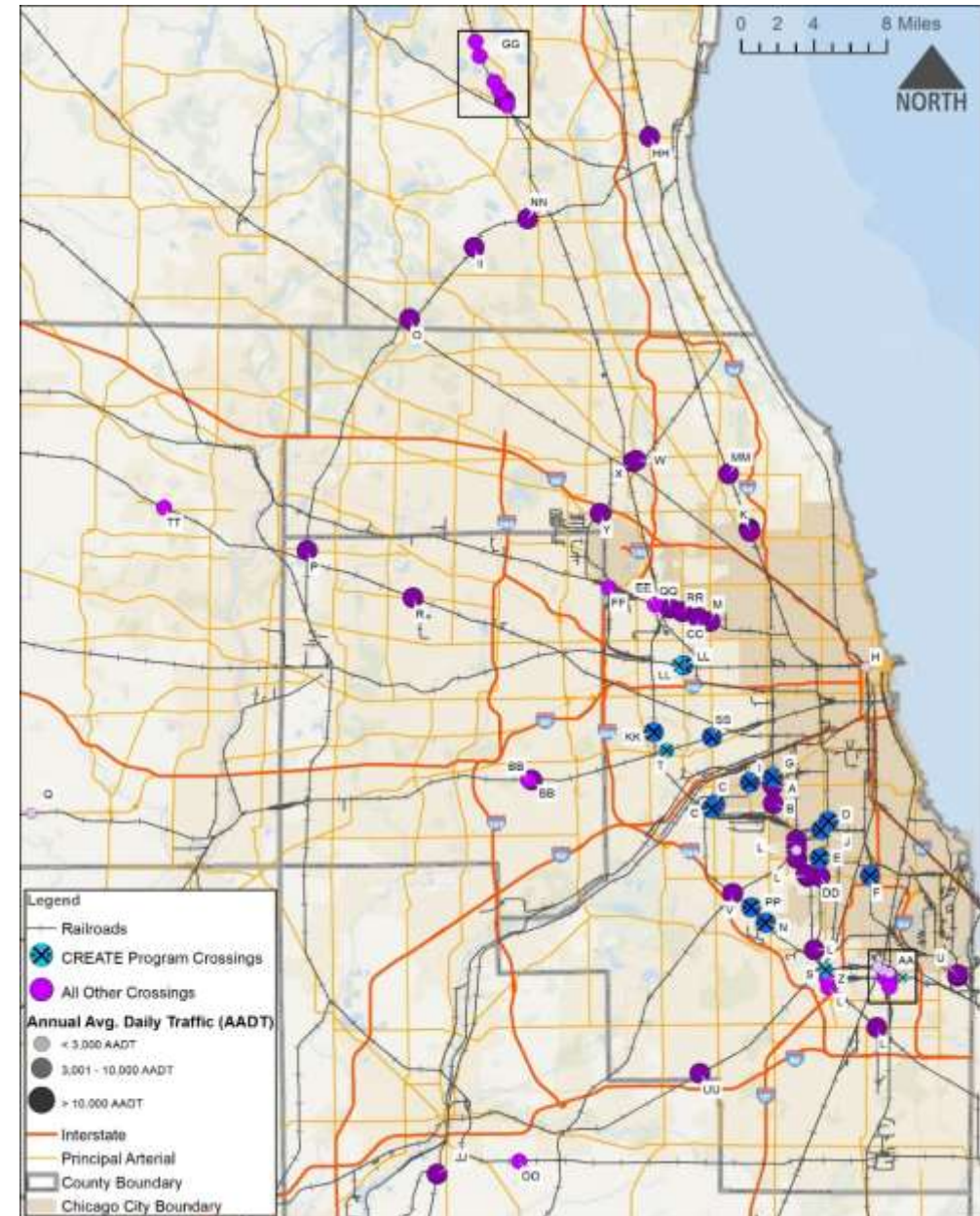


Grade crossing prioritization

Qualitative review of top 150 crossings:

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

Result: 47 prioritized locations

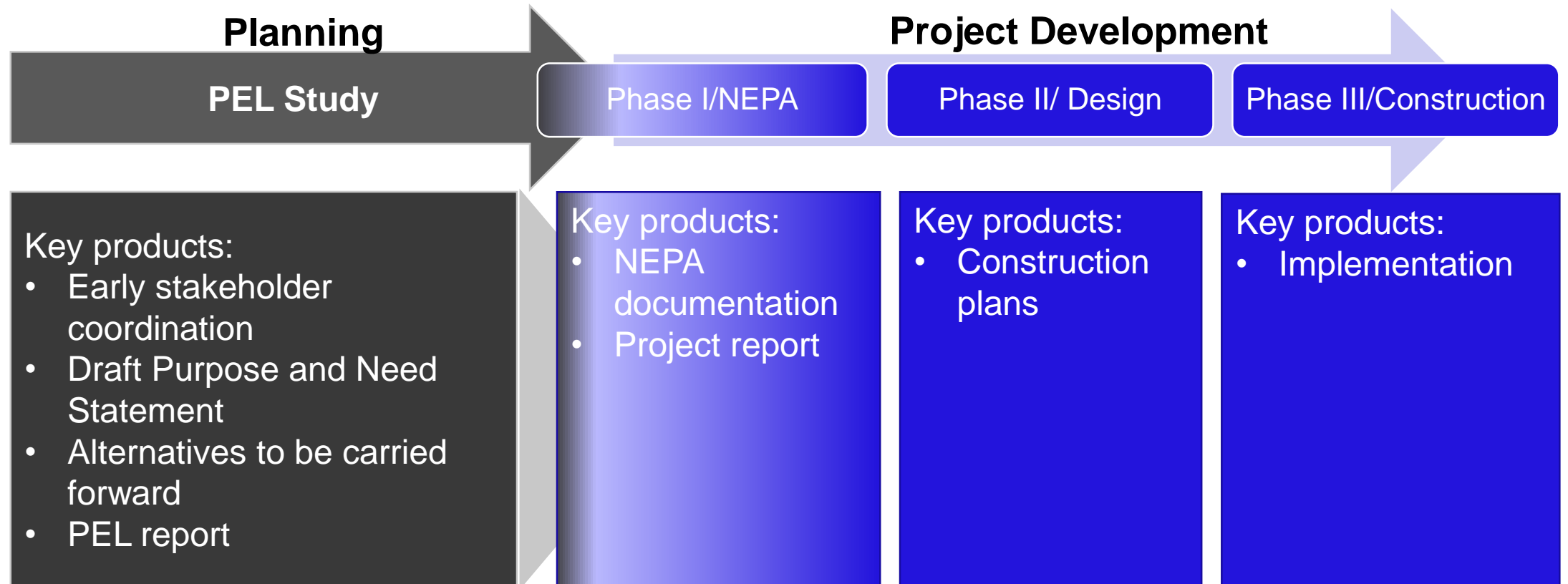


Planning and environmental linkages (PEL) studies



PEL studies inform NEPA

PEL studies produce planning analysis and decisions that can be incorporated into subsequent project-level environmental reviews



Integration of PEL studies into NEPA

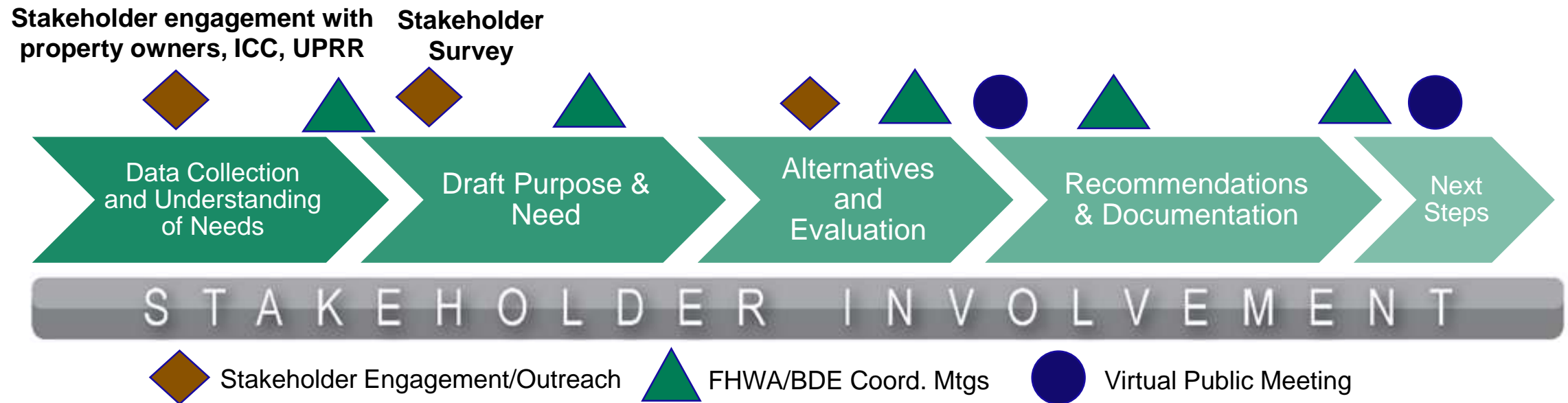
Results or decisions of PEL studies may be used as part of the overall project development process consistent with NEPA and FHWA regulations

P E L S t u d y	Responsibility <ul style="list-style-type: none">• Review and approve PEL study• Provide guidance	<pre>graph TD; FHWA[Federal Highway Administration] --- IDOT[IDOT]; IDOT --- CMAP[CMAP]; IDOT --- Local[Local agency];</pre>		Objectives <ul style="list-style-type: none">• Assist in gauging public support for the project• Advance a project that does not have full Phase 1 funding• Assist a subsequent Phase I project meet FHWA time constraints
	<ul style="list-style-type: none">• Develop PEL study• Gather partners to the table			

Roles and responsibilities

CMAP will be the project sponsor through the PEL process. CMAP regularly engages local agency once the project is initiated.

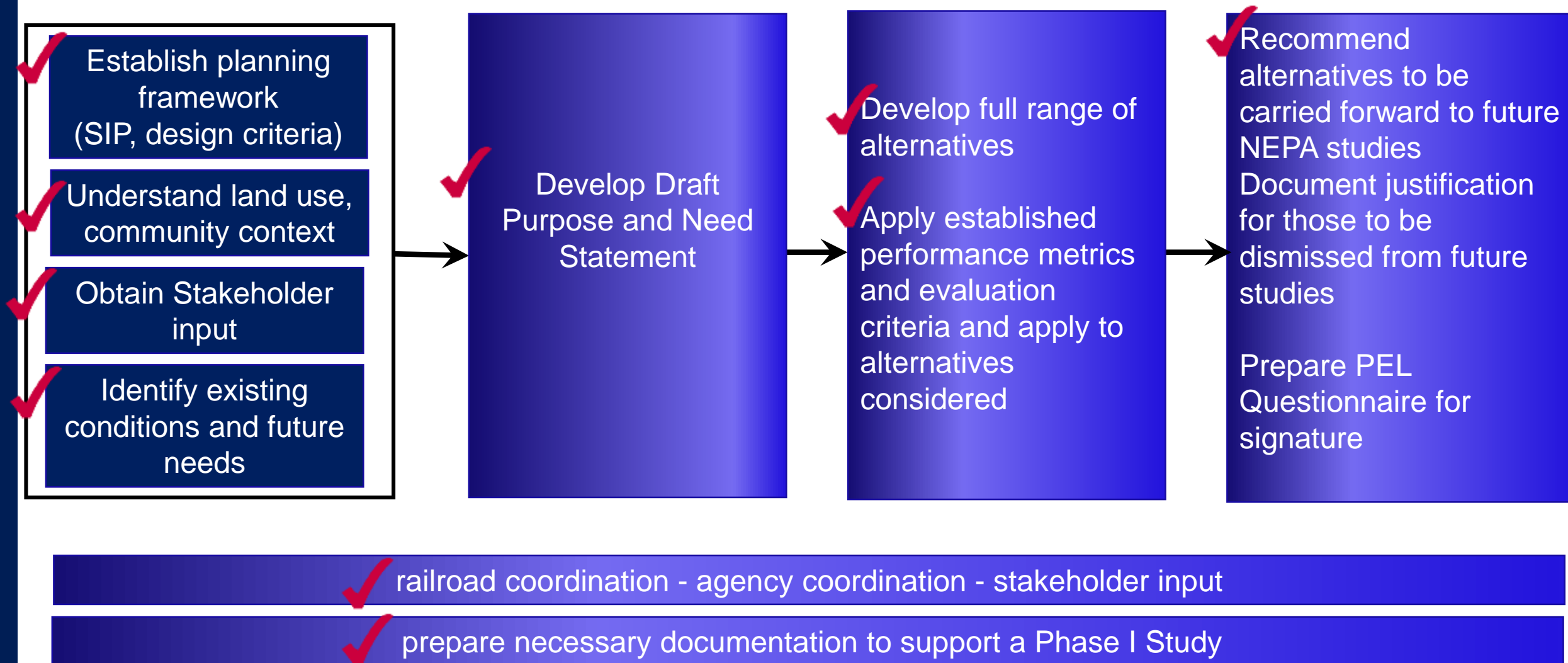
ONGOING COORDINATION BETWEEN LOCAL AGENCY – CMAP – PEL STUDY TEAM



Laraway Road PEL study



Laraway Road PEL study progress

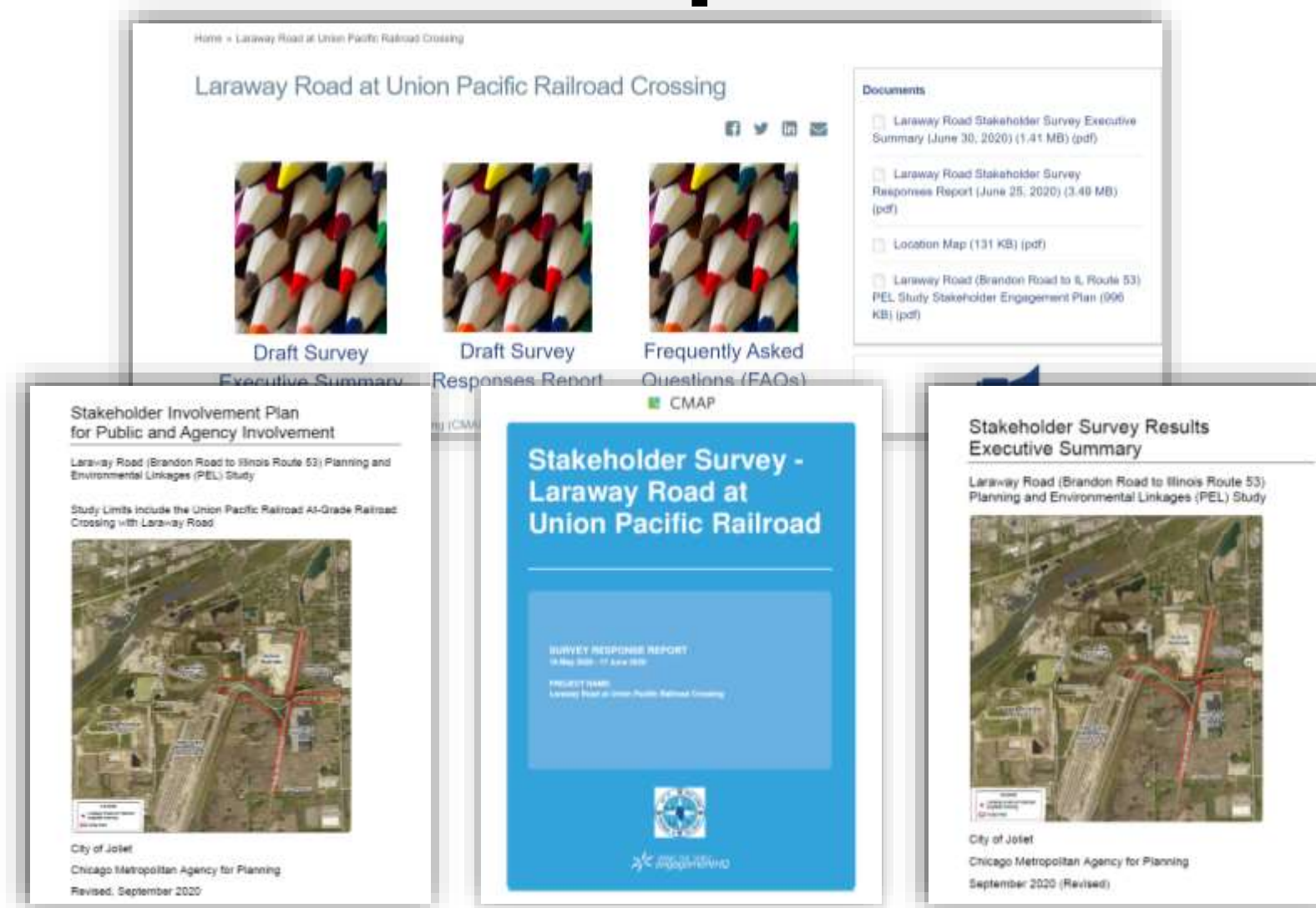


Stakeholder input

Website Launched
May 11, 2020

- Study Info
- Stakeholder Engagement Plan
- Interactive map
- Stakeholder survey
- FAQ

<https://engage.cmap.illinois.gov/laraway-road-at-union-pacific-railroad-crossing>



Stakeholder input

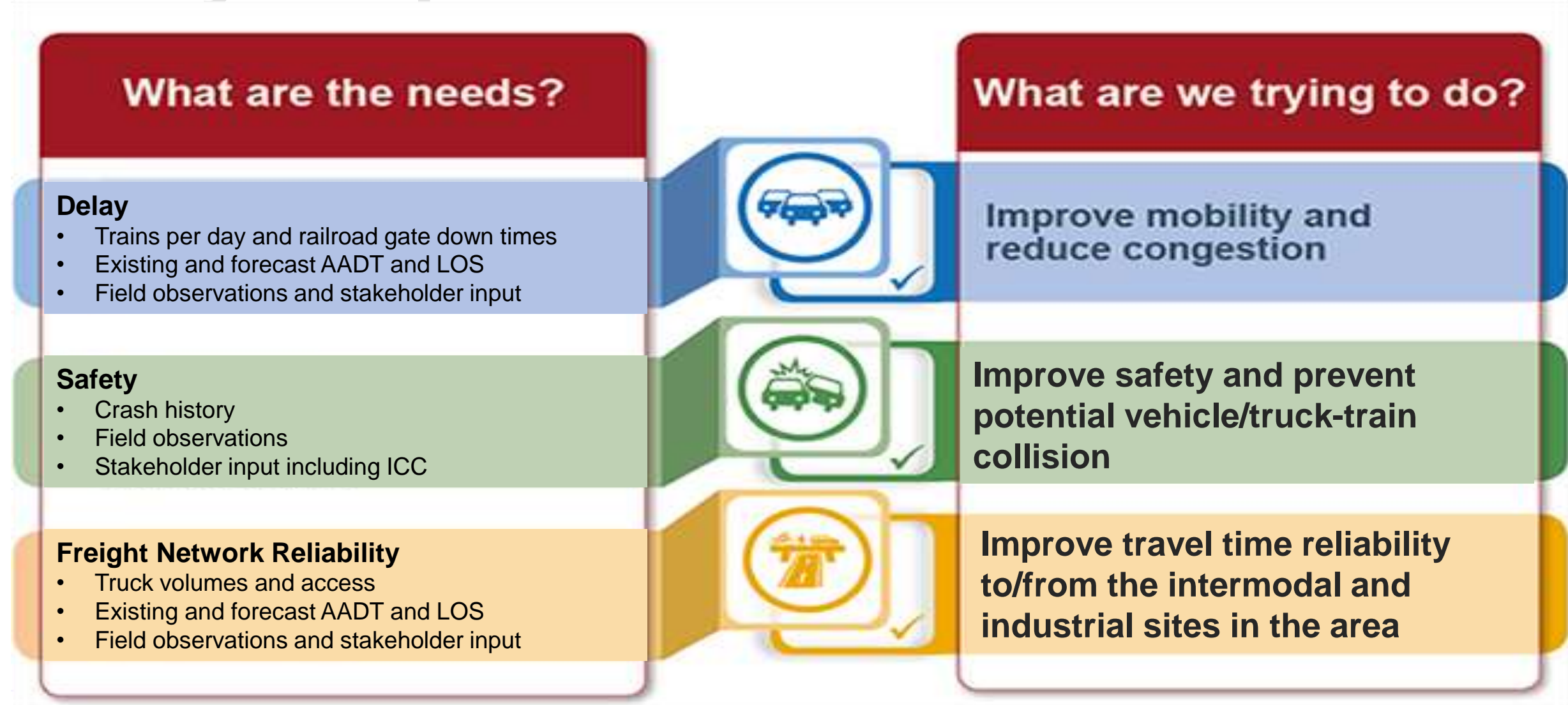
- Stakeholder Survey
 - Launched May 19, 2020, open for 30 days
 - Stakeholders identified in Stakeholder Involvement Plan notified of survey via letter and email
 - **400 people visited site during survey period**
 - 93 people completed survey
- Focused Outreach
 - Direct outreach with adjacent property owners
 - Direct outreach to 3 trucking associations, TDL firms (through WCCED), community organizations.

Project Video

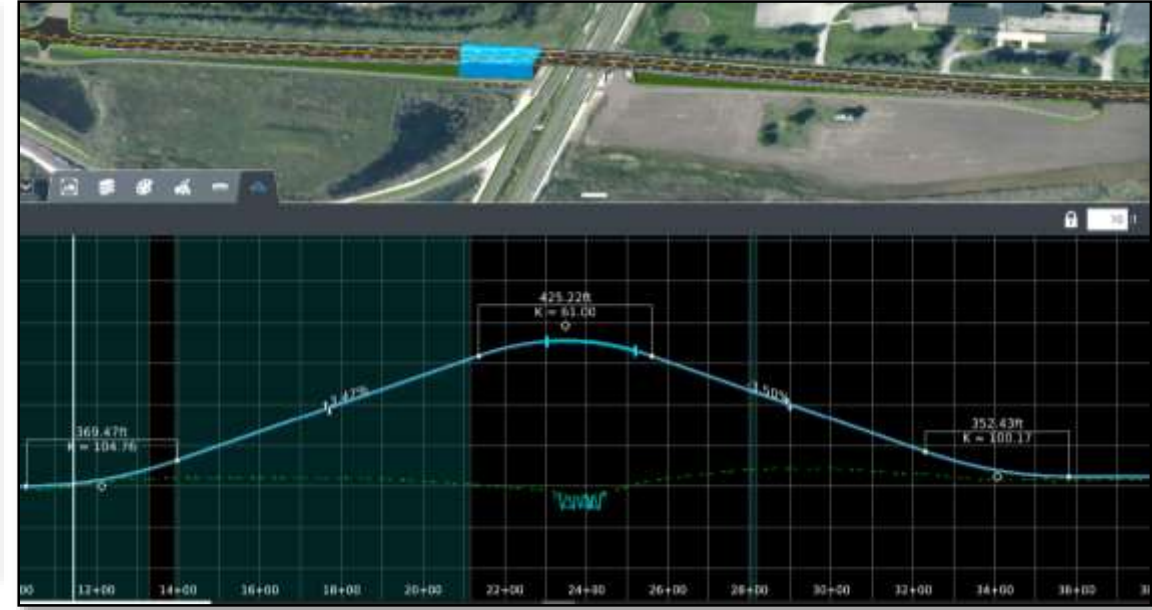
Laraway Road Planning and Environmental Linkages (PEL) Study

Prepared by CMAP
November, 2020

Study Purpose and Need



Separation alternatives for evaluation



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

Laraway Road (Brandon to IL 53) Alternatives Considered

Grade Separation between UPRR and Laraway Road

Laraway Rd over existing UPRR



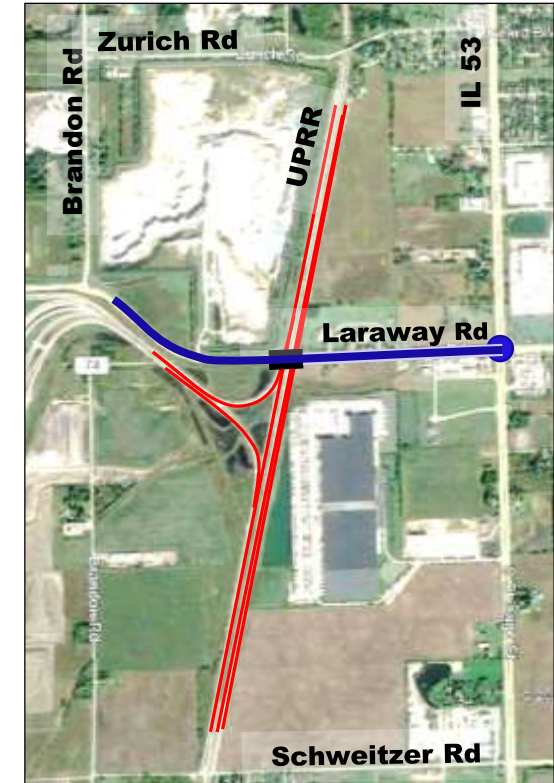
Laraway Rd under existing UPRR































UPRR over Laraway Rd



UPRR under Laraway Rd



While all four mainline alternatives meet purpose and need, **Laraway Road over existing UPRR** would have least overall impact and cost

Criteria	Laraway Rd over existing UPRR	Laraway Rd under existing UPRR	UPRR over Laraway Rd	UPRR under Laraway Rd
Laraway Road Operations (Mobility and Safety)*				
Transportation Footprint				
Maintenance of Traffic during construction (Road and Rail)				
Drainage and Utility Conflicts				
Water Resources (Waterbodies)				
Magnitude of Cost				
Constructability				



IL 53/Laraway Road Basic Conventional Intersection Alternatives

1- 4

Alternative 1



Alternative 3



Alternative 2

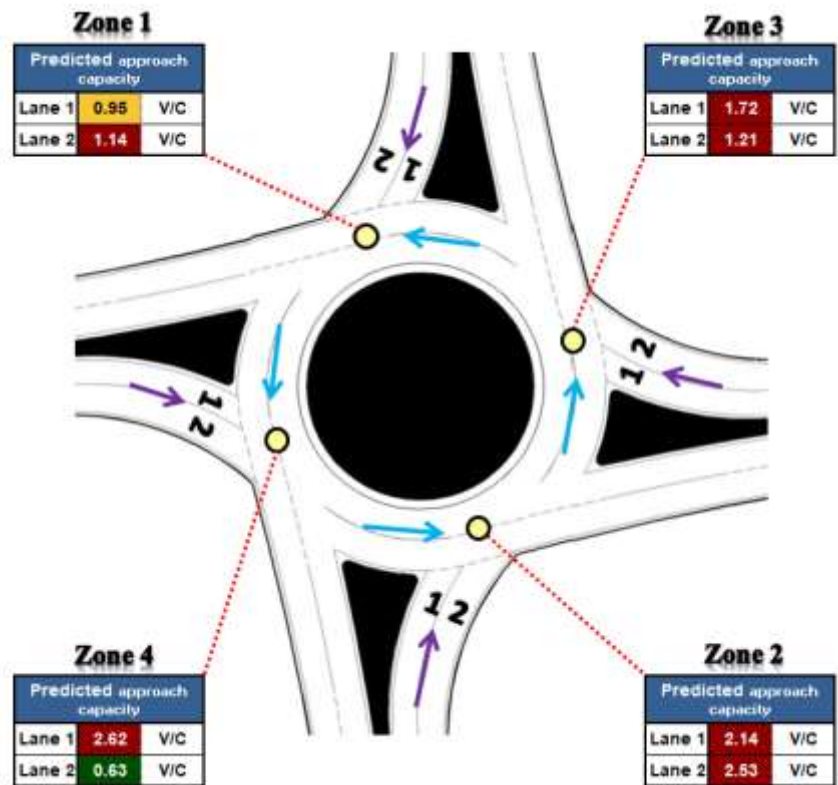


Alternative 4



Alternative 5 - Two Lane Roundabout

- Assumes 2-lane approaches on IL-53 and 2-lane approaches on Laraway Rd.
- would operate extremely over capacity given the heavy truck volumes.
- Lower than anticipated right-of-way impact.
- V/C ratio using CAP-X method for all roundabout configurations greatly exceed 1.0



NOT RECOMMENDED TO CARRY FORWARD

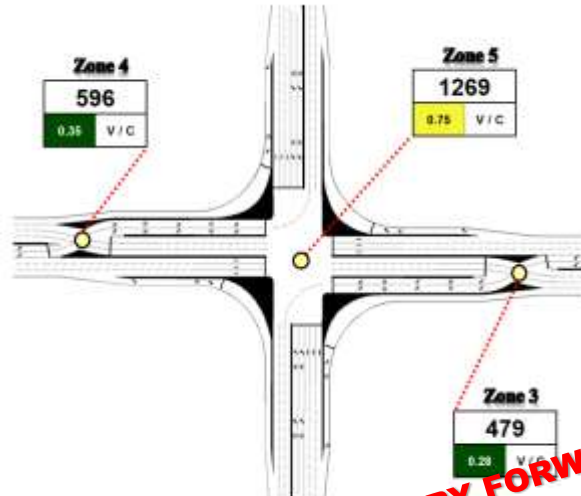


Note: Operational analyses based on 2050 PM Peak Period

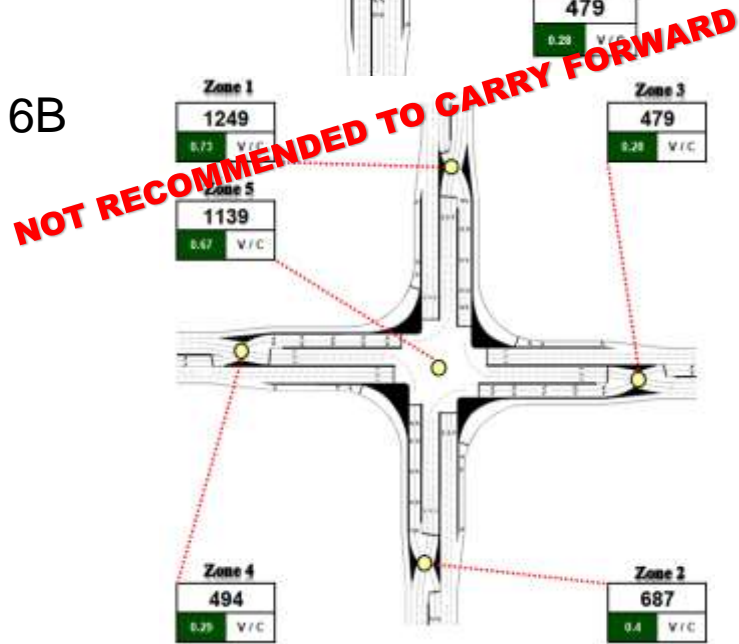
Alternatives 6A and 6B

Partial Displaced Left Turn Intersections with build out on Laraway Road

ALT 6A



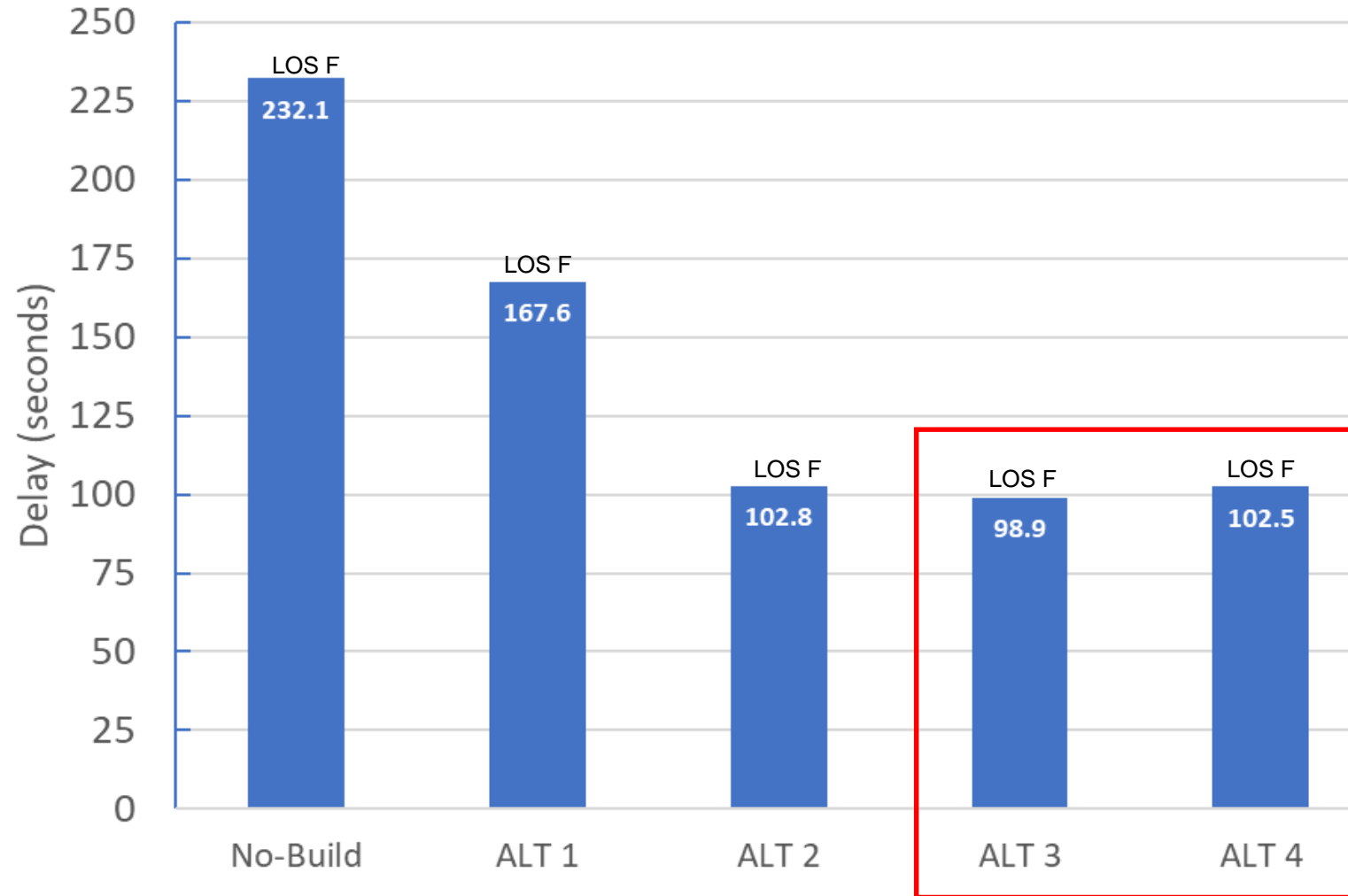
ALT 6B



While these alternatives rank high as compared to other intersections, and have a V/C ratio < 1.0 , they create significant unacceptable right-of-way impacts to developed and developable land along Laraway Road.

Intersection Delay





















Conventional Intersection Alternatives 1-4 compared to 2050 No-Build Condition



- While Alternatives 2 thru 4 have similar overall intersection performance, only alternatives 3 and 4 improve Laraway EB LOS for all movements
- Alternatives 3 & 4 reduce queuing along EB Laraway Rd by approximately ½ mile

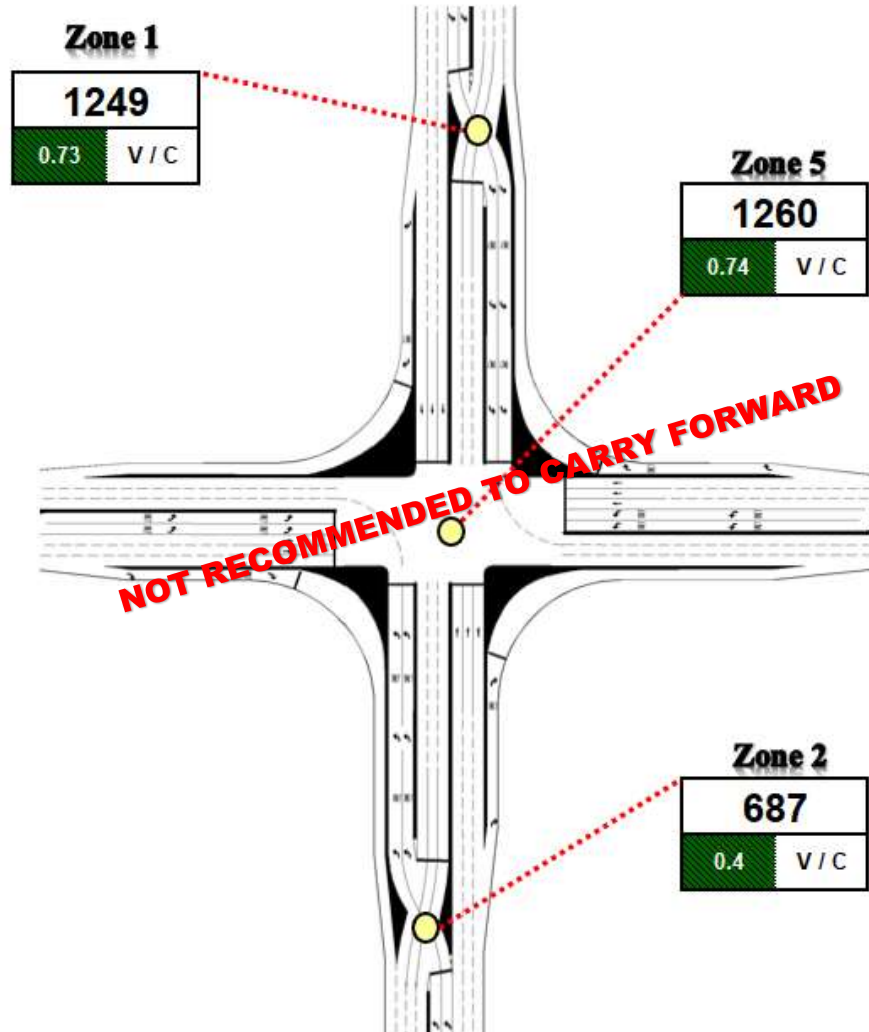
Alternatives 3 and 4 are recommended to be carried forward

Laraway Road at IL 53 Intersection Alternatives Comparison

Criteria	Conventional Intersection Alt 3	Conventional Intersection Alt 4	Roundabout 2x2 Alt 5	Partial Displaced Intersection/CFI Alt 6A-B
IL53/Laraway Intersection V/C ratio during PM Peak (CAP-X)	0.9 – 0.95	0.89	2.62	0.73-0.75
Intersection Volume to Capacity (v/c) qualitative comparison				
Laraway Road Approach to IL 53 Width (EOP to EOP approximate)	6 L + 6' median 78-ft	7 L + 6' median 90-ft	2 L + 10' median 34-ft	7L + 3 medians 175-ft
Transportation Footprint				
Accessibility to Adjacent Land Uses/Out of Direction Travel				
Magnitude of Cost				
Constructability				

Alternative 6C

Partial Displaced Intersection with build out on IL 53



- low volume to capacity ratio for all three IL 53 intersections
- provides improved mobility for IL 53 while retaining Laraway as a conventional intersection that is compatible with local land use.
- But Not Recommended to be carried forward due to constructability issues

Conventional Intersection Alternatives 7- 9 with More IL 53 Capacity

Alternative 7



Alternative 8



Alternative 9




























Existing Flooding issues at IL 53 at Laraway Intersection



Water in roadside drainage ditches overtops IL 53 pavement.

Median flooding also occurs, with water on the pavement after major storm events.


Laraway Road at IL 53 Intersection Alternatives Comparison


Criteria	Alt 3/Alt 4 Conventional Intersection	Alt 6C Partial Displaced Intersection/CFI	Alt 7 ALT 4 + IL53 Dual LTs	Alt 8 ALT4 + IL 53 Add Lanes	Alt 9 ALT 4 + IL53 Dual LTs and Add Lanes
IL53/Laraway Intersection V/C Ratio during PM Peak Period	0.95/0.89	0.59	0.82	0.75	0.67
EB LT queuing (No-Build 2975-ft total)	525-ft	not calculated	525-ft	725-ft	500-ft
Improved mobility on eastbound approach to IL 53					
Transportation Footprint					
Accessibility to Adjacent Land Uses/Out of Direction Travel					
Magnitude of Cost					
Constructability					


Laraway Road (Brandon to IL 53) including UPRR crossing Mainline Alternatives Summary



Laraway Road over UPRR 

Laraway Road under UPRR 

UPRR over Laraway Road 

UPRR under Laraway Road 

IL 53 at Laraway Intersection

Recommended Alternatives to be carried forward

Alternative 3 (provides LOS D thru 2035)



Alternative 7 (provides LOS D thru 2044)



Alternative 4 (provides LOS D thru 2035)



These three alternatives support the improvements to Laraway Road that achieve Arterial Segment LOS B (B) peak hour performance. Alternatives improve E-W throughput, provide dual lefts on Laraway Road, and improve overall operations at IL 53 intersection

Revised Timelines and Budgets



Level of effort: Laraway Road

Task	Hours
PEL study planning framework	18
Public involvement and engagement	268
Existing and 2050 no-build conditions analysis	151
Purpose and need	58
Alternatives development and evaluation	274
Study documentation	224
Total	993

Level of effort: Berwyn-Riverside

Task	Hours
PEL study planning framework	22
Public involvement and engagement	422
Existing and 2050 no-build conditions analysis	111
Purpose and need	112
Alternatives development and evaluation	404
Study documentation	420
Total	1,491

Revised Budgets and Schedules

Study	Budget
Project Startup	\$17,420
Laraway Road	\$139,823
Existing and 2050 no-build conditions analysis	\$192,657
Total	\$349,900

Laraway Road: 1st quarter 2020 – 2nd quarter 2021

Berwyn/Riverside: 4th quarter 2020 – 1st quarter 2022

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Timelines

Comments



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