

I-91 Interchange 19 Improvements

Northampton, MA

Public Informational Meeting #1

June 14, 2010



Welcome and Introduction

► Project Team Members

- MassDOT
- Consultant Team

► Project Advisory Committee (PAC) Members

- Edward Huntley, City of Northampton
- Angela Plassman, City of Northampton
- Andrea Donlon, CT River Watershed Council
- Danny O'Brien, Dept. of Cons. & Recreation
- Tim White, Federal Highway Administration
- Peter Kocot, MA House of Representatives
- John Scibak, MA House of Representatives
- Stanley Rosenberg, MA Senate
- James Lowenthal, MassBike Pioneer Valley
- Richard Masse, MassDOT, District 2
- Albert Stegemann, MassDOT, District 2
- Timothy Brennan, Pioneer Valley Planning Commission
- Mary MacInnes, Pioneer Valley Transit Authority
- Anne Awad, Amherst Select Board
- Joyce Chunglo, Hadley Board of Selectmen
- Marcus Boyle, Hatfield Board of Selectmen
- Al Byam, UMass Transit
- John Collura, University of Massachusetts-Amherst
- Gerald Budgar, Ward 3 Resident
- Christine Cahillane, Ward 3 Resident
- Frank Werbinski, Ward 3 Resident

Meeting Agenda

➤ Project Overview

- Project Background
- Project Purpose/Goal
- Public Involvement

➤ Existing Conditions

- Data Collection
- The Findings

➤ Review of Alternatives

➤ Next Steps

➤ Comments/Questions

Project Overview

► Connecticut River Crossing Study

- Identified Regional Transportation Issues
- Did Not Recommend Construction of an Additional River Crossing
- Recommended Improvements to I-91 Interchange 19 Area

► I-91 Interchange 19 Project

- Detailed Assessment of the Issues
- Will Review a Variety of Potential Solutions
- Will Provide a Recommended Solution that will be Advanced to Construction/Implementation

GOAL: To Develop Improvements that will Reduce Congestion and Improve Mobility in the Interchange 19 Area

Project Overview

► What We've Been Doing

- Collected New Data
- Analyzed Existing Conditions
- Projected Future Conditions
- Identified Issues
- Developed/Revised Alternatives to Address Those Issues
- Begun Evaluating the Alternatives

► What We Will Be Doing

- Collecting Input
- Identifying Top 2 or 3 Alternatives for Additional Study
- Selecting Alternative for Advancement to Design and Construction (if required)

Public Involvement

➤ Public Participation Principles

- The public shall have access to information about the study
- The public shall be presented with clear information
- The public may learn about or become engaged in the study in a variety of ways
- The public shall be able to engage with a responsive study team
- The public shall be able to participate in a process that is well coordinated



Public Involvement

Elements of the Plan

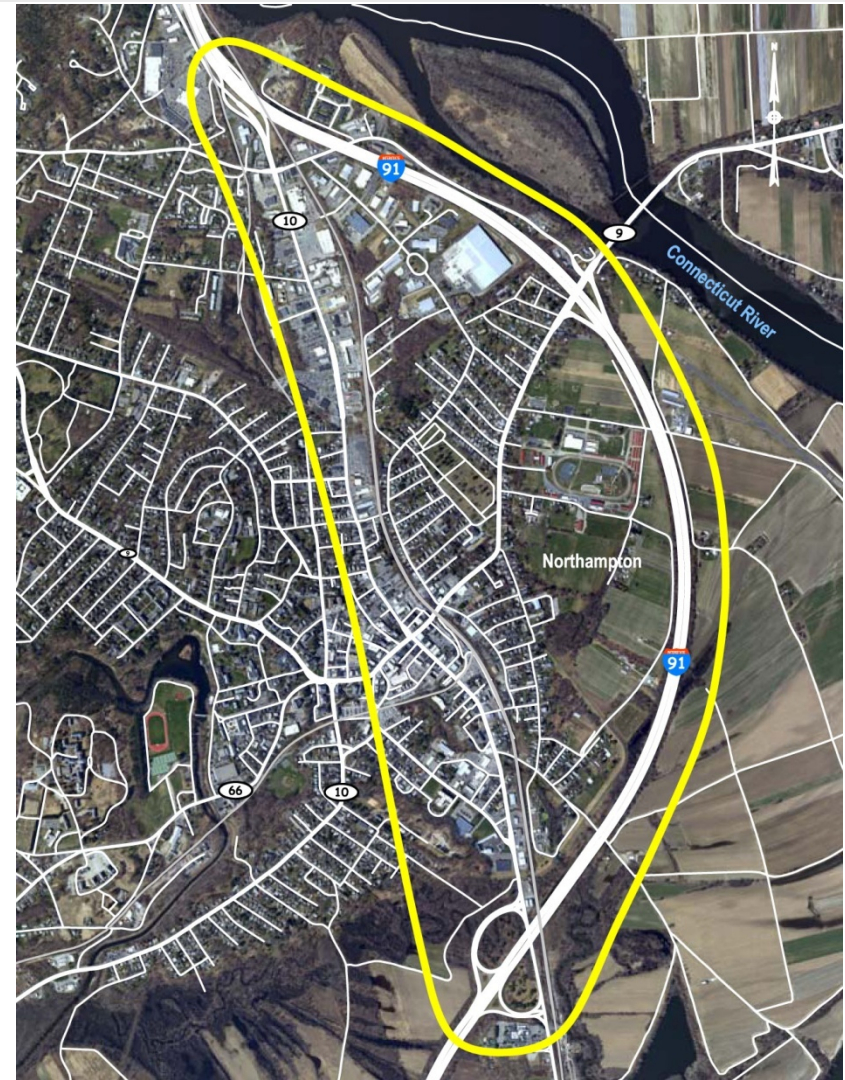
- Project Advisory Committee
- Public Meetings
- Neighborhood Walk
- Project Website
- Newsletters / Fact Sheets
- Media Coordination



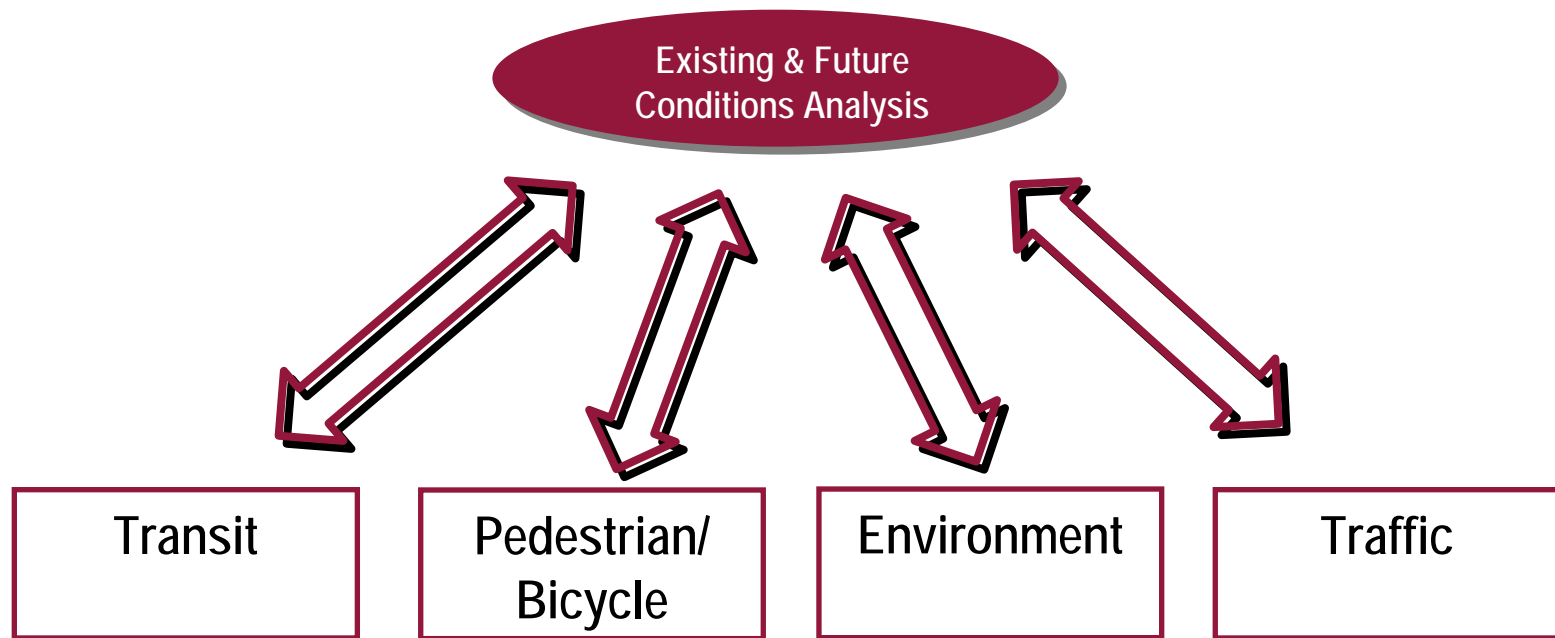
Existing Conditions

■ Study Limits:

- I-91 (Int. 18 to Int. 20)
- Bridge Street
- King Street/Pleasant Street
- Damon Road



Study Phase



Existing Conditions - Environmental

▀ Natural

- Connecticut River
 - Surface Waters
 - Floodplain
 - Wetlands
 - Water Quality
 - Wildlife Habitat
 - Rare, Threatened and Endangered Species



Existing Conditions - Environmental

▀ Social and Economic (People and the Things we do)

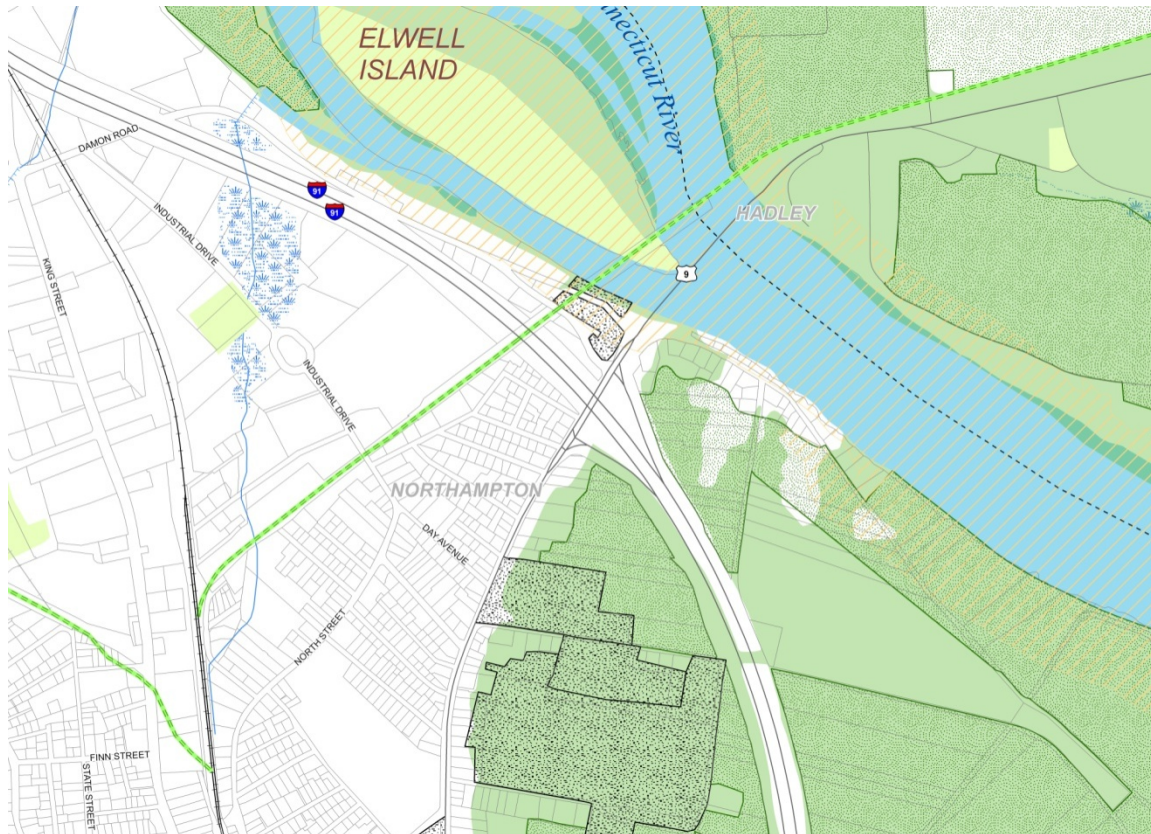
- Recreation – Elwell Recreation Area, Sheldon Fields, UMASS Crew
- Businesses & Homes
- Air Quality & Noise
- Hazardous Materials

▀ Cultural (Ties to our Past)

- Historic
- Archeological



Existing Conditions - Environmental



Legend

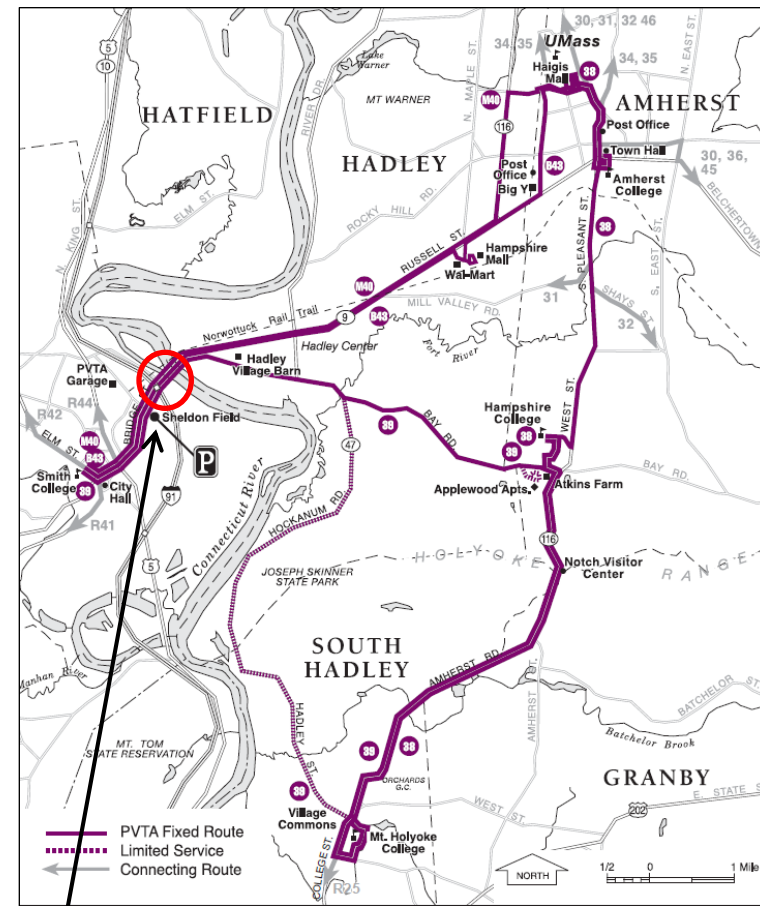
- Active Rail Service
- Right-of-way used for Hiking and Biking
- Abandoned ROW in Public Interest
- Abandoned or Out of Service
- NHESP Estimated Habitats of Rare Wildlife

Land Use

- Cropland
- Open Land
- Recreation
- Water
- 100 Year Flood Plain

Existing Conditions – Transit

Route	Description	Trips per direction per day	Fare
PVTA Blue 43	Smith College – UMass - Amherst Center local	46 weekday 30 Sat; 16 Sun.	\$1.25 or 5 College ID
PVTA Maroon 40 "Minuteman Express"	Smith College – UMass Express	8 weekday peak hours only	\$1.25 or 5 College ID
PVTA "Five College" 39	Smith – Hampshire – Mt Holyoke	24 Mon – Thurs 26 Fri; 13 Sat; 11 Sun	\$1.25 or 5 College ID
Peter Pan Bus Lines	UMass- Northampton- Holyoke Mall – Springfield via 9 and I-91	4 Tues - Thurs 7 Fri – Mon	\$6.50 to \$8.50



Sheldon Field P&R

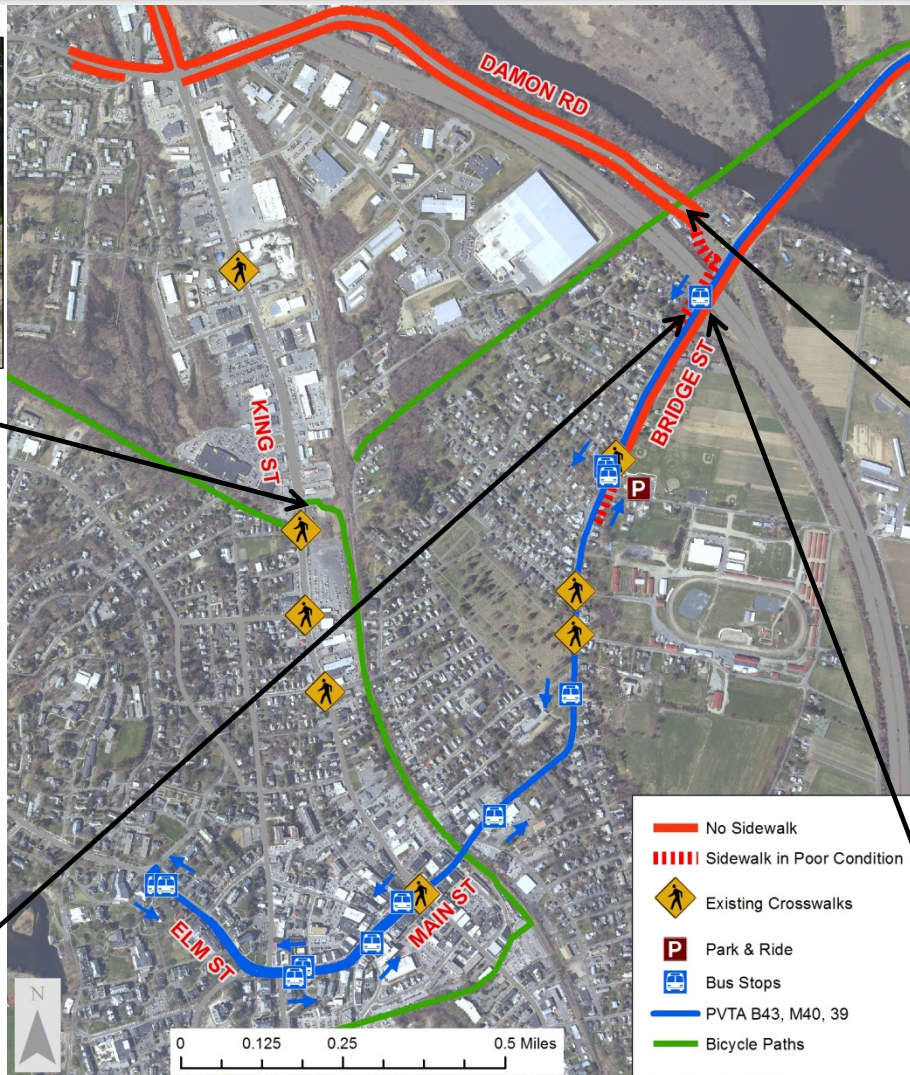
Existing Conditions – Pedestrian and Bicycle



New trail crossing of King St



Bicyclist on shoulder, Route 9 near I-91



No sidewalk, Damon Road at Norwottuck Trail crossing



Poor sidewalk condition

Traffic

Traffic Components Include:

- Data Collection
- Assessment of Existing Conditions
- Projection of Future No-Build Condition
- Analysis of Future No-Build and Build Conditions



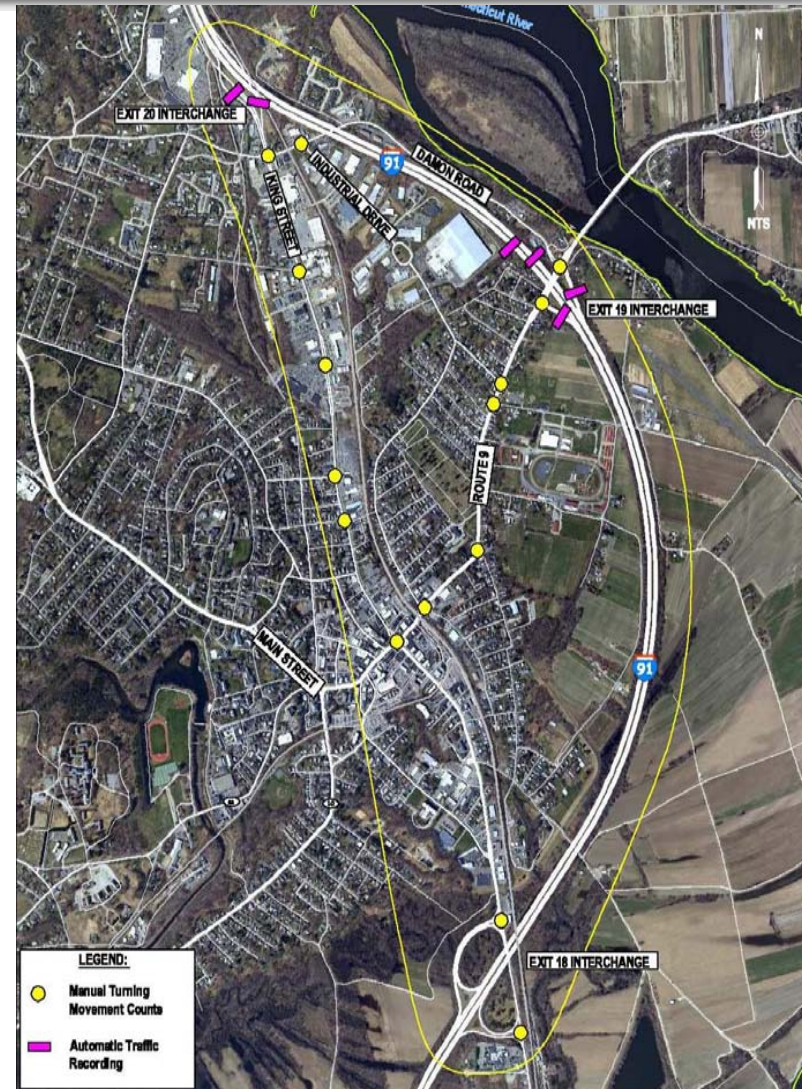
I-91 Interchange 19
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Existing Conditions – Traffic

■ Data Collection

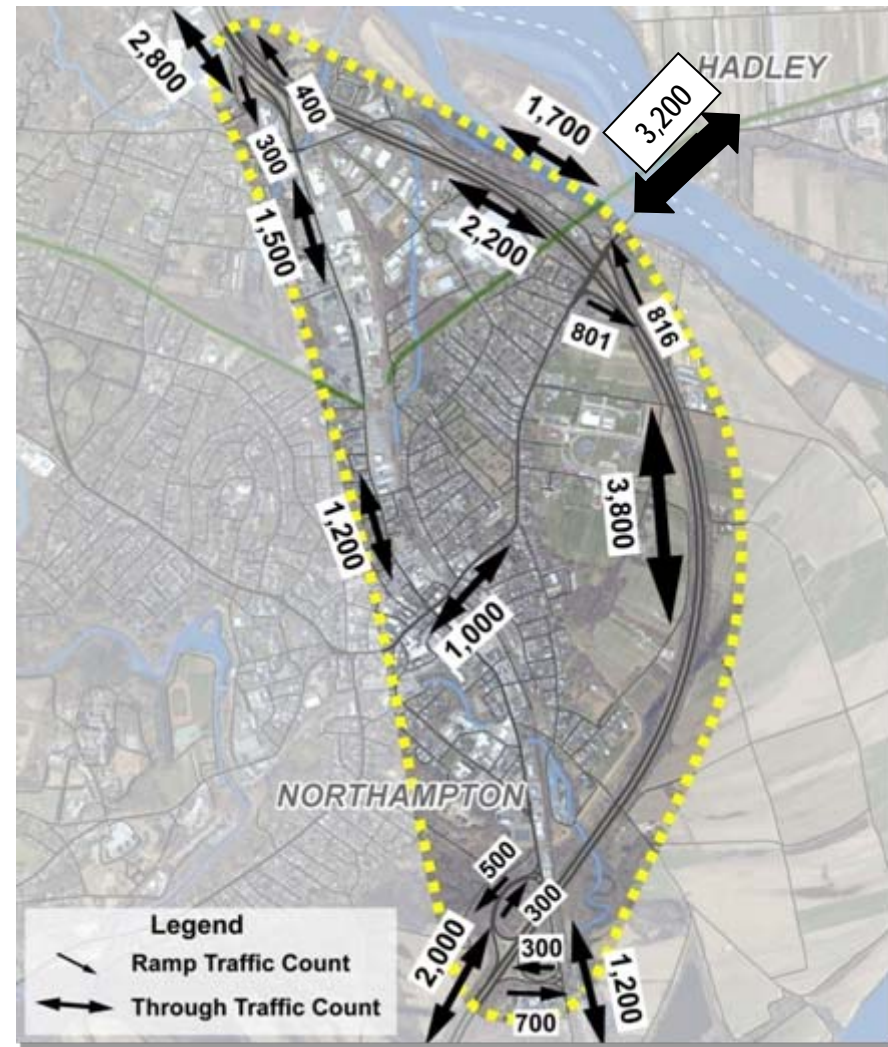
- Field Inventories of Roadway & Traffic Conditions
- Collected Roadway and Signal Plans
- Traffic Volume Data Collection
- Accident Data
- Travel Time and Delay Runs
- Origin-Destination Survey



Existing Conditions – Traffic

Existing Conditions Findings

- Traffic volumes peak 4:45-5:45
- Damon Road carries more traffic than Rte 5
- Rte 9 traffic builds as one heads east
- Ped and Bike counts highest near city center
- **Traffic operations** have worsened since Ct. River Crossing Study. Four signalized intersections are operating at capacity with long queues.



Existing Conditions – Traffic

Existing Conditions Findings

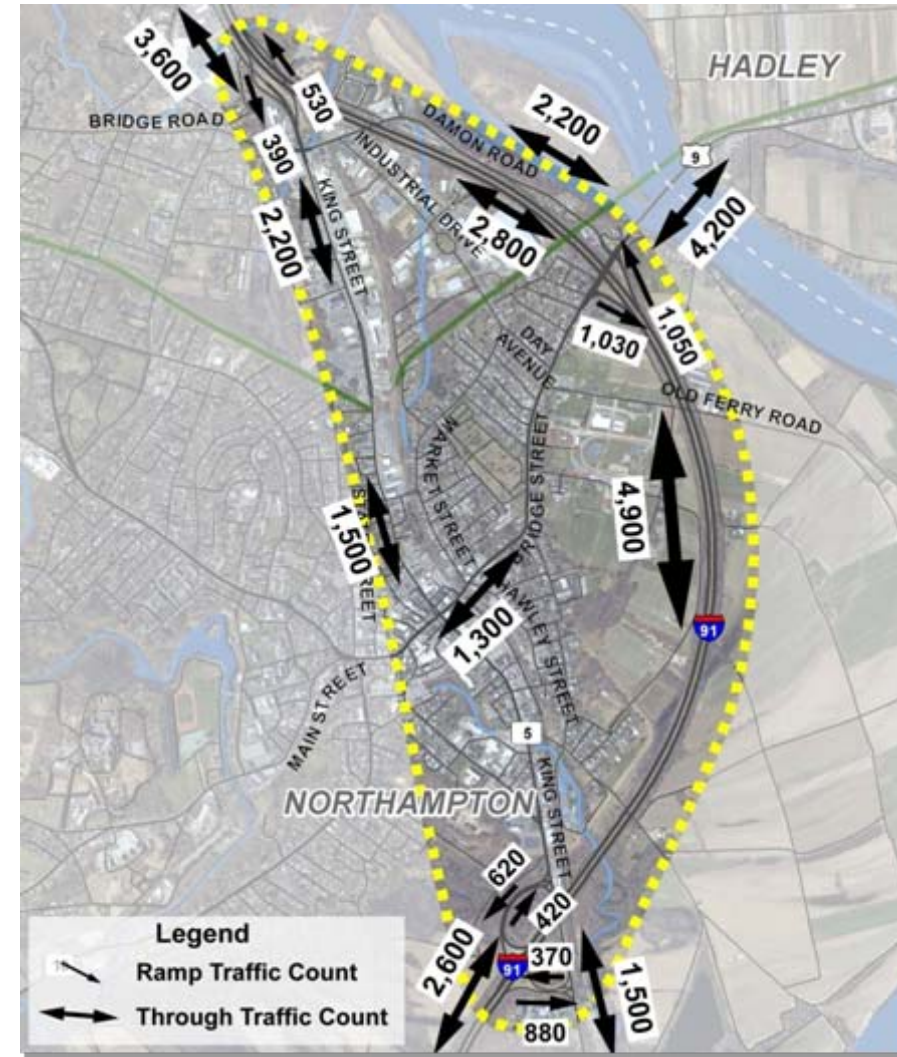
- **Accidents-** Six intersections identified with higher than average crash rates
- **Origin-Destination (O-D) survey -** 20% of the traffic at Exit 20 is destined for Route 9 at Exit 19. Motorists are accepting longer travel routes to avoid congestion along Rte 5/10.



Future Conditions – Traffic

Future 2034 Traffic Analysis

- 2034 Traffic Projections based on 1% per year background traffic growth & traffic from known developments
- Increase of left turn traffic on Rte 9 is of concern; left onto I-91 SB ramp increases by 226 vph, left onto Damon Rd increases by 180vph



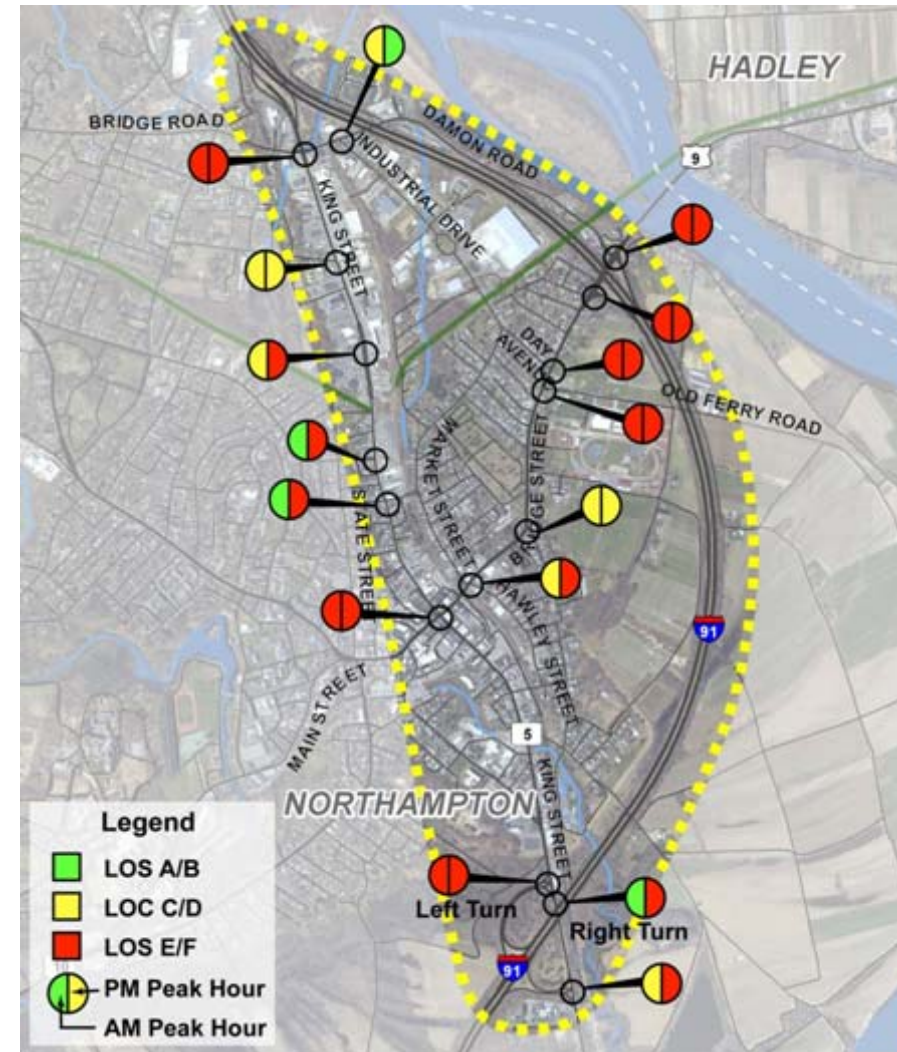
Future Conditions – Traffic

Future Traffic Operations

- 4 Intersections have reduced to LOS "F"
- Intersections presently at LOS "F" have added delay

Projected 2034 No Build Travel Times

- Route 5/10 Corridor – Additional 4 minutes
- Route 9 Corridor – Additional 6 minutes (4 of which are at Exit 19 interchange)












Evaluation of Alternatives

► Alternatives Evaluated:

- No Build
- 10 Roadway Alternatives
 - Localized Improvements: Concepts 12, 13, 13A, 13B & 13C
 - Interchange Access Improvements: Concepts 15, 15A, 16, 17, 18
- Transportation Demand Management (TDM) Package

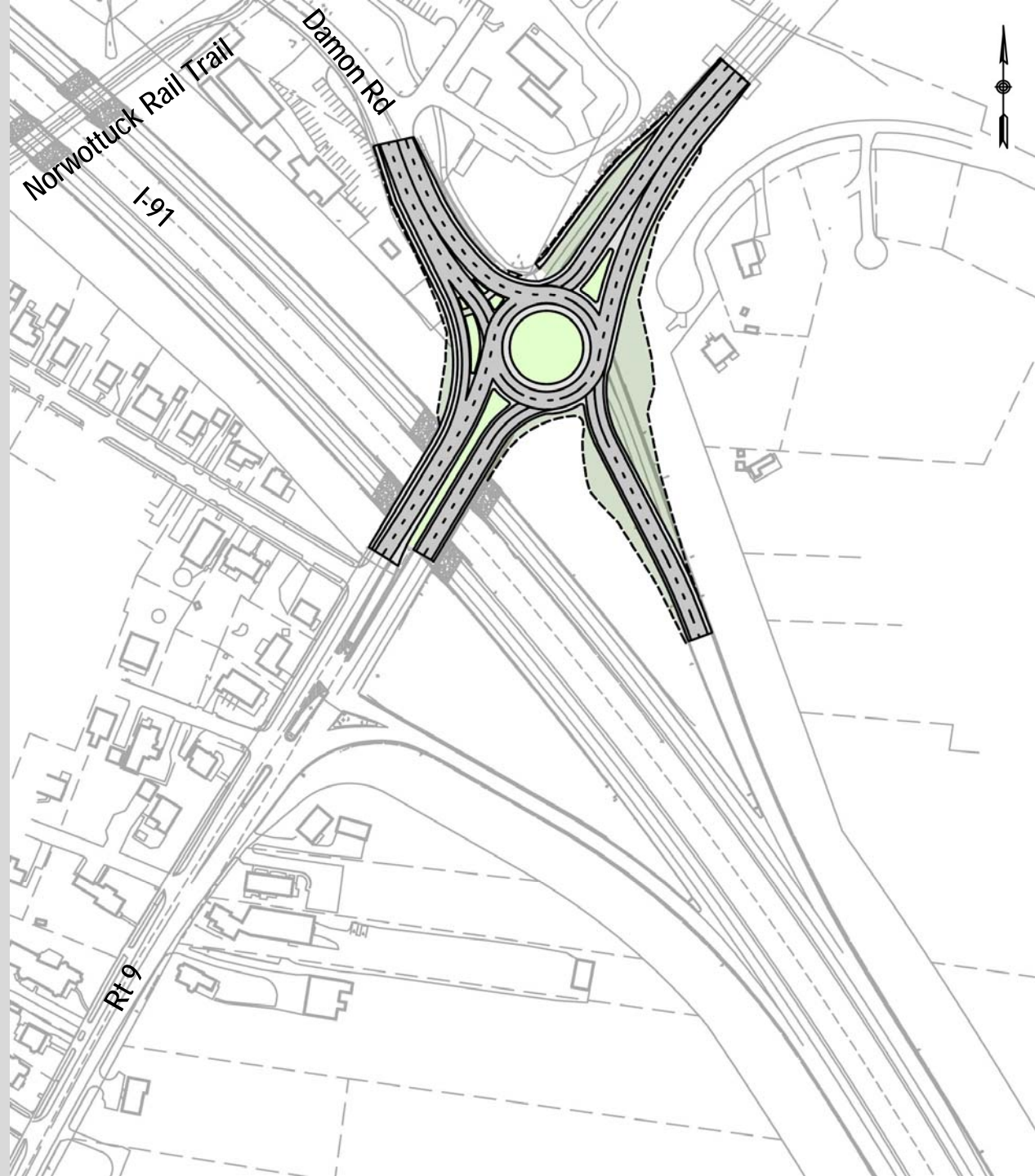
Evaluation Criteria

Legend			
	Some	Moderate	Substantial
Benefits			
Impacts			
Negligible Benefit or Impact			

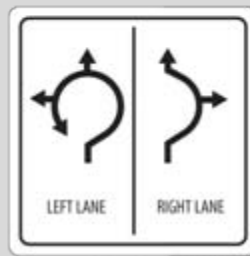
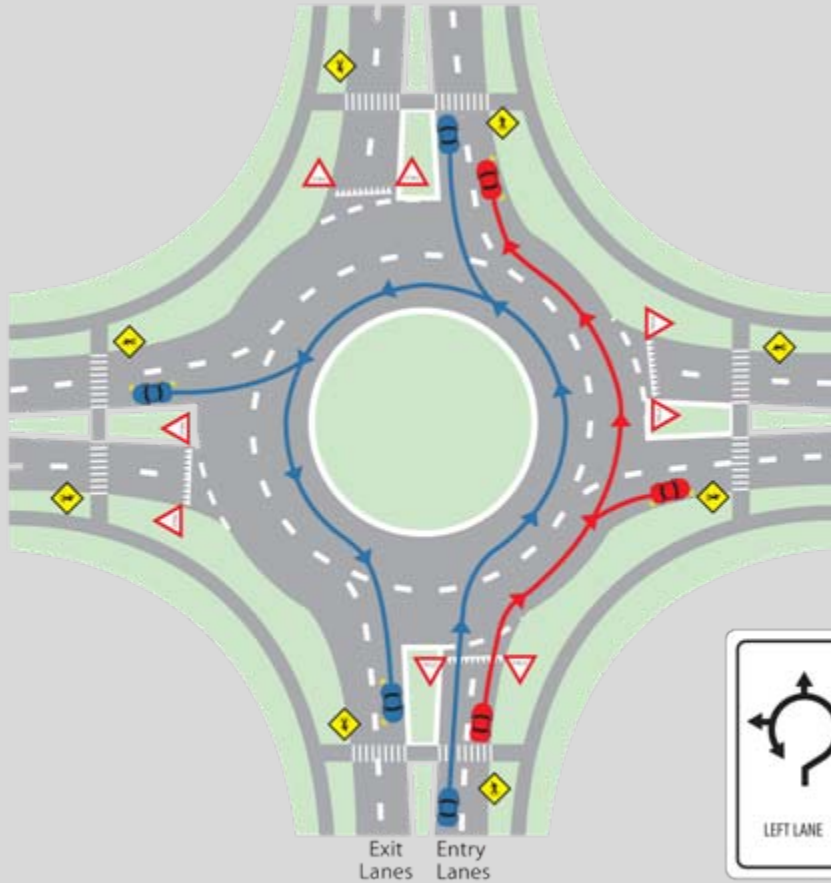
Concept 12

► Concept 12 - Roundabout

- Converts Route 9/Damon Rd. Intersection to a 2 Lane Roundabout
- Generally stays within existing roadway layout
- Introduces a degree of traffic calming



Concept 12



Lane Control Sign



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Click image to play or use buttons:

Play

Stop

Concept 12



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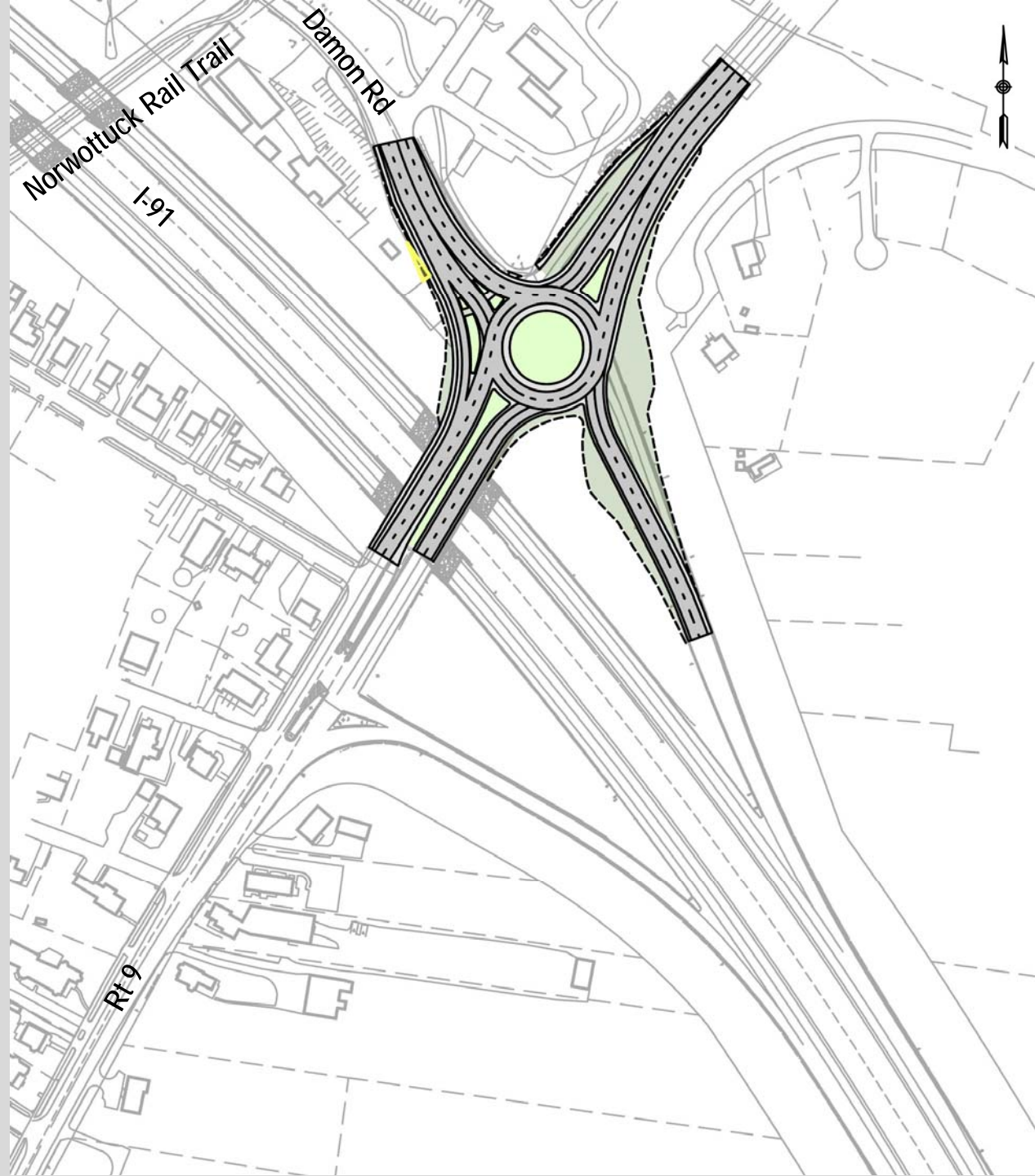
Concept 12

➡ 1 Permanent Impact

— Permanent Property Impacts

I-91 Interchange 19

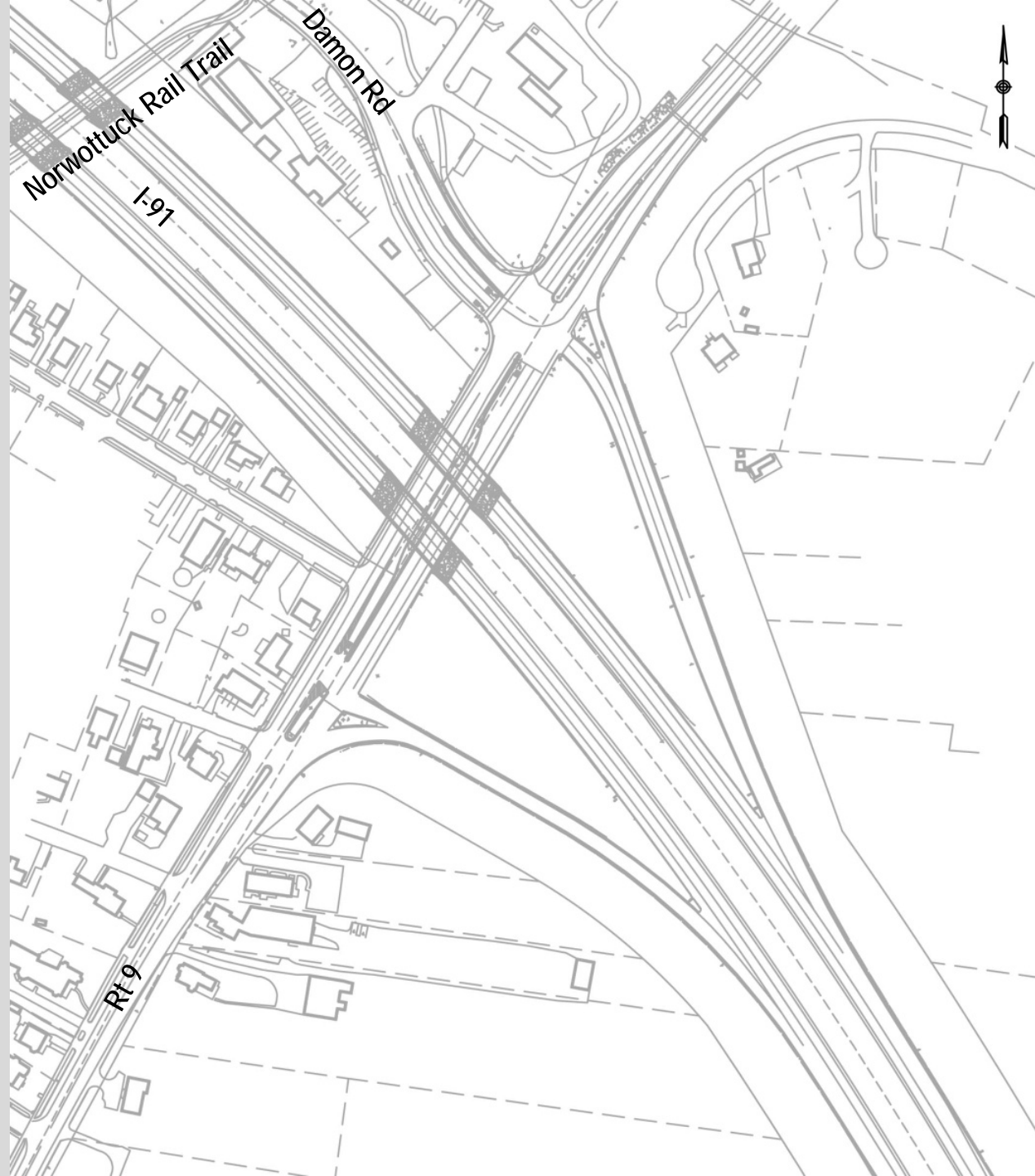
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Concept 13

► Concept 13 – Intersection & Ramp Improvements

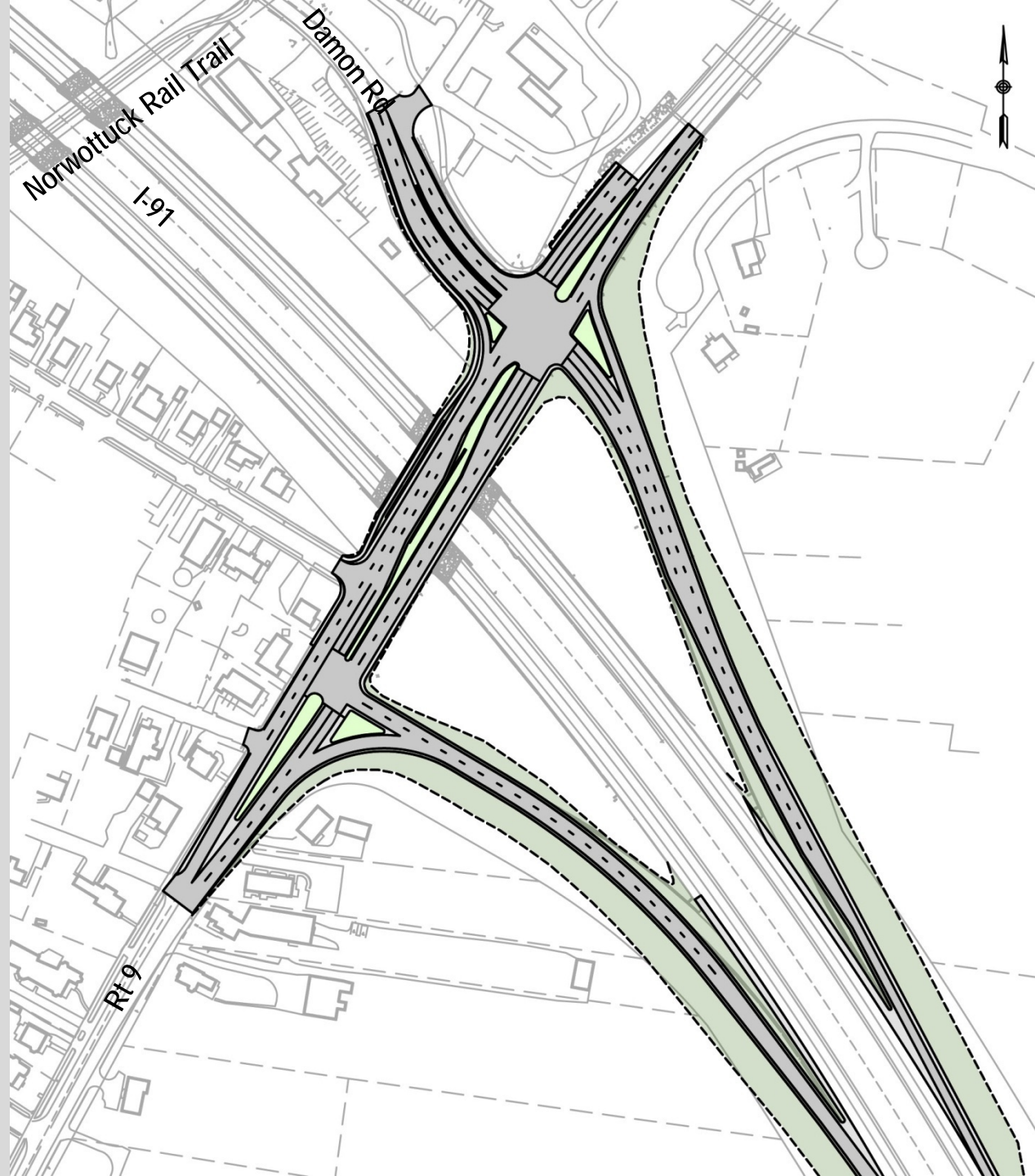
- Modified to add additional WB left turn lane onto SB on-ramp
- Modified to add additional NB through lane to Damon Road from NB off-ramp
- Left turn lane extended under bridge by relocating sidewalk or replacing the structures
- Improves on and off-ramps
- Does not provide a full access interchange



Concept 13

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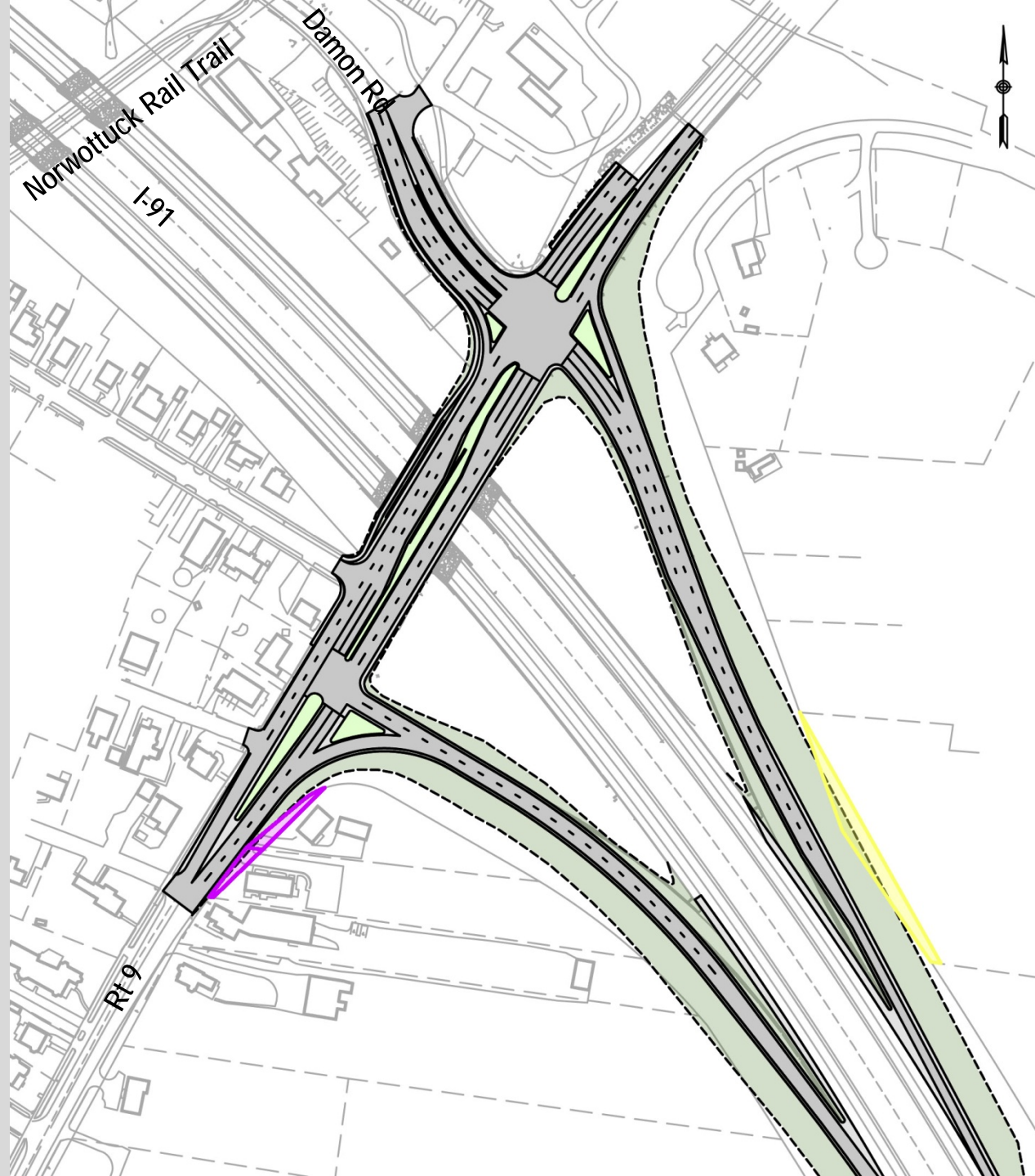
Concept 13

- 1 Permanent Impact
- 2 Temporary Impacts

Permanent Property Impacts
Temporary Property Impacts

I-91 Interchange 19

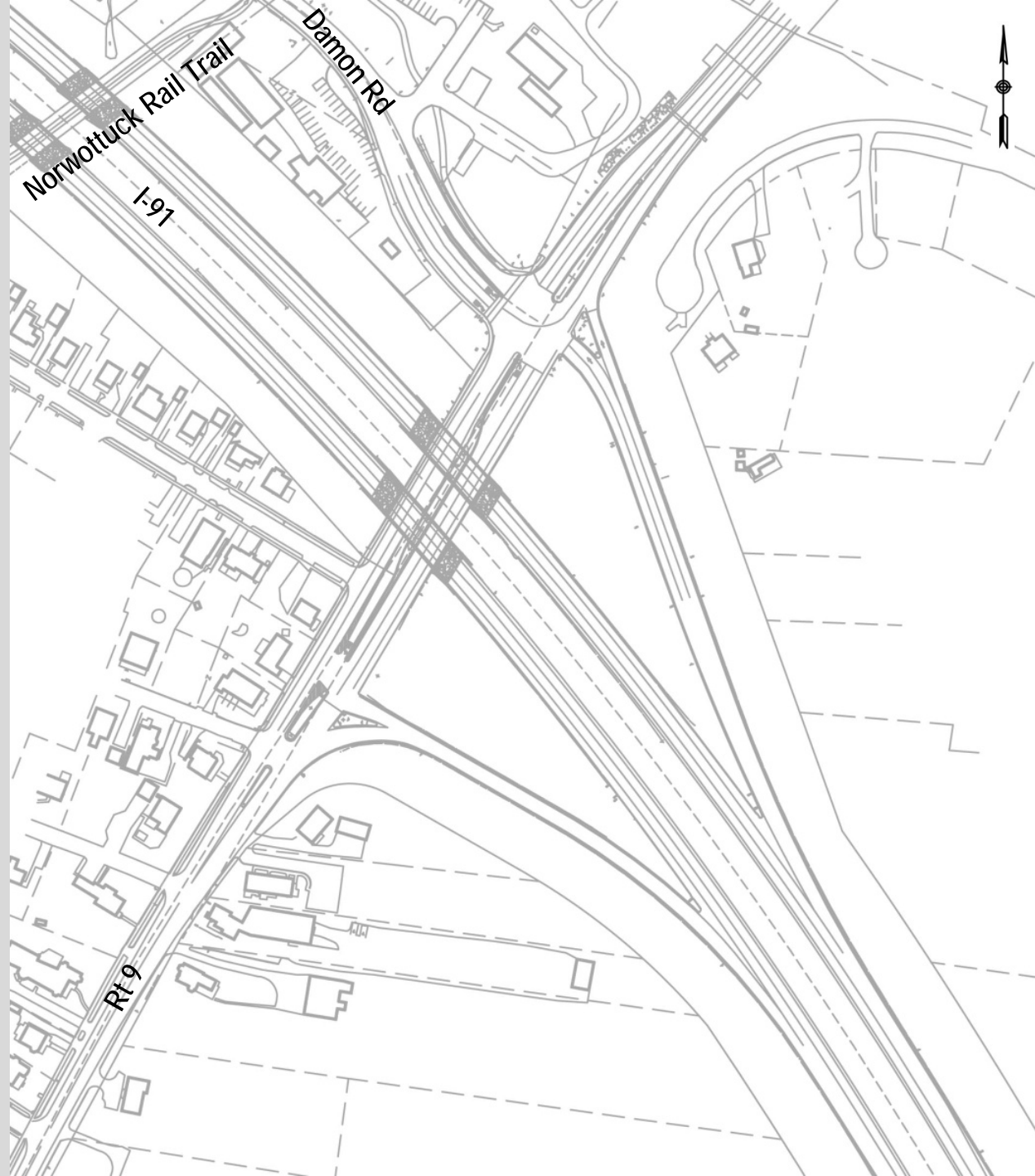
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Concept 13A

► Concept 13A – Inter. & Ramp Improvements w/ Roundabout

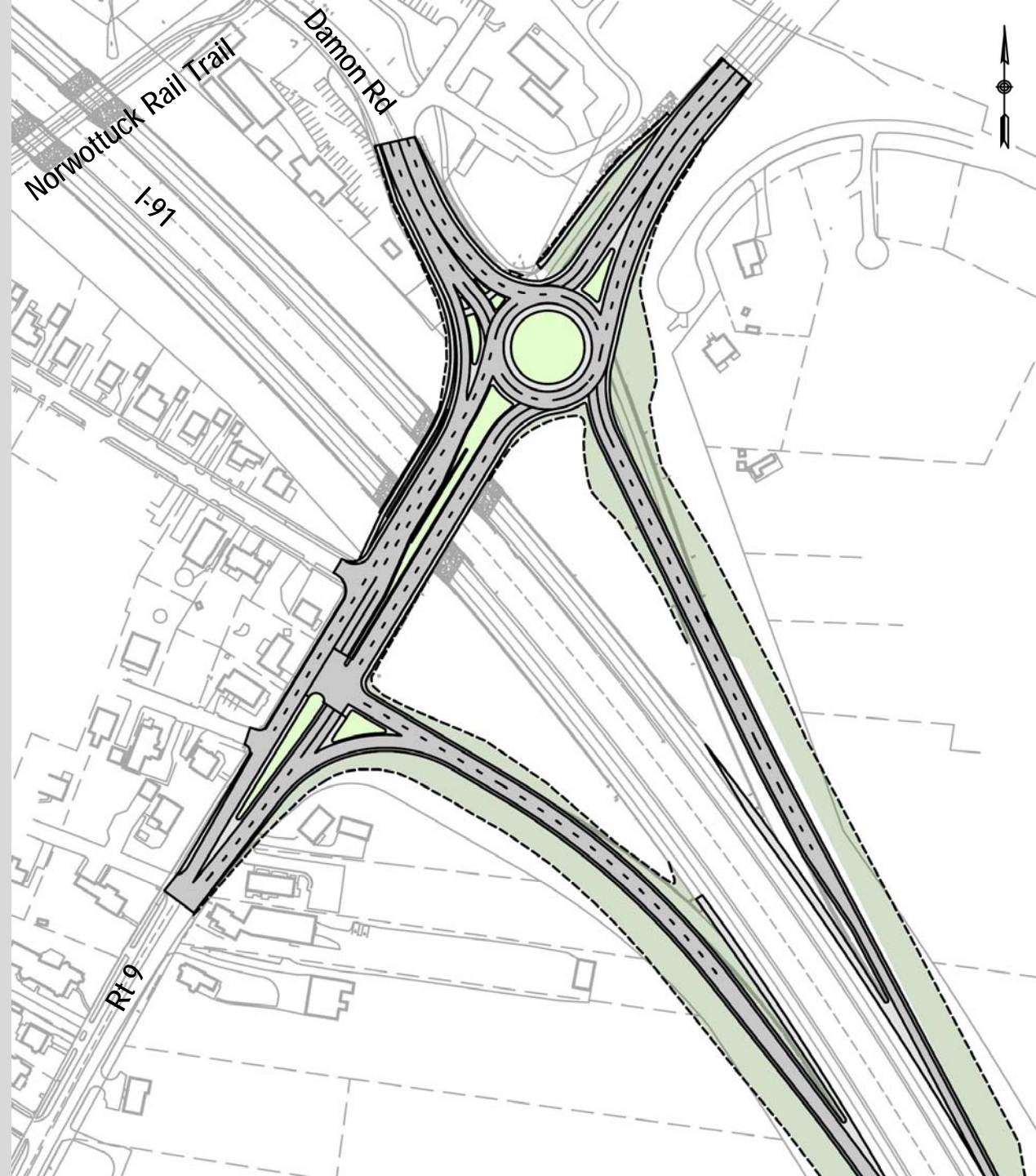
- Adds additional WB left turn lane onto SB on-ramp
- Converts Damon Road/Route 9 intersection to a roundabout
- Left turn lane extended under bridge by relocating sidewalk or replacing the structures
- Improves on and off-ramps
- Does not provide a full access interchange



Concept 13A

► Concept 13A – Inter. & Ramp Improvements w/ Roundabout

- Adds additional WB left turn lane onto SB on-ramp
- Converts Damon Road/Route 9 intersection to a roundabout
- Left turn lane extended under bridge by relocating sidewalk or replacing the structures
- Improves on and off-ramps
- Does not provide a full access interchange



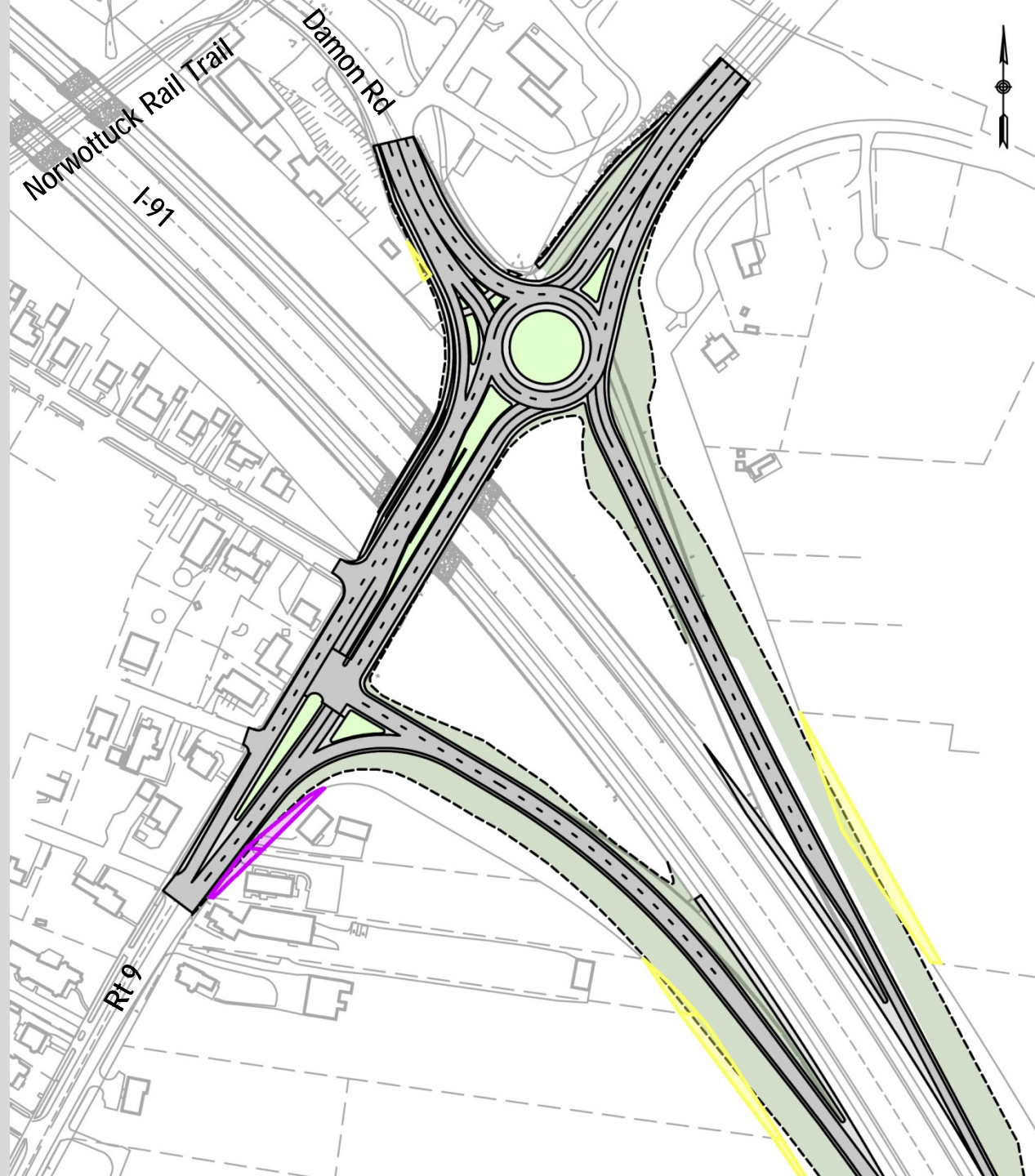
Concept 13A

- ➡ 5 Permanent Impacts
- ➡ 2 Temporary Impacts

— Permanent Property Impacts
— Temporary Property Impacts

I-91 Interchange 19

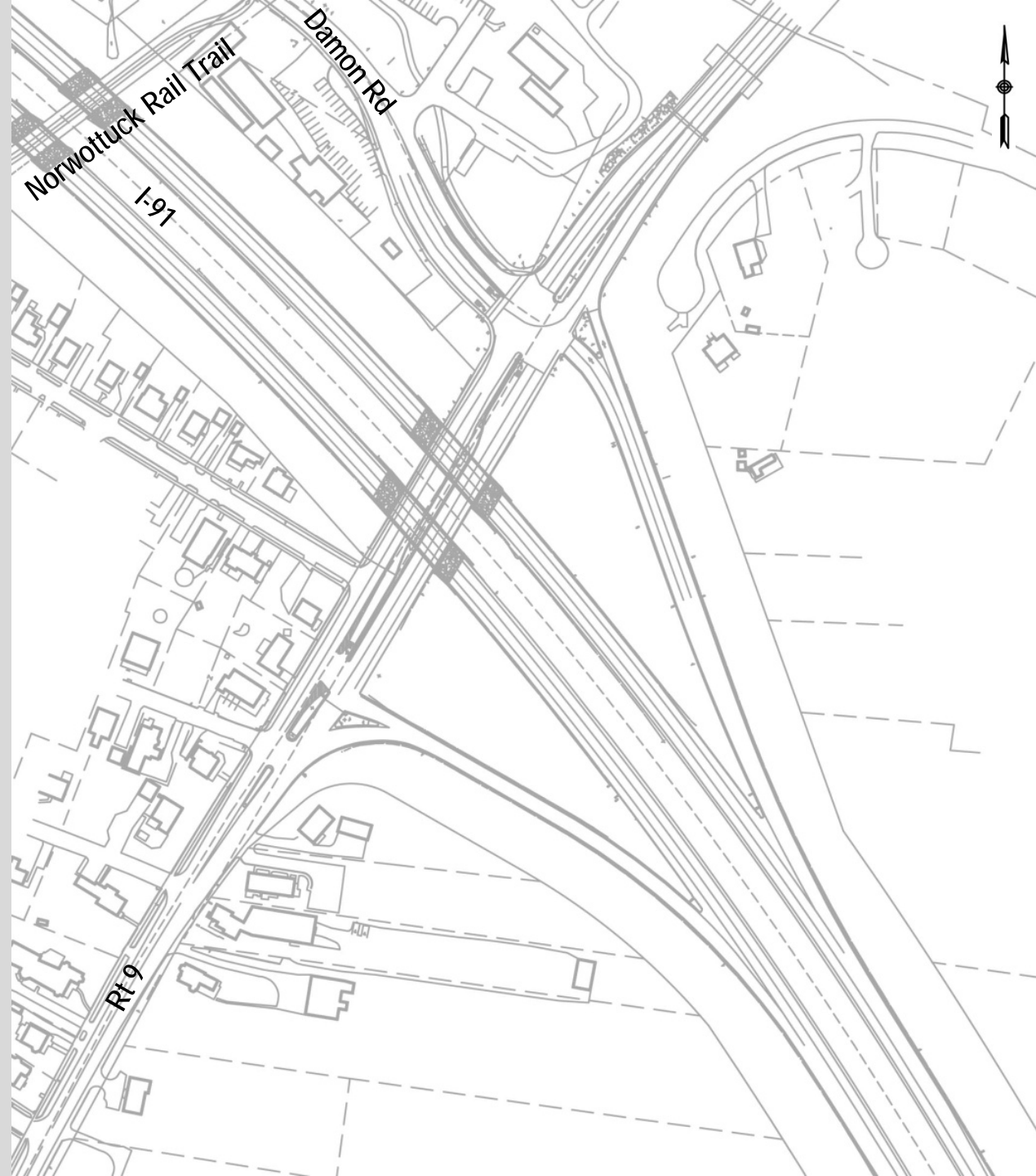
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Concept 13B

► Concept 13B – Inter. & Ramp Improvements w/ Double Roundabout

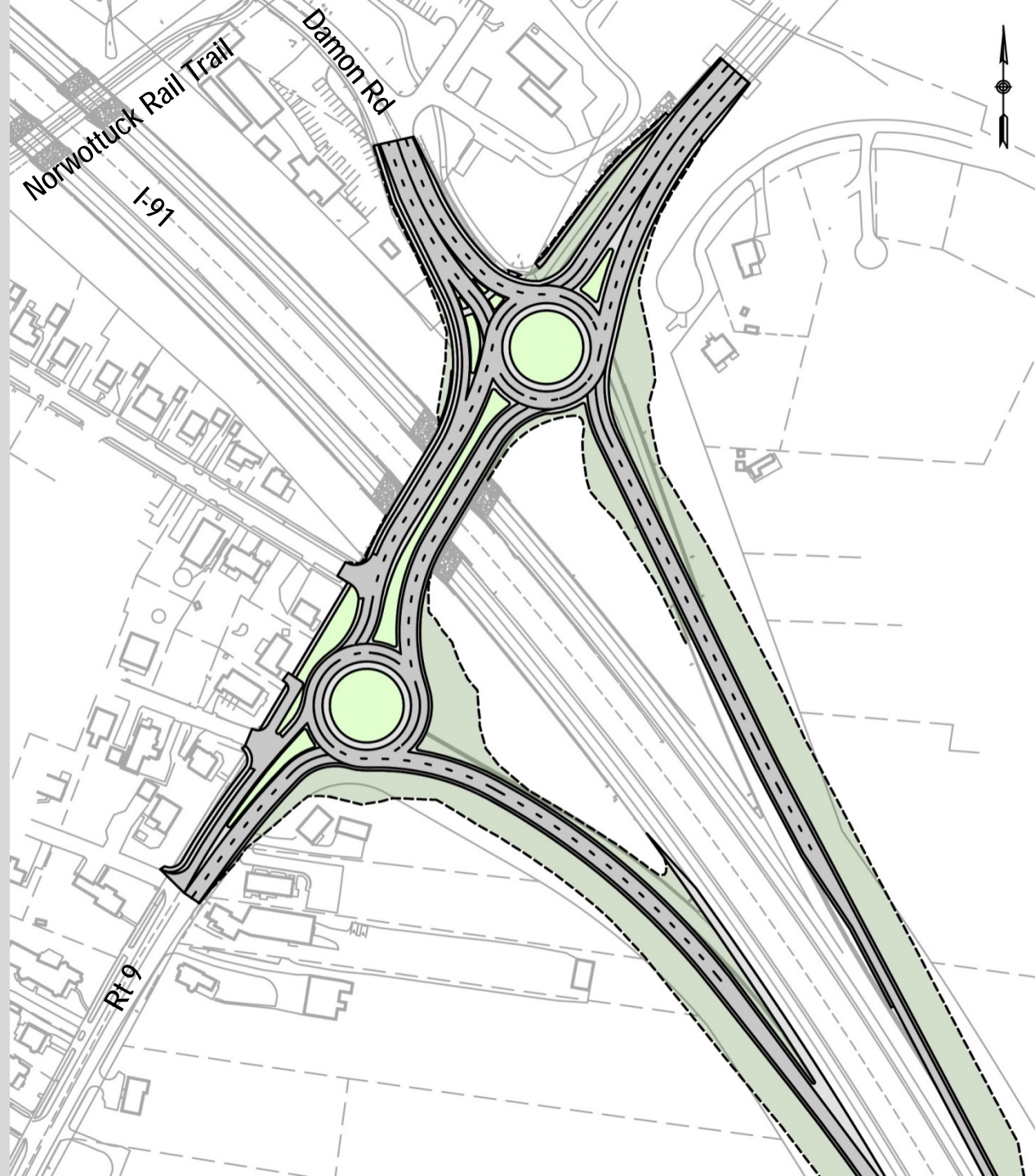
- Converts Damon Road/Route 9 & Route 9/SB On-Ramp intersection to roundabouts
- Bypass lane used for WB Route 9 traffic at western roundabout
- Improves on and off-ramps
- Does not provide a full access interchange



Concept 13B

► Concept 13B – Inter. & Ramp Improvements w/ Double Roundabout

- Converts Damon Road/Route 9 & Route 9/SB On-Ramp intersections to roundabouts
- Bypass lane used for WB Route 9 traffic at western roundabout
- Improves on and off-ramps
- Does not provide a full access interchange



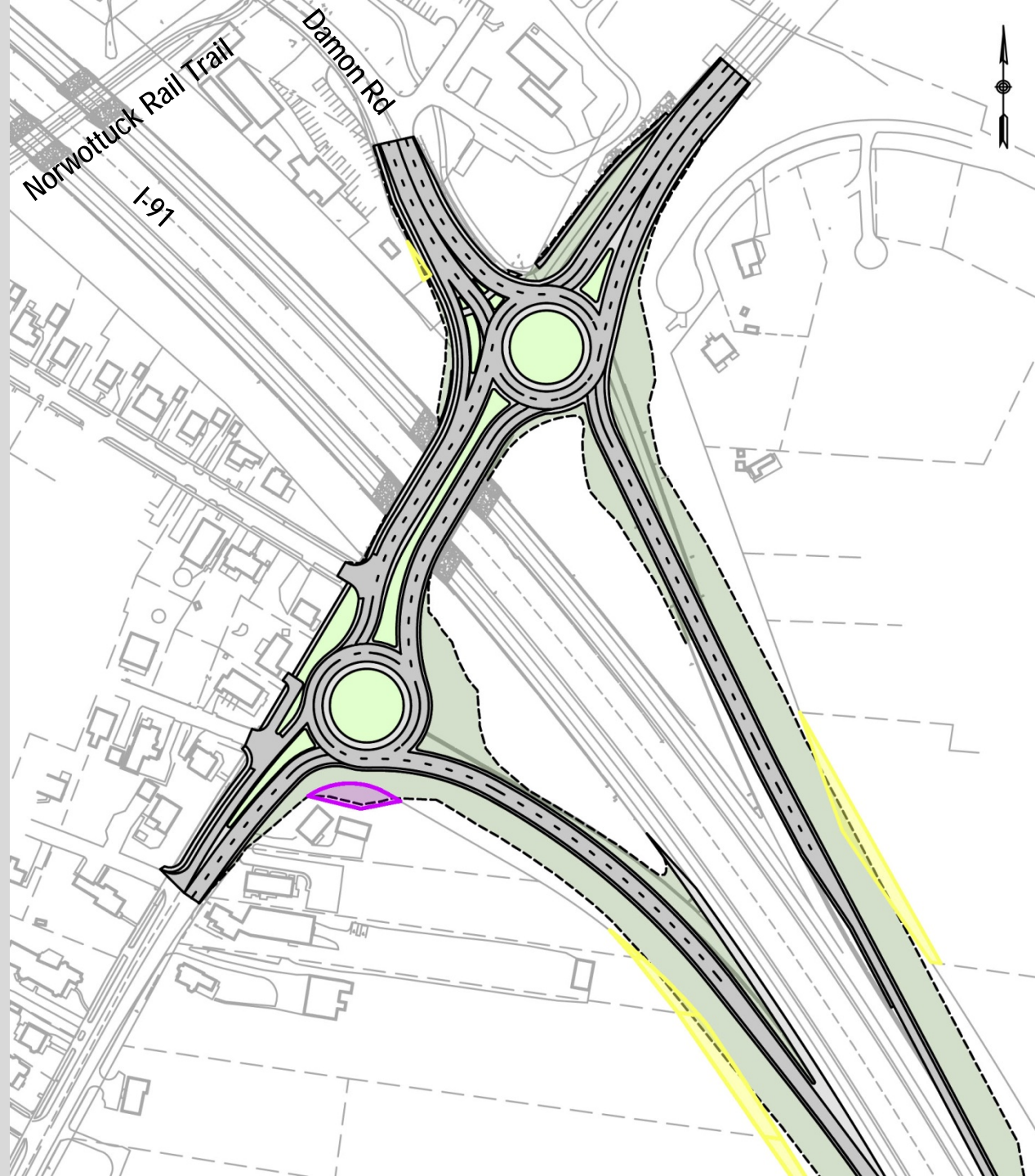
Concept 13B

- 6 Permanent Impacts
- 1 Temporary Impact

— Permanent Property Impacts
— Temporary Property Impacts

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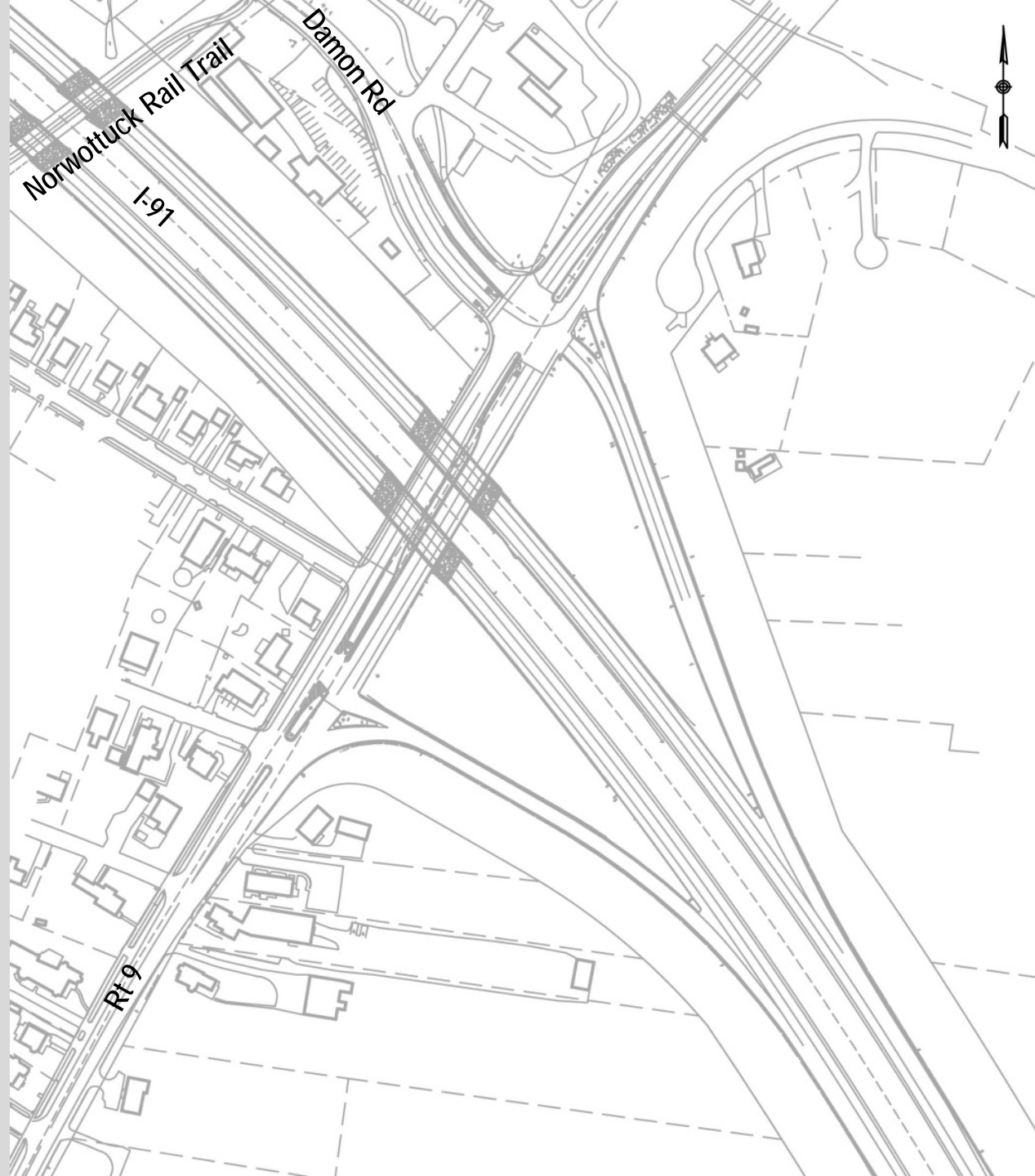
Play

Stop

Concept 13C

► Concept 13C– Inter. & Ramp Improvements w/ Roundabout & Relocated Damon Road

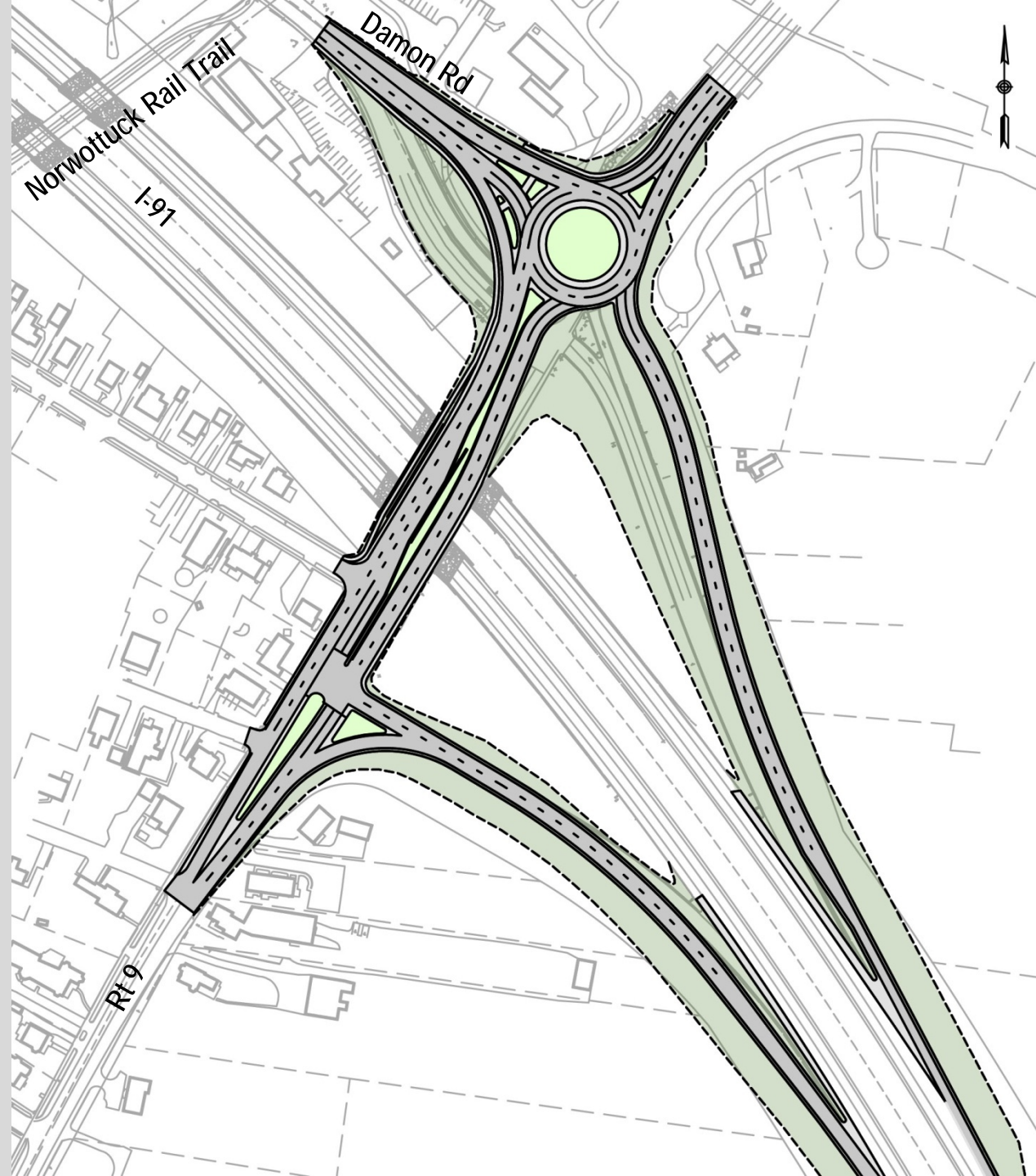
- Converts Damon Road/Route 9 intersection to a roundabout
- Shifts Damon Road eastward onto old alignment (better spacing between intersections)
- Left turn lane extended under bridge by relocating sidewalk or replacing the structures
- Improves on and off-ramps
- Does not provide a full access interchange



Concept 13C

► Concept 13C– Inter. & Ramp Improvements w/ Roundabout & Relocated Damon Road

- Converts Damon Road/Route 9 intersection to a roundabout
- Shifts Damon Road eastward onto old alignment (better spacing between intersections)
- Left turn lane extended under bridge by relocating sidewalk or replacing the structures
- Improves on and off-ramps
- Does not provide a full access interchange



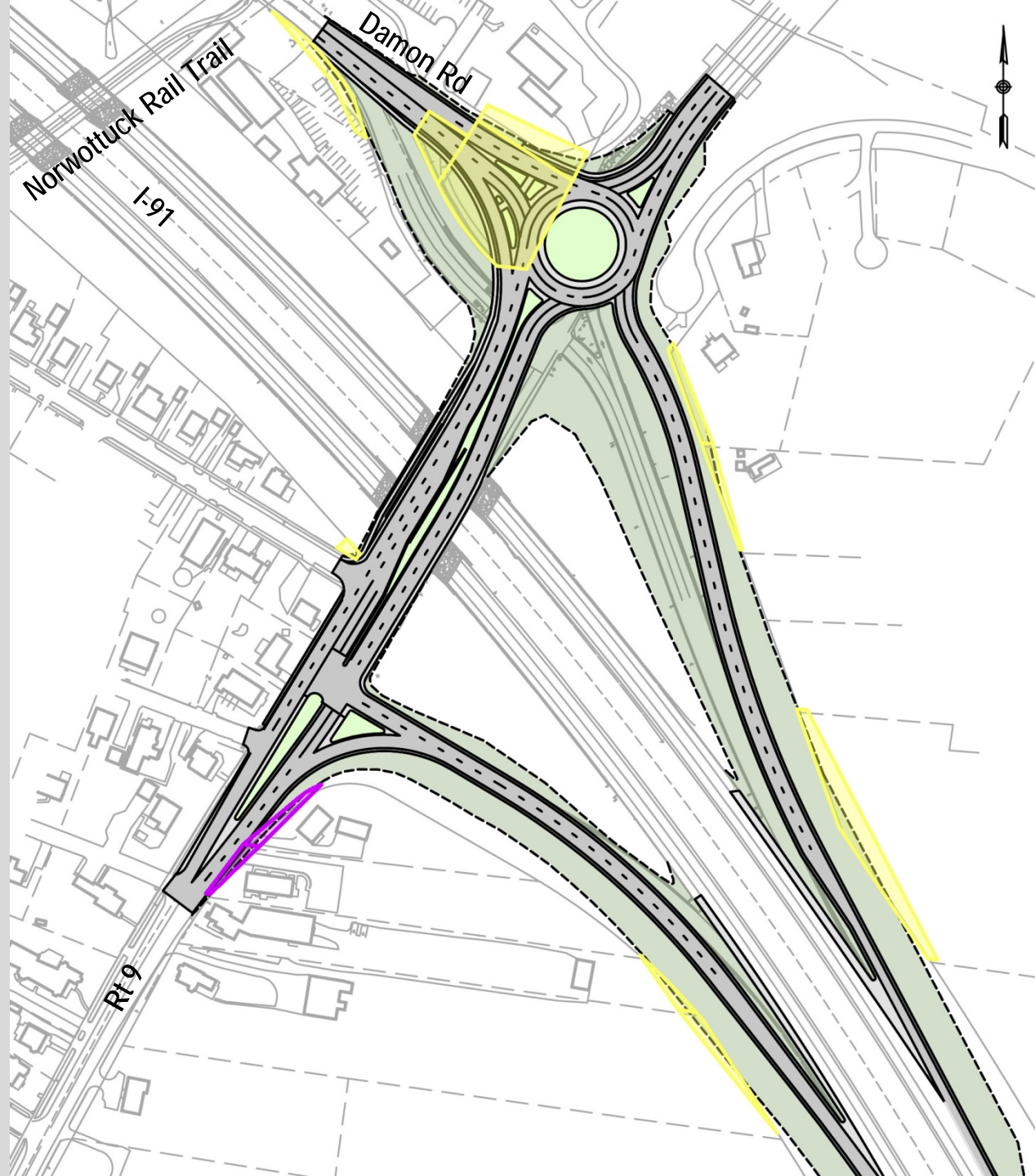
Concept 13C

- 10 Permanent Impacts
- 2 Temporary Impacts

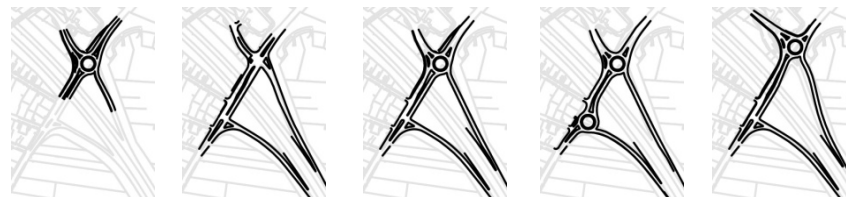
— Permanent Property Impacts
— Temporary Property Impacts

I-91 Interchange 19

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Evaluation Matrix



Safety

Crash Rates

Emergency Vehicle Access

Traffic Calming

Traffic

Delays (LOS)

























Travel Time

Queueing

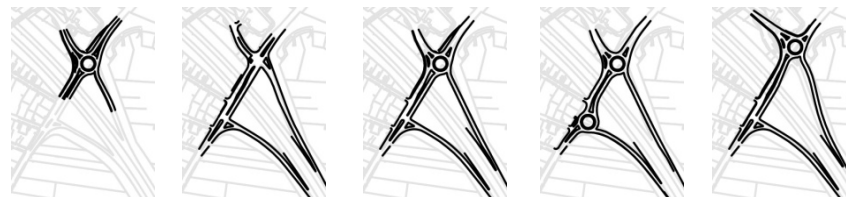
Alternatives				
C12	C13	C13A	C13B	C13C

Evaluation Matrix



		Alternatives				
		C12	C13	C13A	C13B	C13C
Construction	Costs	 \$1.1M	 \$2.6M	 \$2.6M	 \$2.6M	 \$3.0M
	Duration (Years)	1 To 2	1 To 2	2 To 3	2 To 3	2 To 3
Multi-modal	Impacts during Construction	 1 To 2	 1 To 2	 2 To 3	 2 To 3	 2 To 3
	Pedestrian Accommodation	 1 To 2	 1 To 2	 2 To 3	 2 To 3	 2 To 3
	Bike Accommodation	 1 To 2	 1 To 2	 2 To 3	 2 To 3	 2 To 3
	Transit Access	 1 To 2	 1 To 2	 2 To 3	 2 To 3	 2 To 3

Evaluation Matrix



Community Impacts

Property
Recreation Impacts/Access
Community Cohesion
Agricultural
Aesthetics
Airport Impacts

Alternatives				
C12	C13	C13A	C13B	C13C

Evaluation Matrix



Environmental Impacts

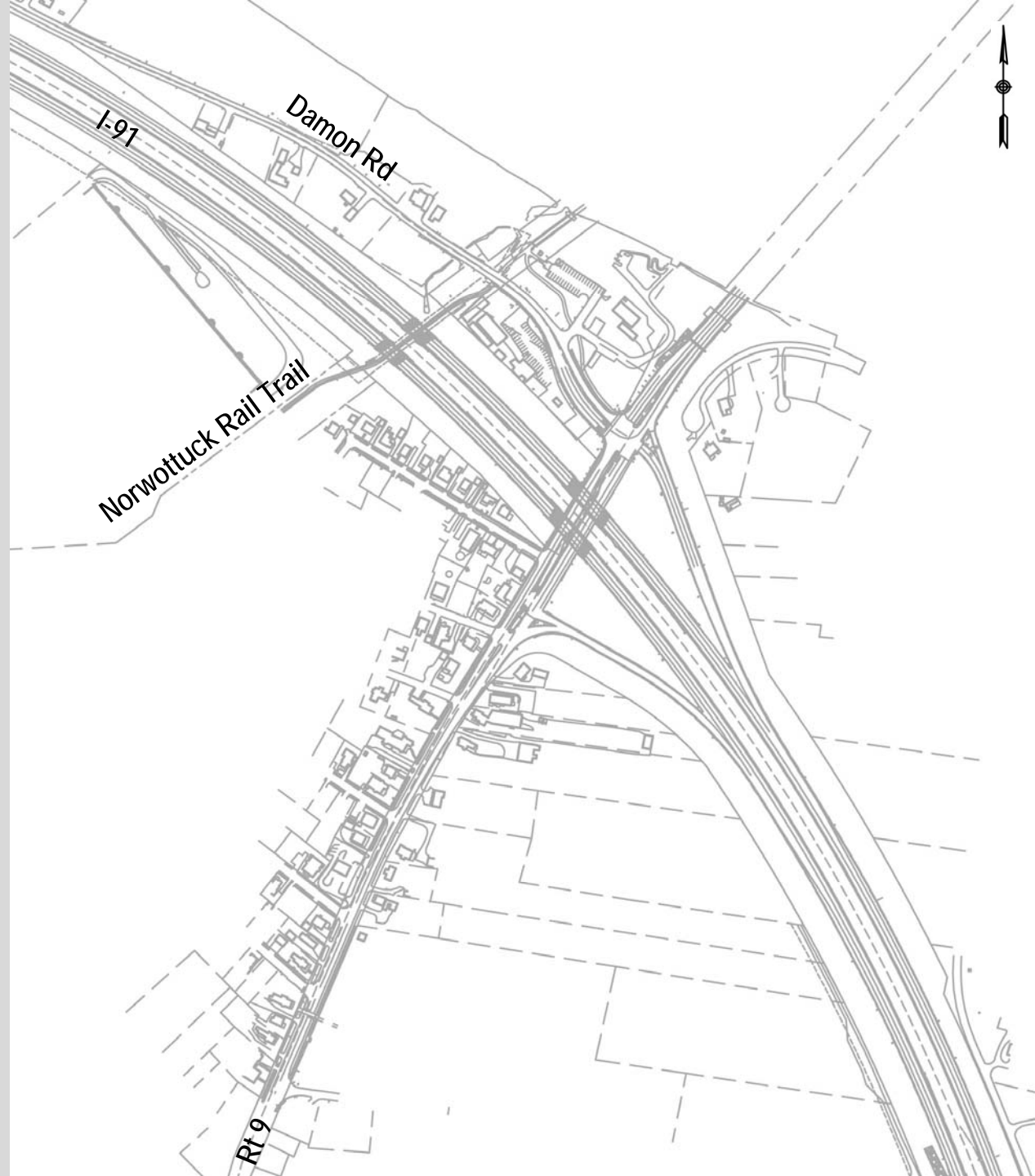
Noise
Wetland
Flood Plain
Rare Species
Open Space
Air Quality
Light

Alternatives				
C12	C13	C13A	C13B	C13C

Concept 15

► Concept 15 Full Access Interchange

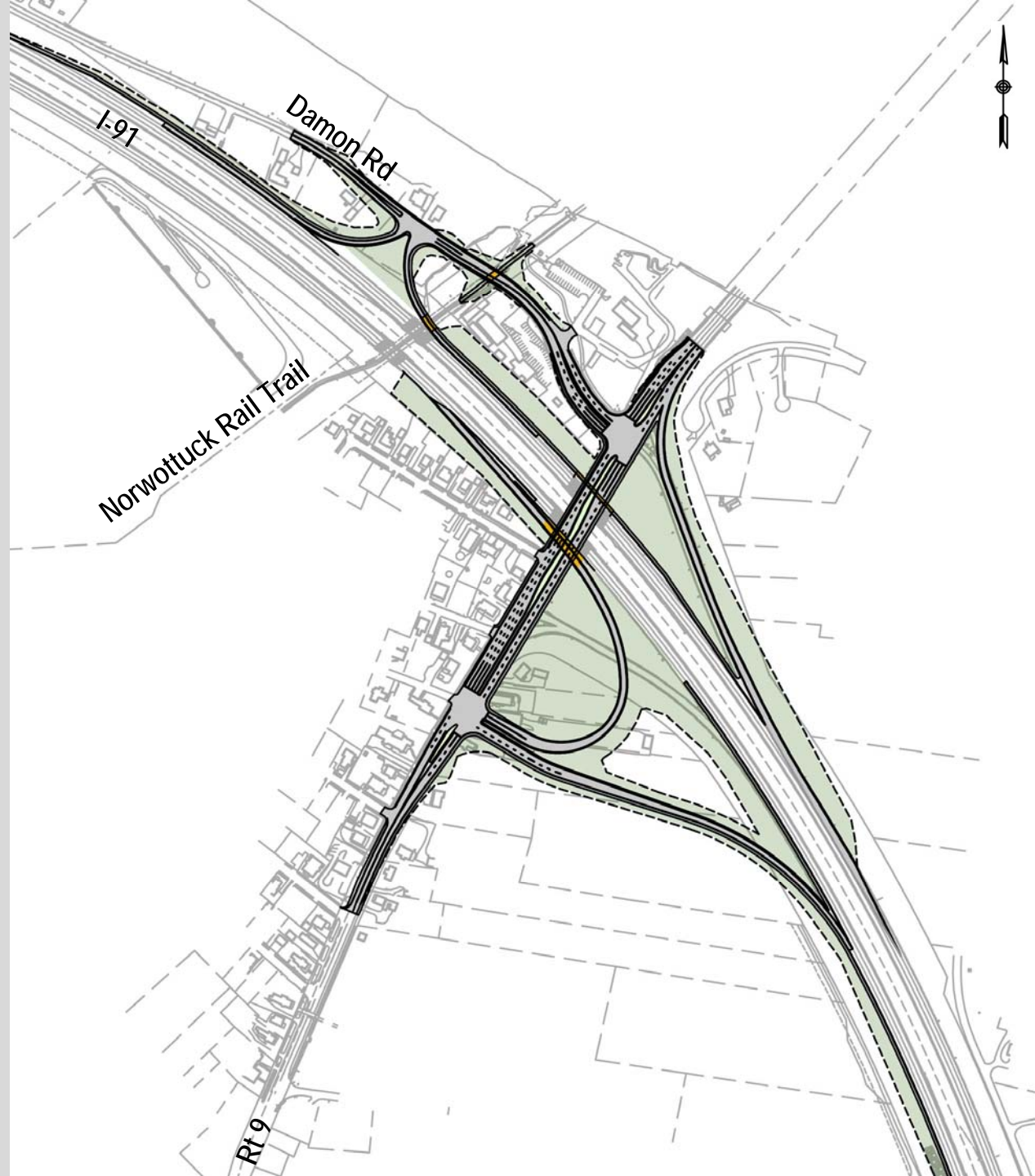
- Preferred concept from previous study
- SB Off-Ramp constructed as loop ramp
- SB On-Ramp relocated westerly
- NB Off-Ramp converted to right turn only
- Second NB Off-Ramp connects directly to Damon Road (for Damon Road & WB Route 9 movements)
- NB On-Ramp constructed off of Damon Road
- Damon Road raised by approximately 5' to accommodate ramps
- Provides full access interchange for all movements



Concept 15

► Concept 15 Full Access Interchange

- Preferred concept from previous study
- SB Off-Ramp constructed as loop ramp
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Concept 15

➡ 18 Permanent Impacts

Permanent Property Impacts



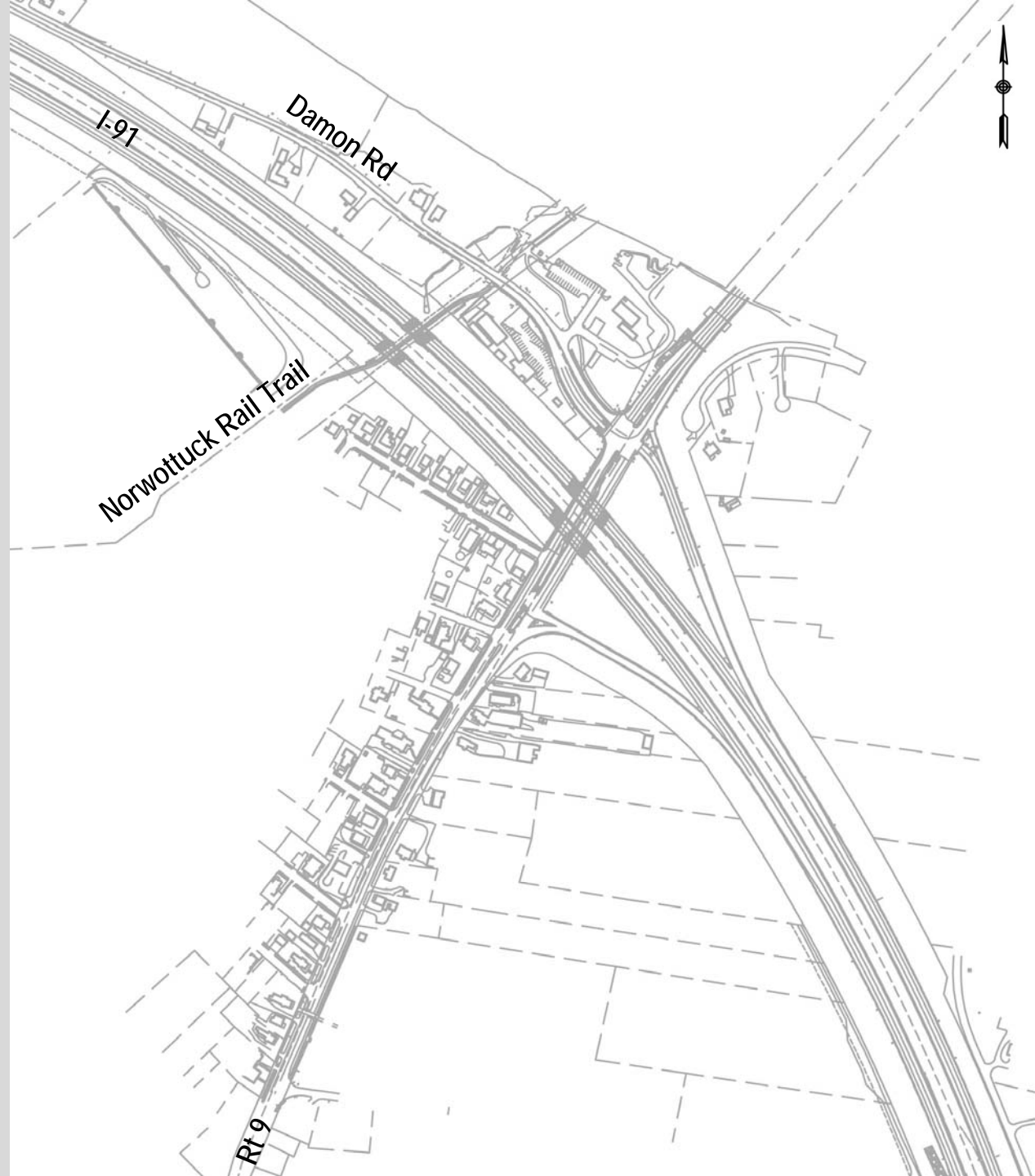
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Concept 15A

► Concept 15A - Full Access Interchange

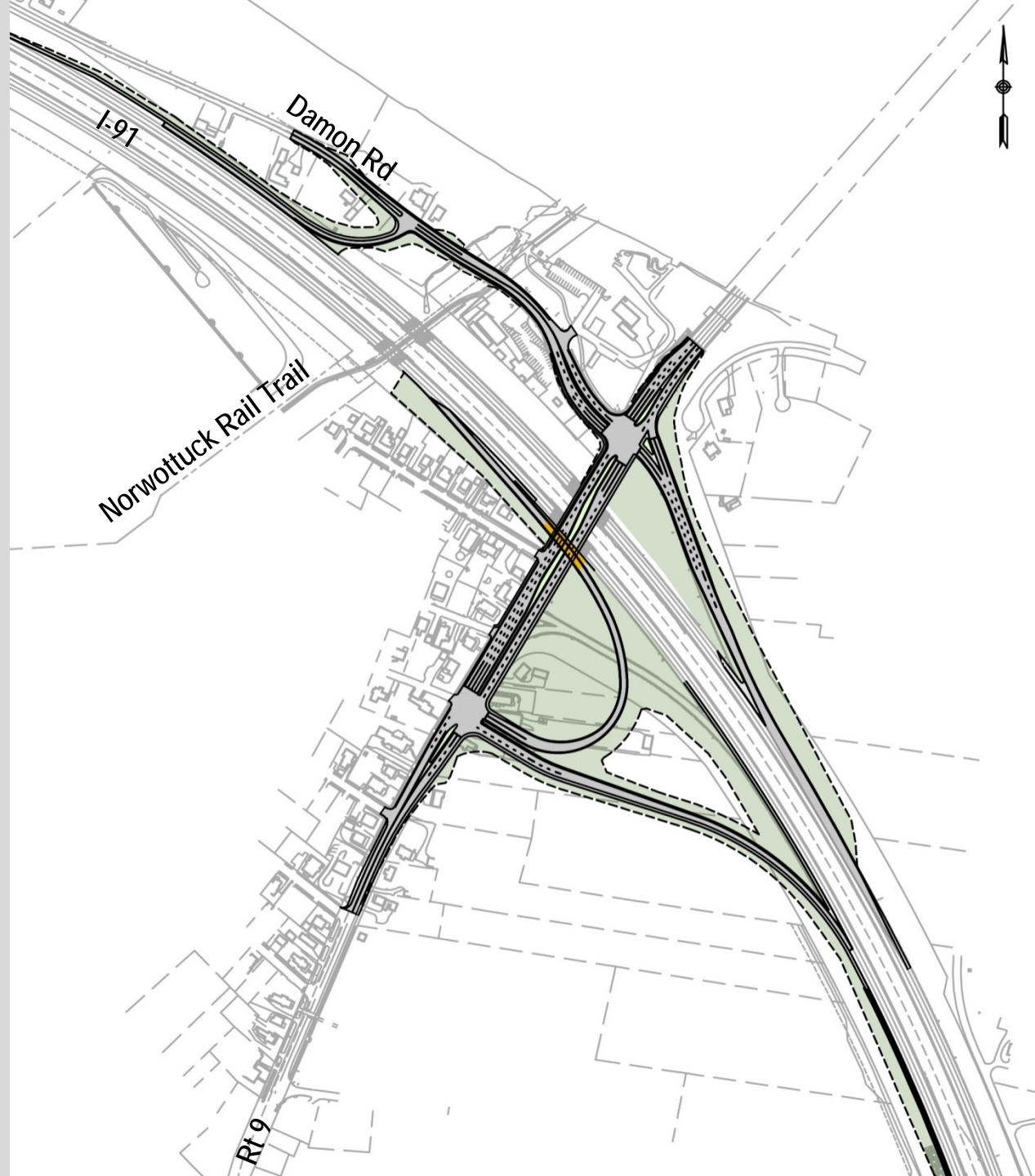
- SB Off-Ramp constructed as loop ramp
- SB On-Ramp relocated westerly
- Additional through lane added to NB Off-Ramp
- Eliminates 2nd NB Off-Ramp from C15
- NB On-Ramp constructed off of Damon Road
- Provides full access interchange for all movements
- Significant property impacts



Concept 15A

► Concept 15A - Full Access Interchange

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- Additional through lane added to NB Off-Ramp
- Eliminates 2nd NB Off-Ramp from C15
- NB On-Ramp constructed off of Damon Road
- Provides full access interchange for all movements
- Significant property impacts



Concept 15A

➡ 16 Permanent Impacts

Permanent Property Impacts

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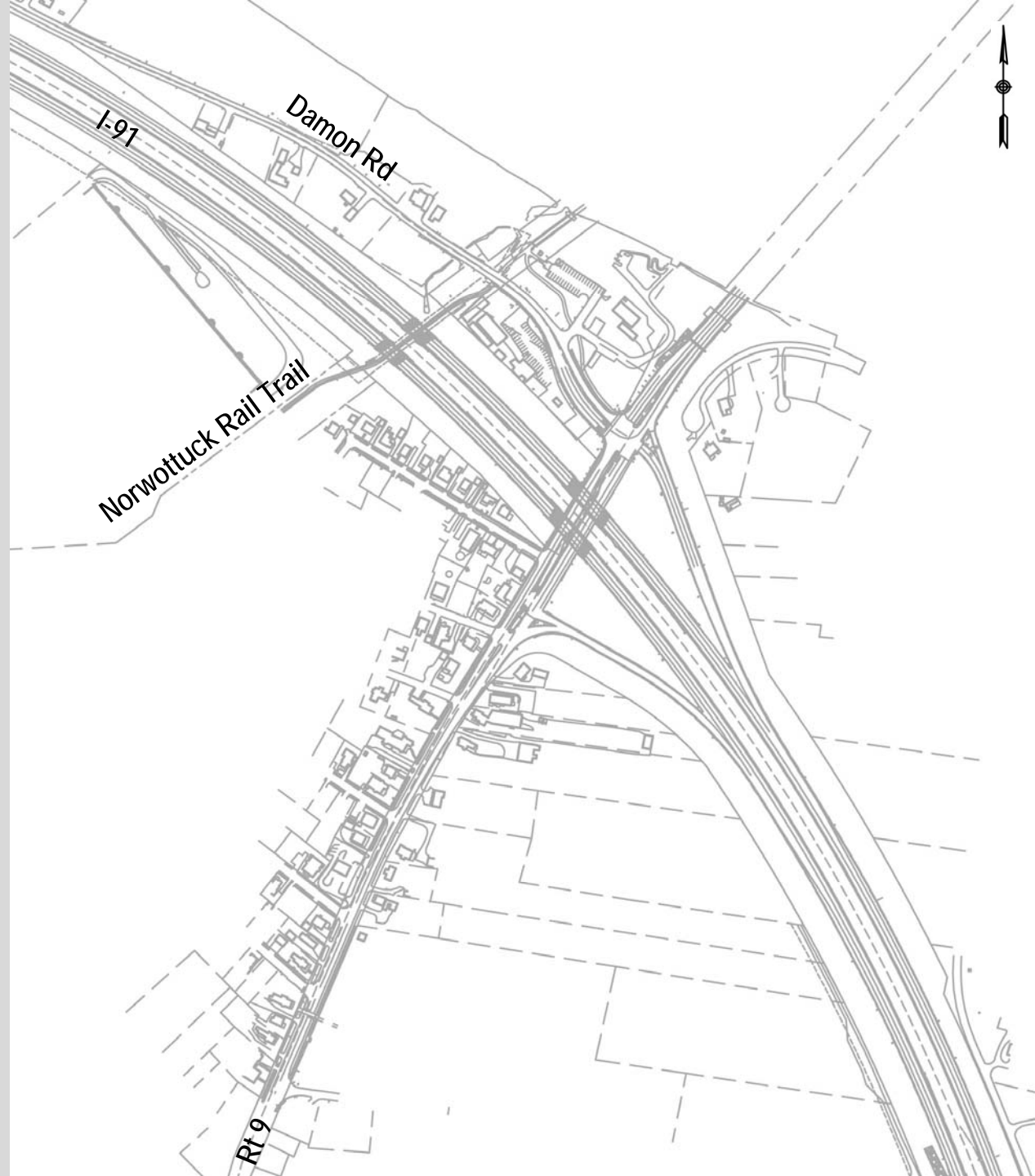
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Concept 16

► Concept 16 – Single Flyover

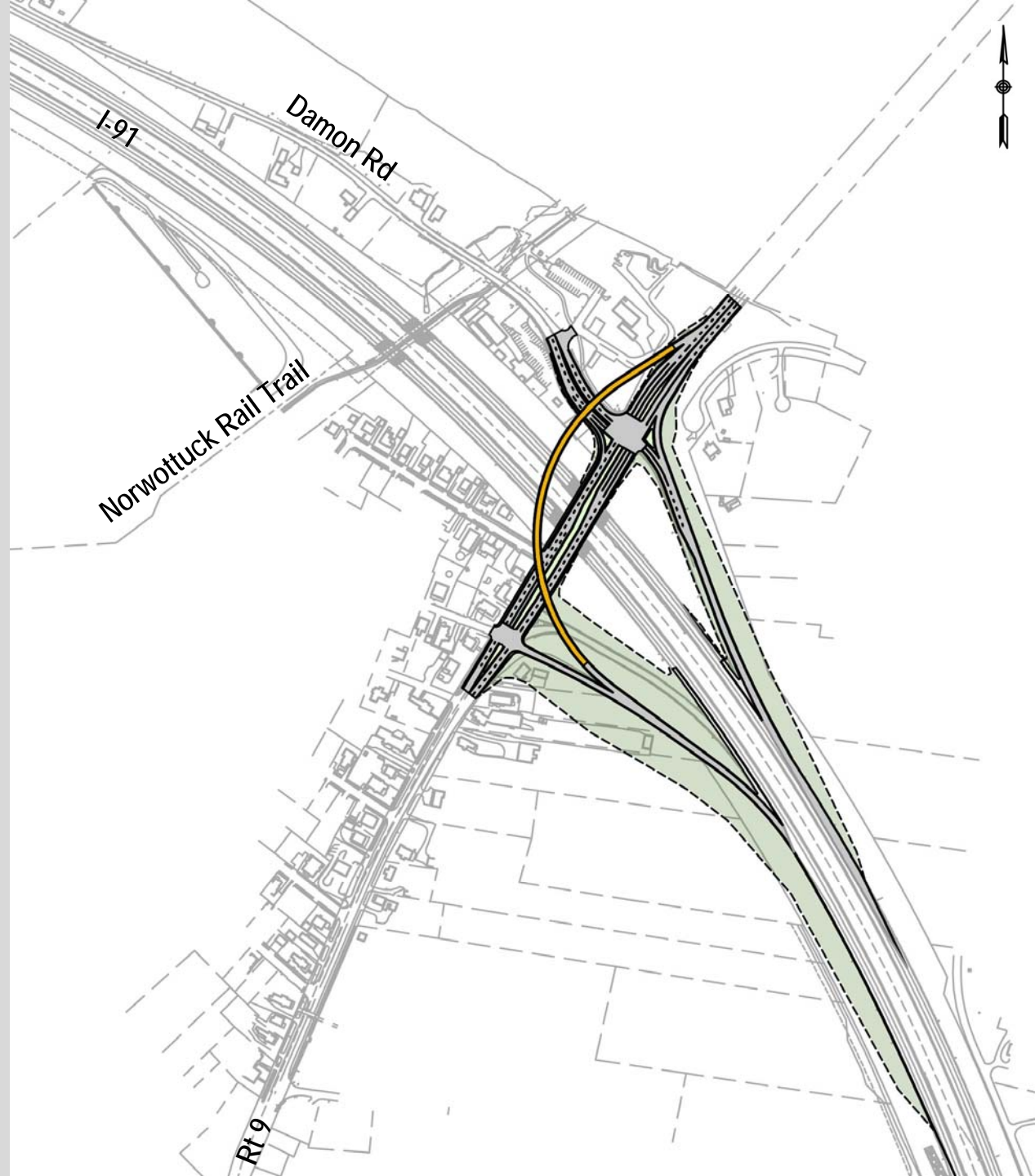
- Flyover ramp constructed from WB Route 9 to SB On-Ramp
 - Improves operations by removing large portion of left turning traffic from Route 9
- All other elements generally unchanged
- Flyover would have undesirable horizontal and vertical alignments
- Flyover would be on “3rd level” of interchange
- Does not provide full access interchange



Concept 16

► Concept 16 – Single Flyover

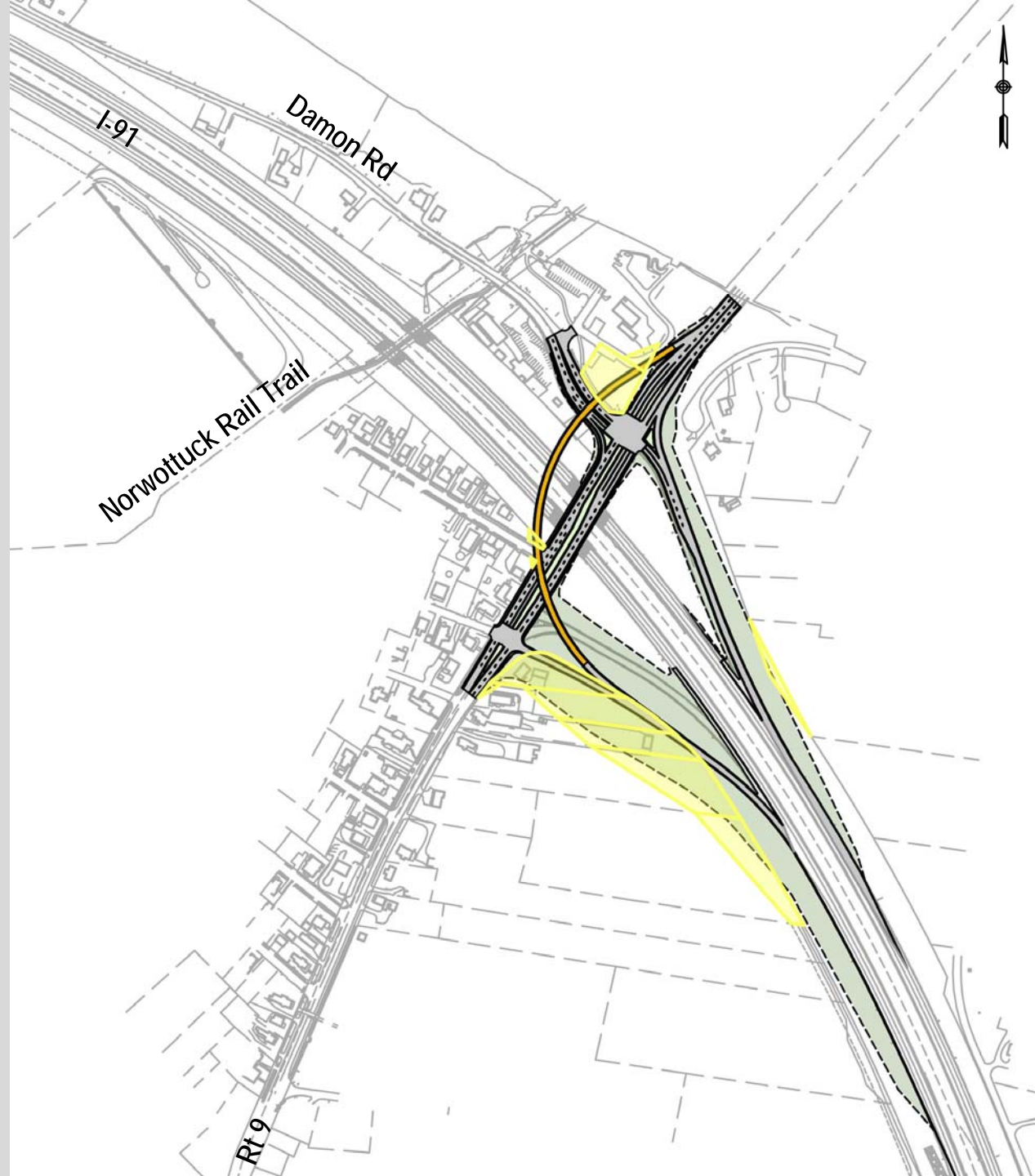
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Concept 16

➡ 10 Permanent Impacts

— Permanent Property Impacts



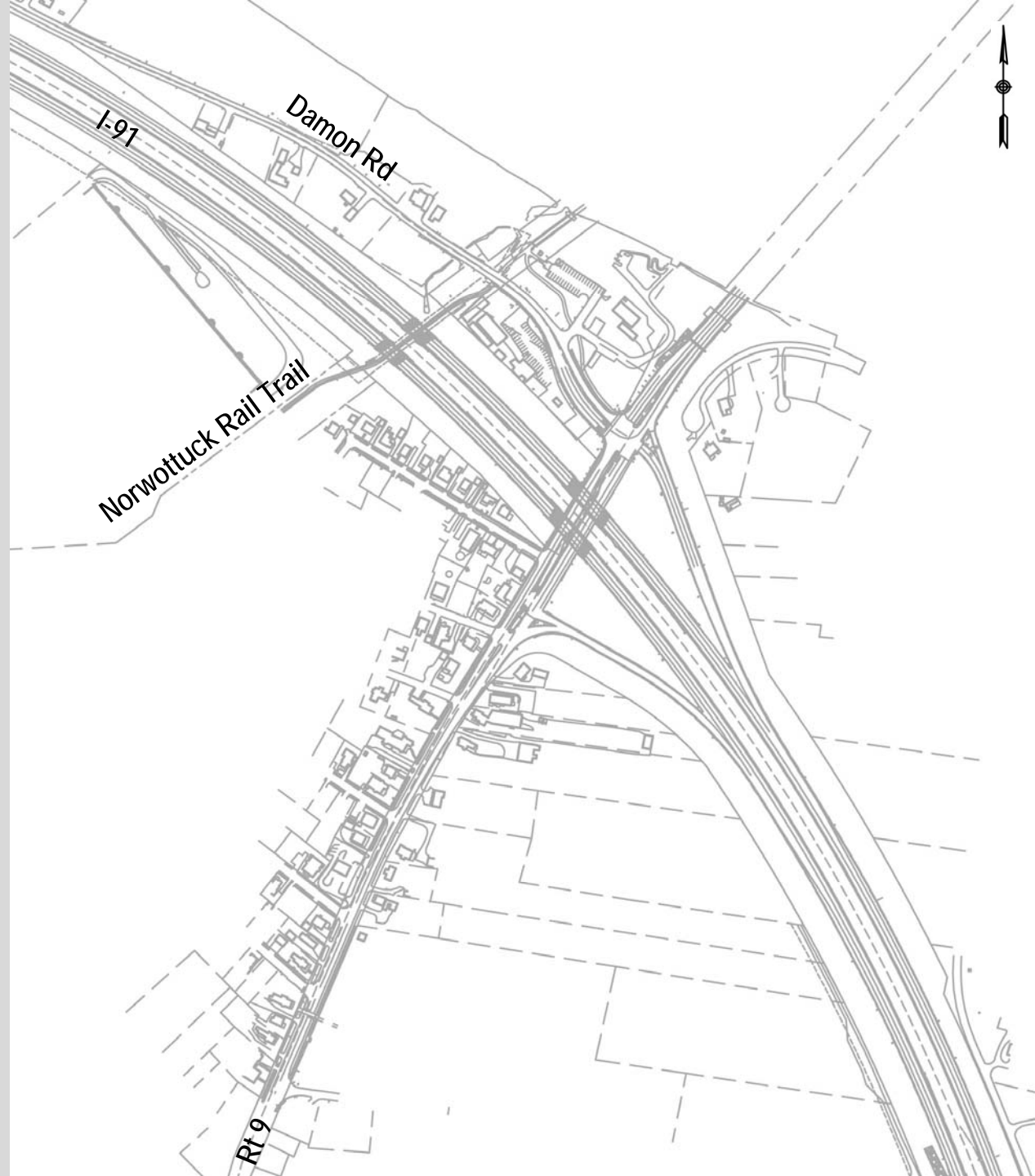
I-91 Interchange 19

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Concept 17

► Concept 17 – Double Flyover

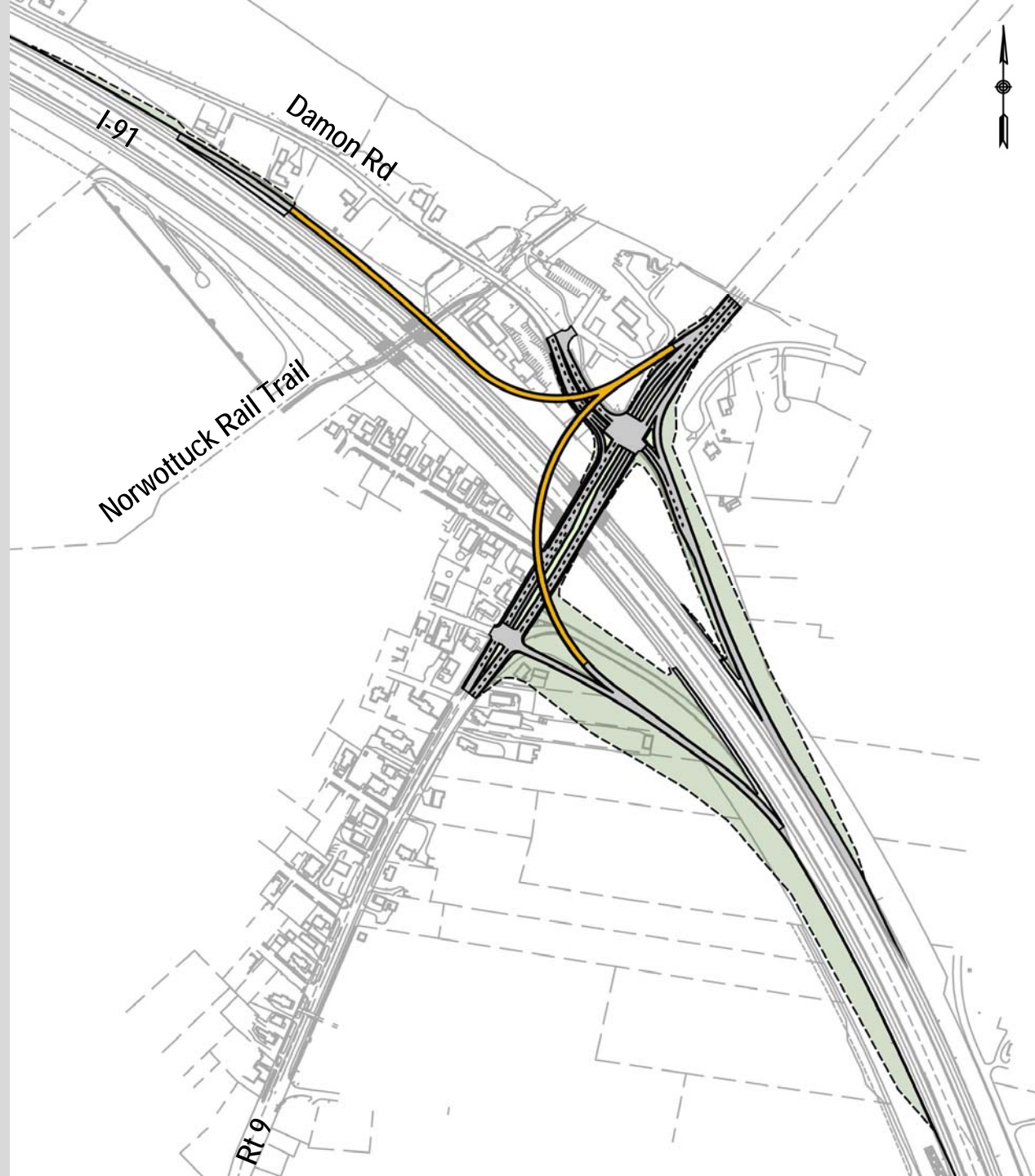
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Concept 17


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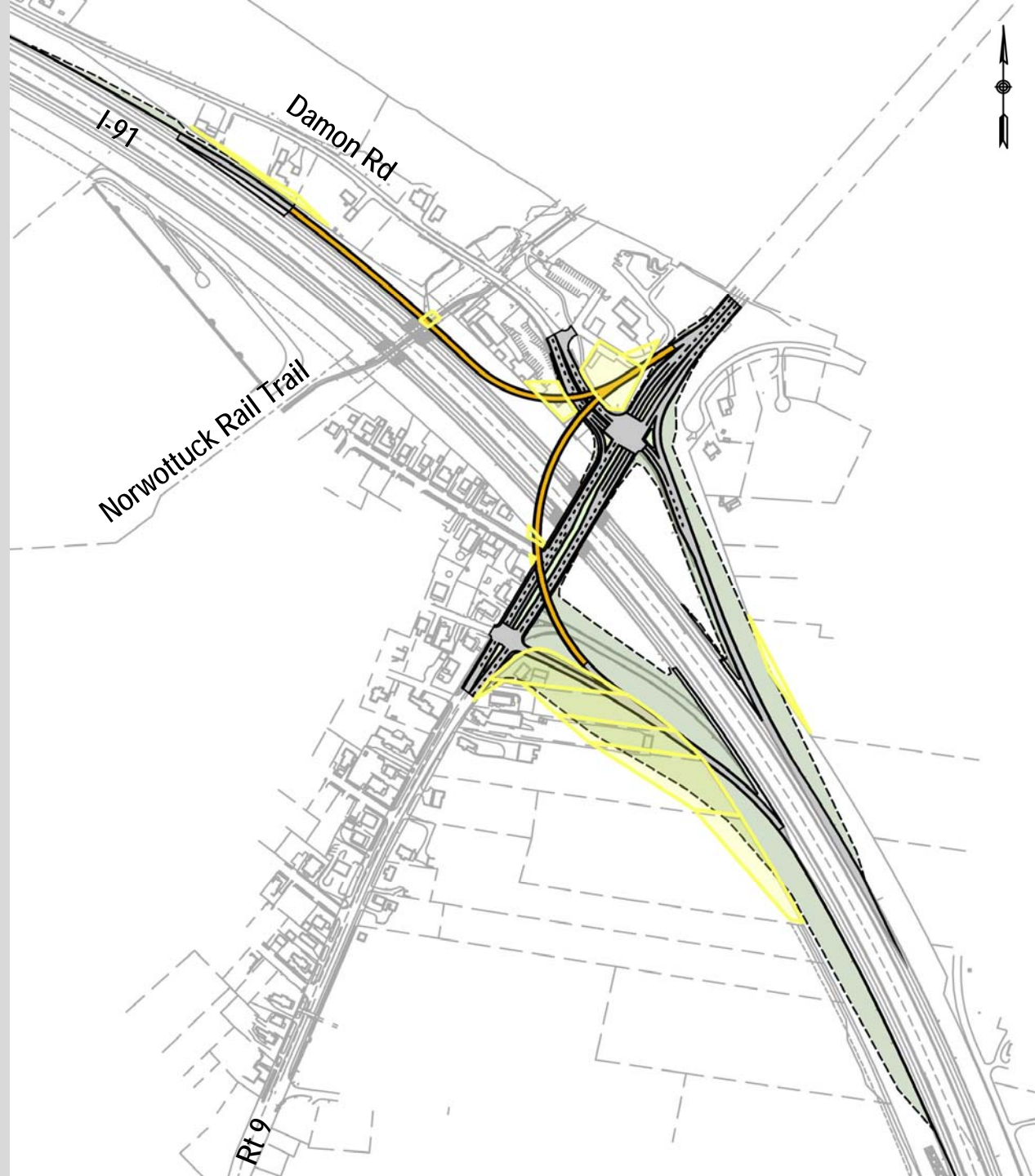
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Concept 17

17 Permanent Impacts

 Permanent Property Impacts



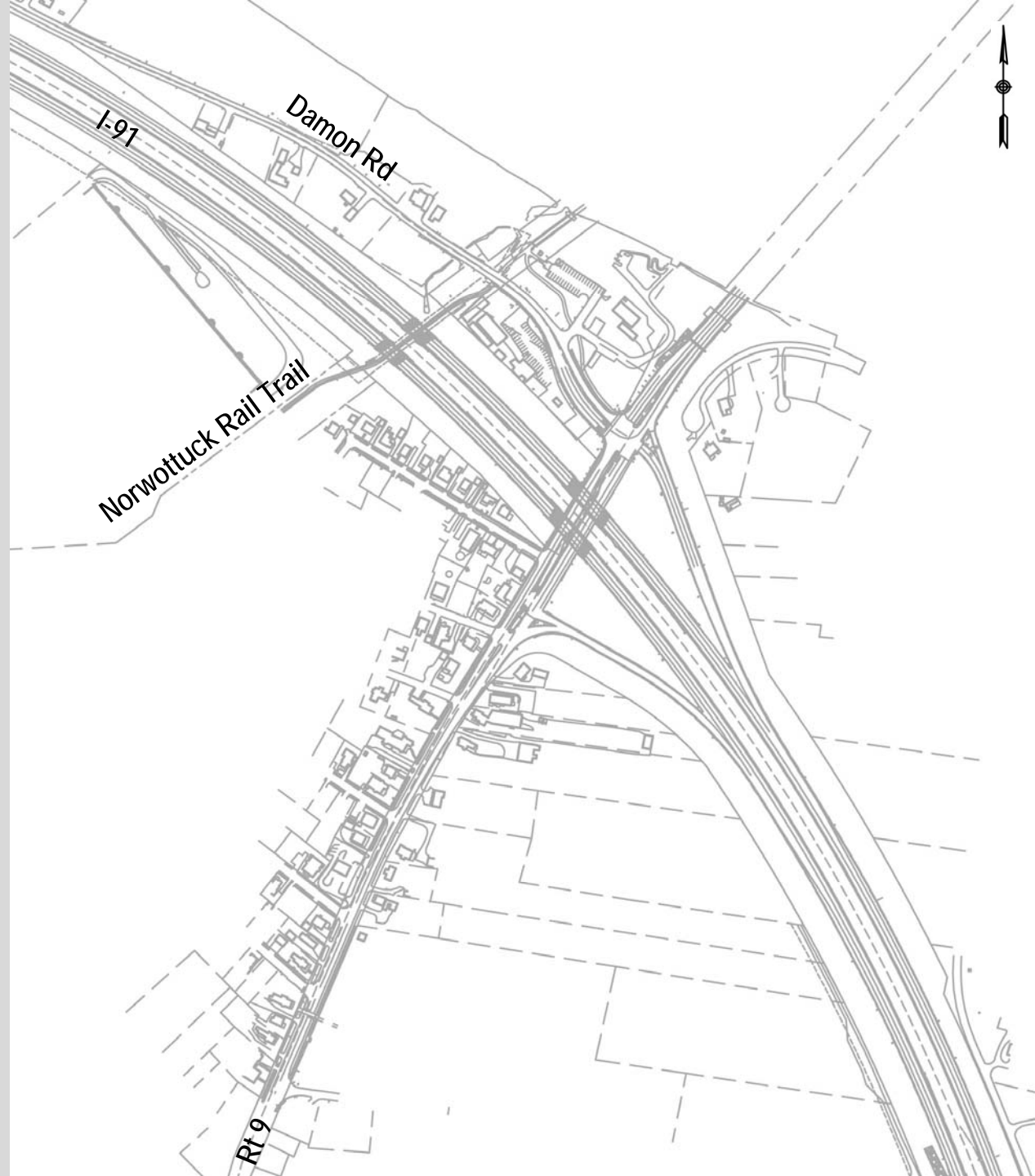
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Concept 18

► Concept 18 – Compressed Diamond

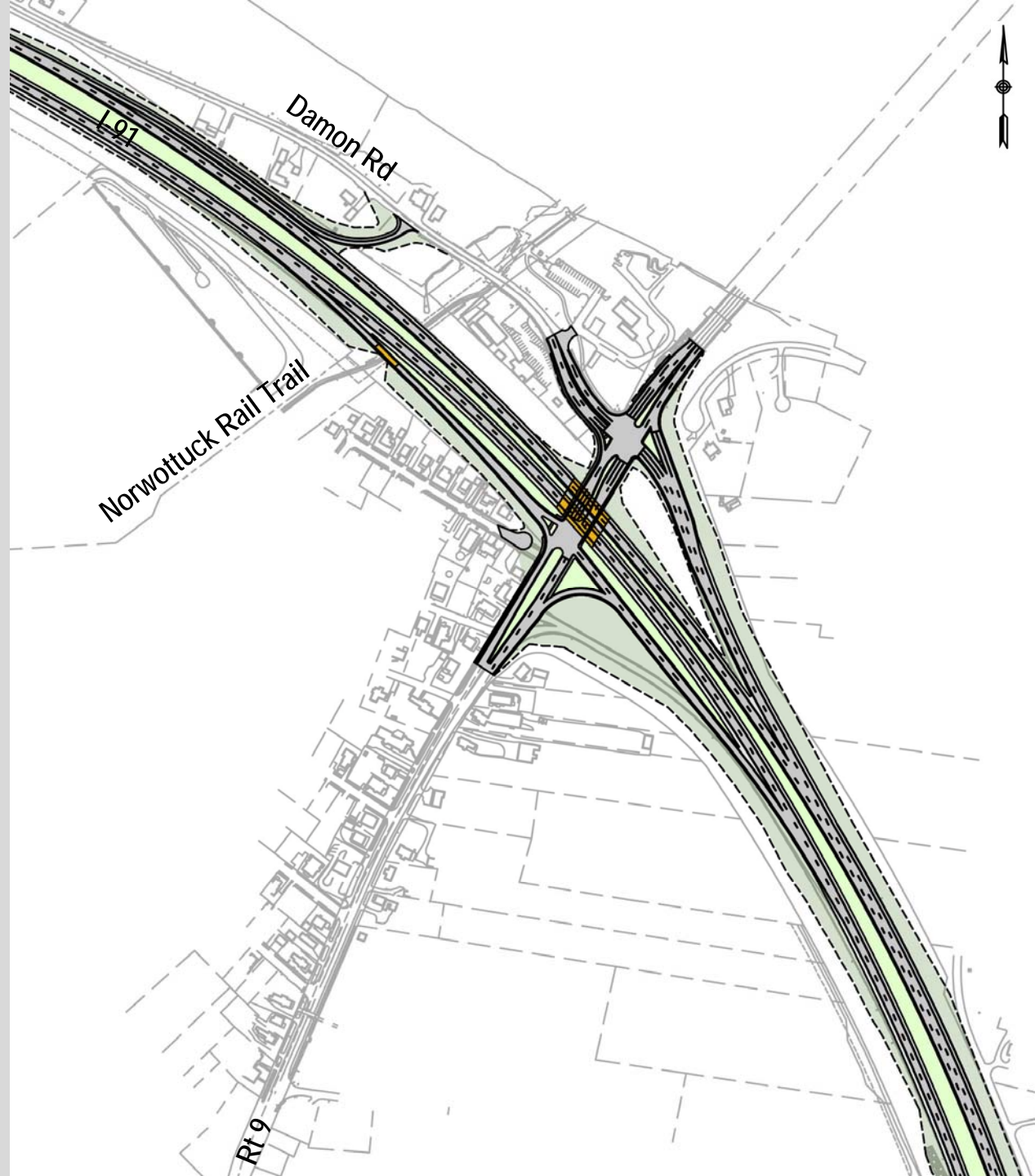
- I-91 SB shifted to median
- New SB off-ramp constructed on portion of existing I-91 SB roadway footprint
- SB on-ramp shifted easterly
- NB on-ramp constructed off of Damon Road (similar to Concept 15)
- Requires at least 3 new bridges on I-91
- Provides full access interchange
- Special treatment required for Damon Road accepting lanes



Concept 18

► Concept 18 – Compressed Diamond

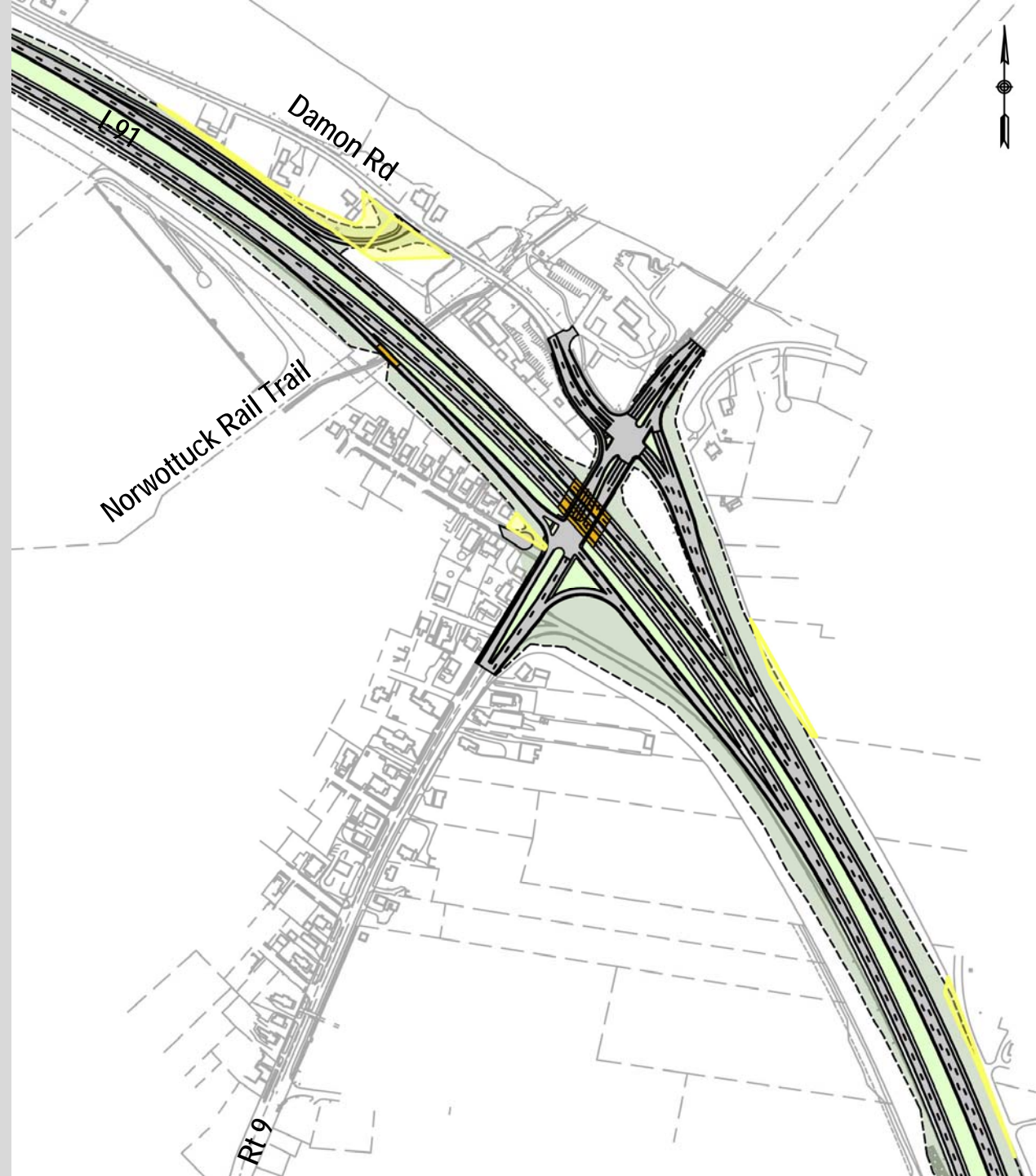
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Concept 18

➡ 9 Permanent Impacts

— Permanent Property Impacts



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Transit and TDM Concepts - Route 9 Bus Service

► M40 – Route 9 Express

- Afternoon service is overcrowded. Increase frequency from every 30 minutes to every 20 minutes in the afternoon.

► B43 – Route 9 Local

- Increase frequency to reduce crowding and improve service.

Changes in frequency:

- 20 minutes to 15 minutes 6 am to 5 pm
- 30 minutes to 15 minutes 5 pm to 8 pm
- 45 minutes to 30 minutes 8 pm to end of service

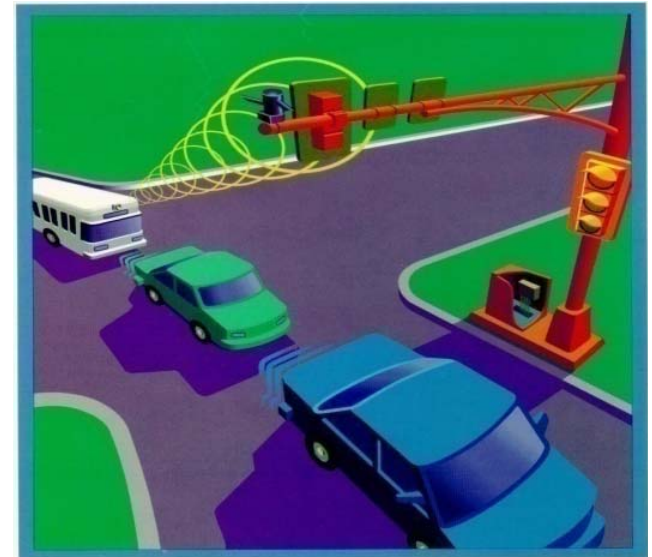
Transit and TDM Concepts-Transit Signal Priority (TSP)

► Implement TSP

- Every intersection on Route 9 from Routes 5 & 10 in Northampton to University Drive in Amherst

► Time Savings

- Assume “aggressive” TSP reduces average bus delay to 5 seconds per signal
- Bus routes B43 and M40: 5 min
- Bus route 39: 2 min (turns at Bay Road)



Transit and TDM Concepts-Supporting Improvements

► Expand “Universal Pass” program to employers

- Similar to existing Five College pass program, but for all employers in the transit district.
- Employers purchase deeply discounted transit passes for all employees
- Generally no cost to the employee
- Modeled after Denver-Boulder program



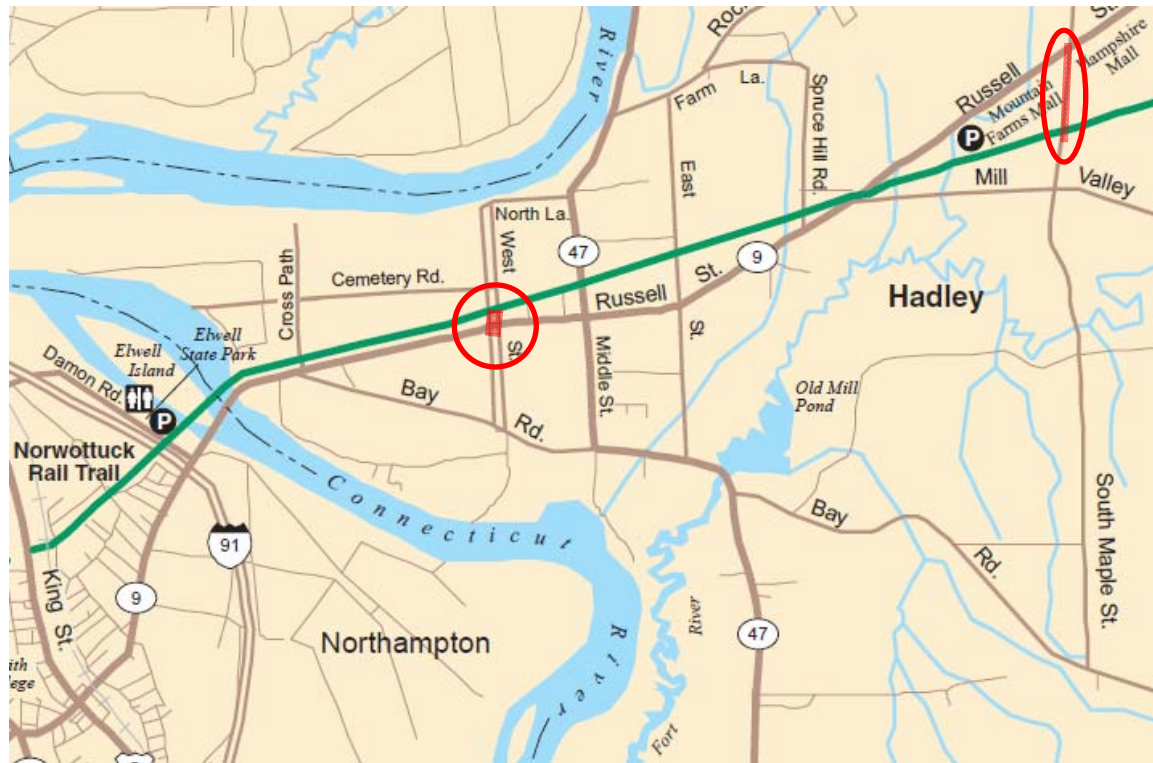
Get on board with
U-Pass

► Supporting improvements

- Enhanced bus shelter program
- “Next bus” information accessible via cell phone
- Automated stop announcements & fare collection already planned

Transit and TDM Concepts-Norwottuck Improvements

- Winter maintenance of Norwottuck Rail Trail
- New traffic signal, Route 9 at West St, Hadley
 - Permit safe crossing from Norwottuck Trail to businesses on the south side of West St and Route 9
- Reconfigure South Maple St, Hadley
 - Between the Norwottuck Trail and Rt 9, reduce from 4 to 3 lanes plus bike lanes to improve bicycle access to malls.



Transit and TDM Concepts-Cost and Traffic Impact

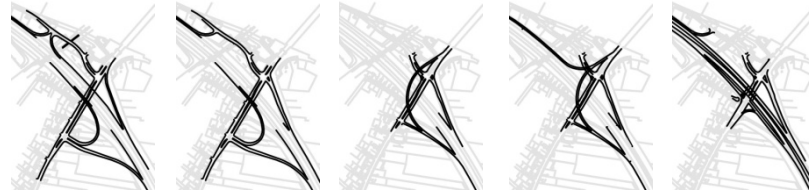
► Cost estimate

- Capital: \$1.7 million (3 new buses + shelters)
- Operating: \$2.2 million /yr (increased bus frequency)

► Traffic impact

- -218 vehicles/day (-70 vehicles/PM peak hour)
- Bridge St – Damon Rd – I-91 Off ramp: -6 sec delay compared to No Build (remains LOS E)
- Bridge St – I-91 On-ramp: -4 sec delay compared to No Build (remains LOS D)

Evaluation Matrix



Safety

Crash Rates



Emergency Vehicle Access



Traffic Calming



Traffic

Delays (LOS)



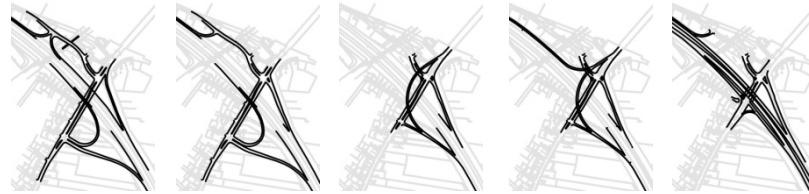
Travel Time



Queueing




Evaluation Matrix



Construction

Costs

Alternatives				
C15	C15A	C16	C17	C18
				
\$16.5M	\$12.8M	\$23.6M	\$38.0M	\$35.0M
3 To 4	3 To 4	2 To 3	3 To 4	4 To 5
				
				
				
				

Duration (Years)

Impacts during Construction

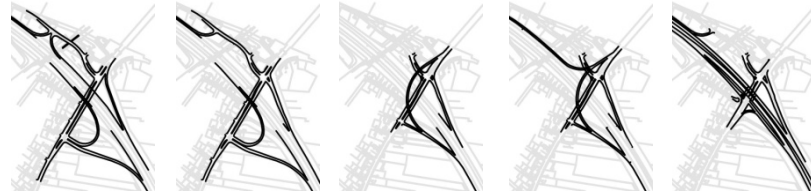
Multi-modal

Pedestrian Accommodation

Bike Accommodation

Transit Access

Evaluation Matrix



Community Impacts

Property

Recreation Impacts/Access

Community Cohesion

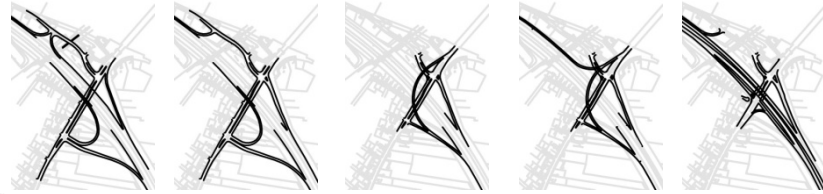
Agricultural

Aesthetics

Airport Impacts




































Alternatives				
C15	C15A	C16	C17	C18

Evaluation Matrix



Environmental Impacts

Noise
Wetland
Flood Plain
Rare Species
Open Space
Air Quality
Light

Alternatives				
C15	C15A	C16	C17	C18
				
				
				
				
				
				
				

Next Steps

- Gather Public Input
- Make Adjustments as Needed
- Work with PAC to Narrow Down List of Alternatives
- Identify Preferred Alternative
- Hold Public Informational Meeting
- Begin Design

Comments & Questions

