

I-84 Danbury Project

Project Advisory Committee (PAC) Meeting No. 11

October 20, 2022





Welcome to an IN PERSON PAC Meeting!



Discussion / Questions on Package sent for Review

Project Team



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Marcy Miller, AICP
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Agenda

- PAC Update
- Screening Results for Concepts in East Center and West Segments
- Screening of Concept Combinations
- Next Steps
- Discussion / Questions



PAC Update

Since Our Last Meeting

- Screened remaining concepts
- Combined concepts for entire corridor
- Added concepts to website
- Attended pop-up event in Danbury
- Continued to update social media



www.i84danbury.com



I-84 Danbury Project

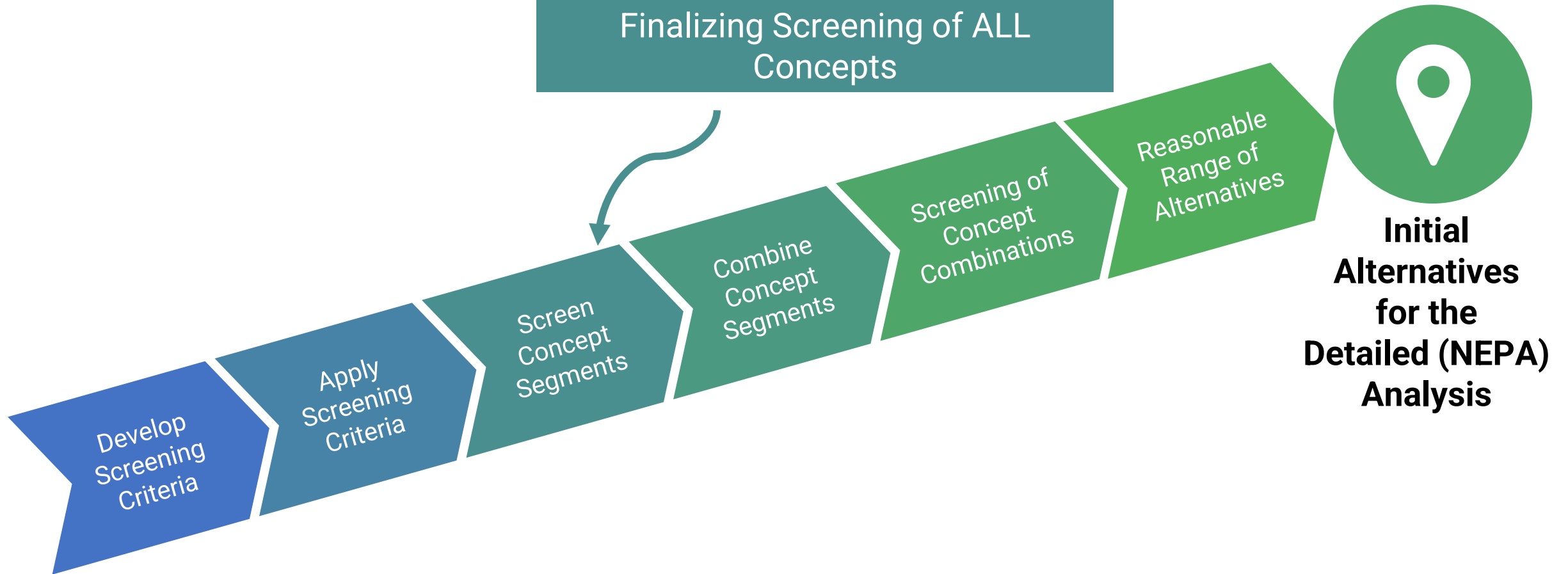


@i84danbury

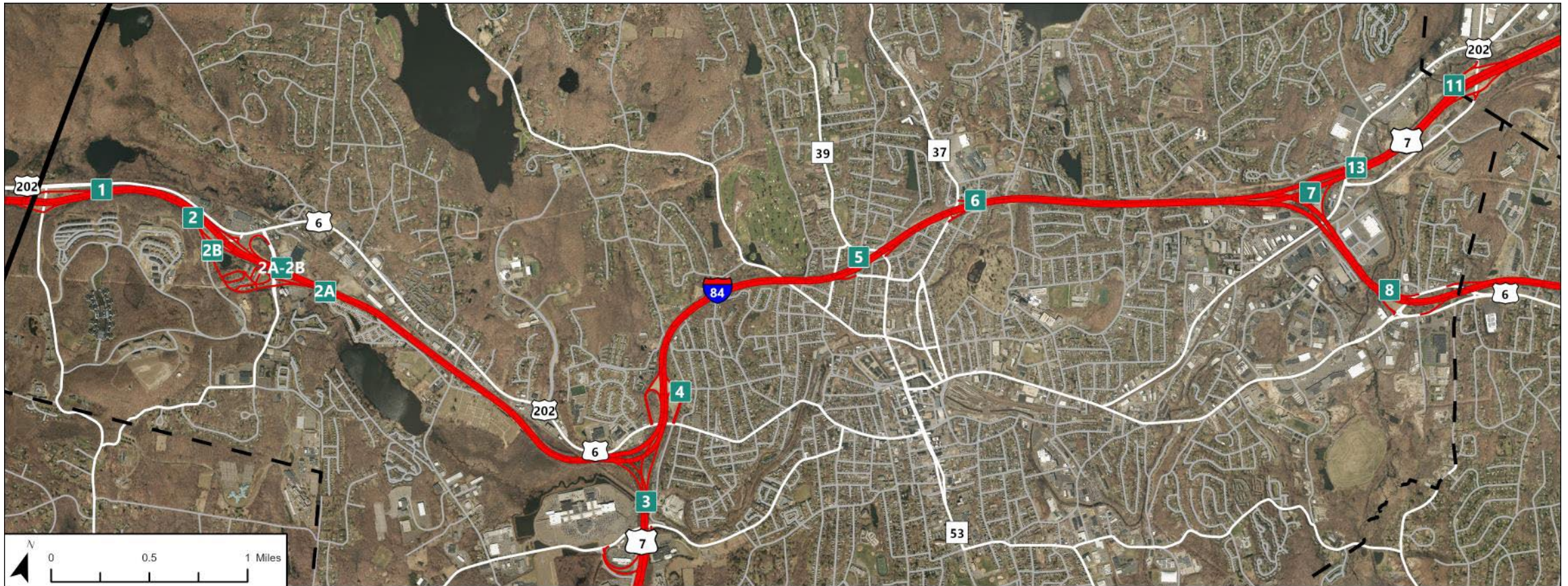


Next Steps

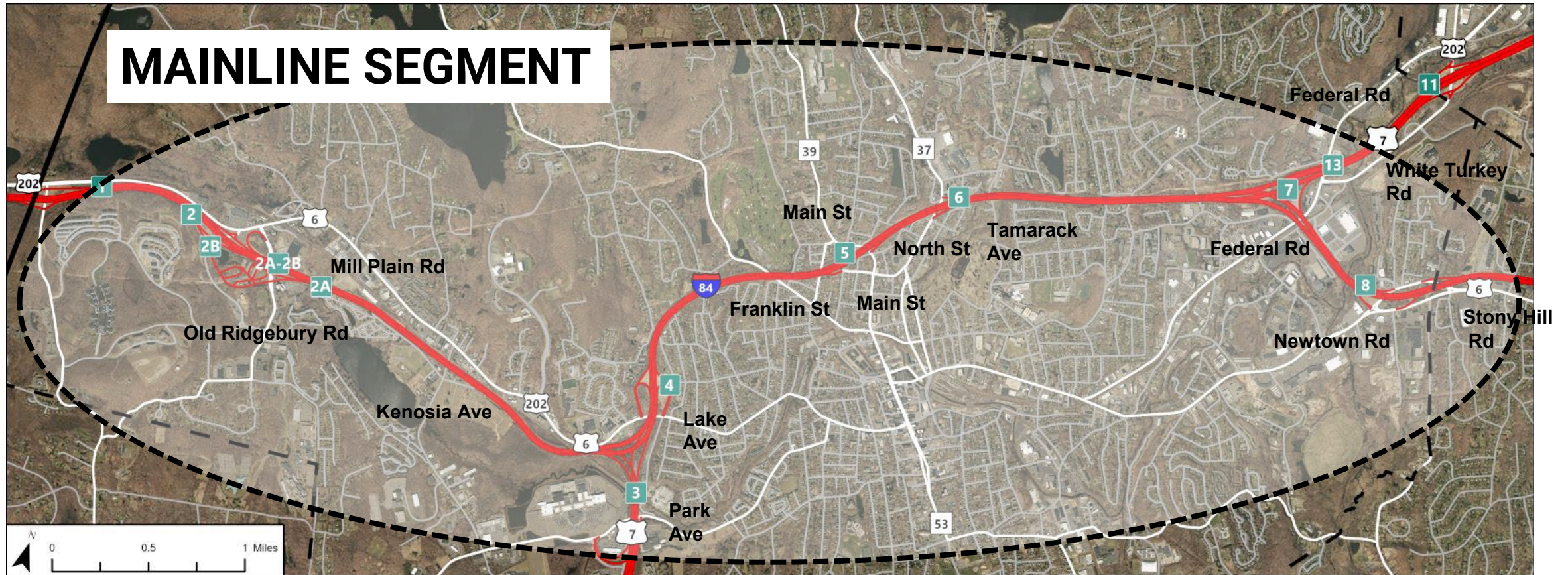
Finalizing Screening of ALL
Concepts



Reminder of Four Study Segments (Entire Study Area)



Reminder of Four Study Segments – Mainline Segment



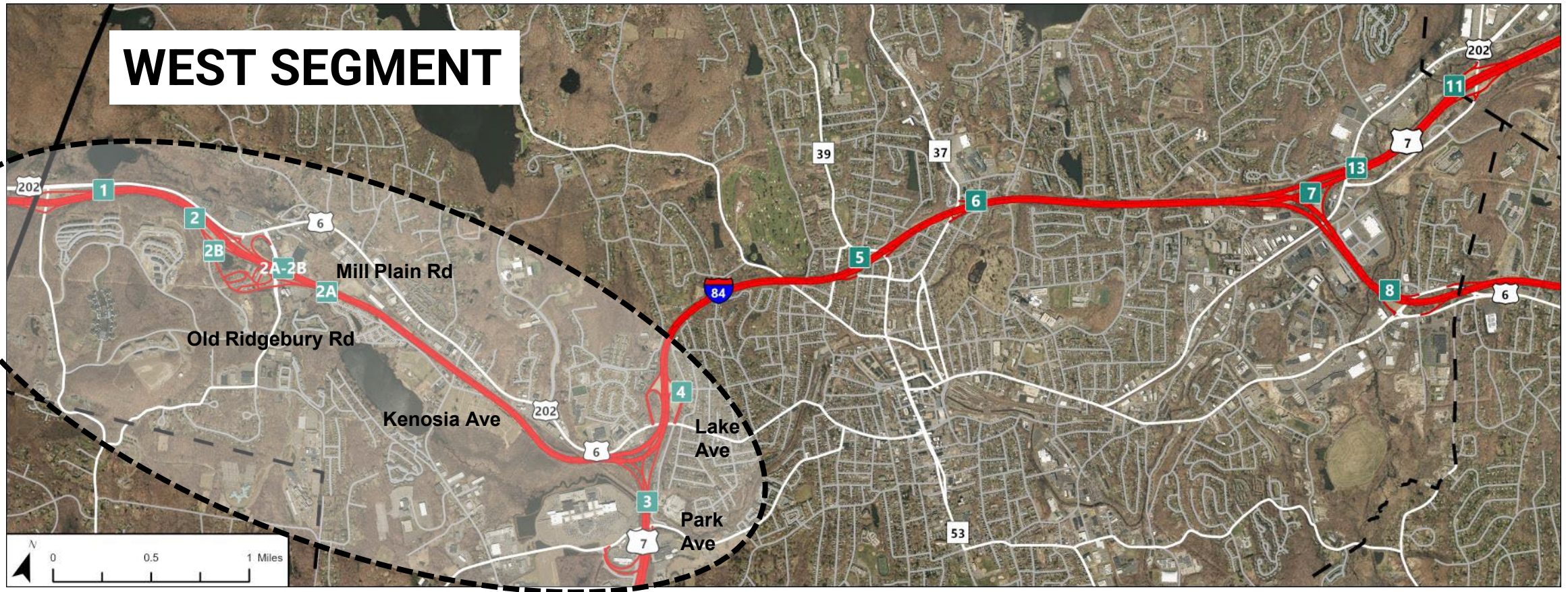


I-84 Concept Screening – Mainline

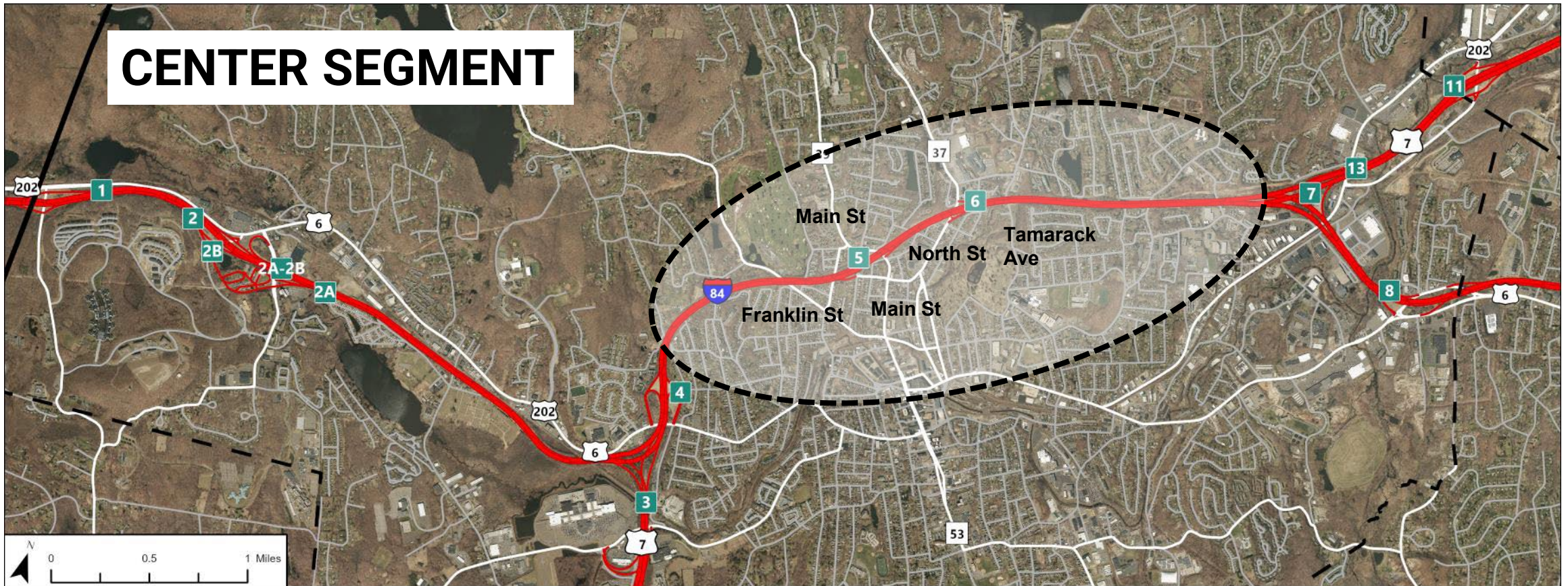
Corridor Segment		Mainline						
Concept # By Segment		<u>C1</u> <i>Add Lane</i>	<u>C4</u> <i>Non-Highway Option</i>	<u>C5</u> <i>Left to Right hand Ramps</i>	<u>C8</u> <i>I-84 Under CD Road</i>	<u>C9</u> <i>Rt 7 Median</i>	<u>C22</u> <i>I-84 Express</i>	<u>C23</u> <i>TSMO</i>
Screening Category	Fatal Flaw		*	✗	✗			*
	Redundancy							
	Matrix Analysis					✗	✗	

Note: *Concepts 4 and 23 were reviewed as part of the Fatal Flaw Analysis. Both concepts are being recommended as breakout projects and will not move through additional screening analyses.

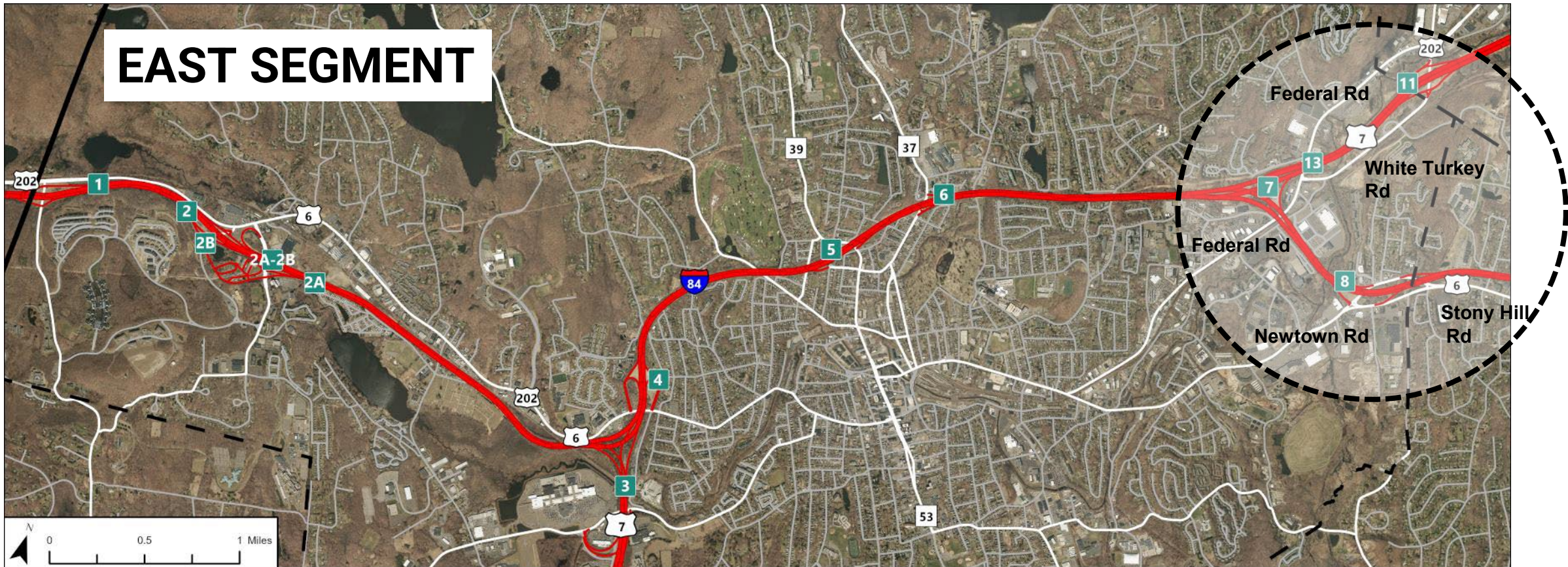
Reminder of Four Study Segments – West Segment



Reminder of Four Study Segments – Center Segment

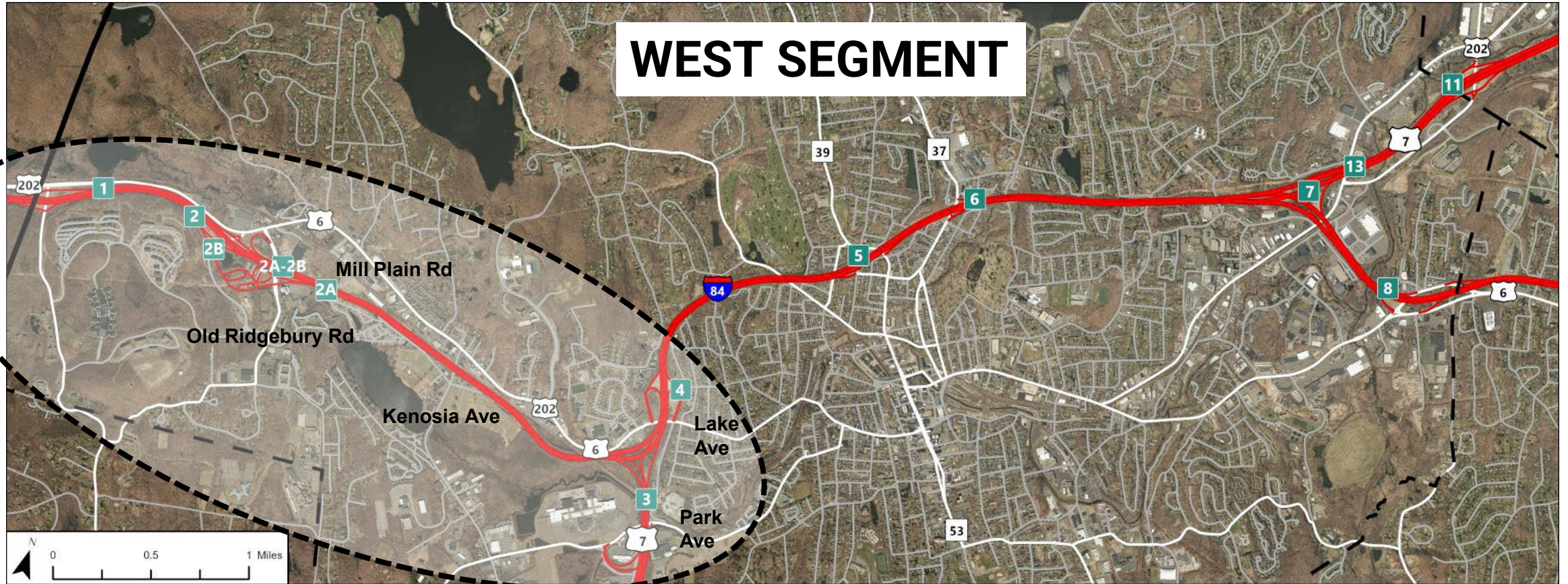


Reminder of Four Study Segments – East Segment

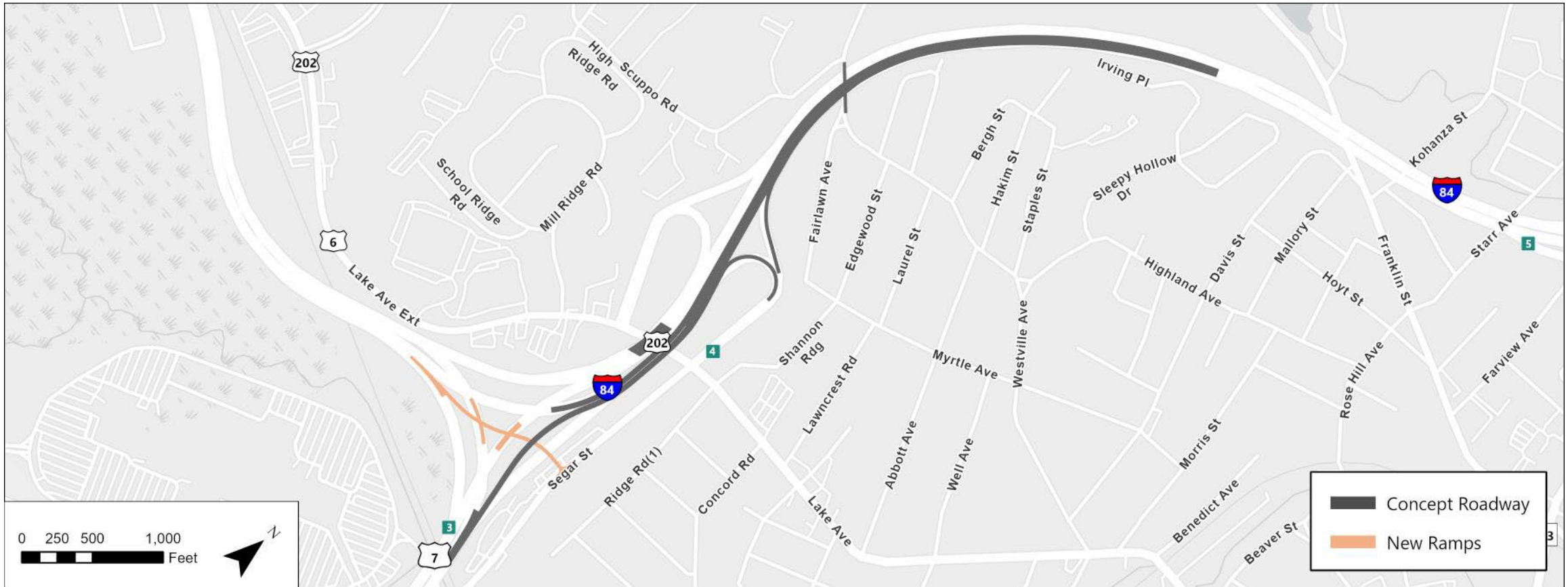




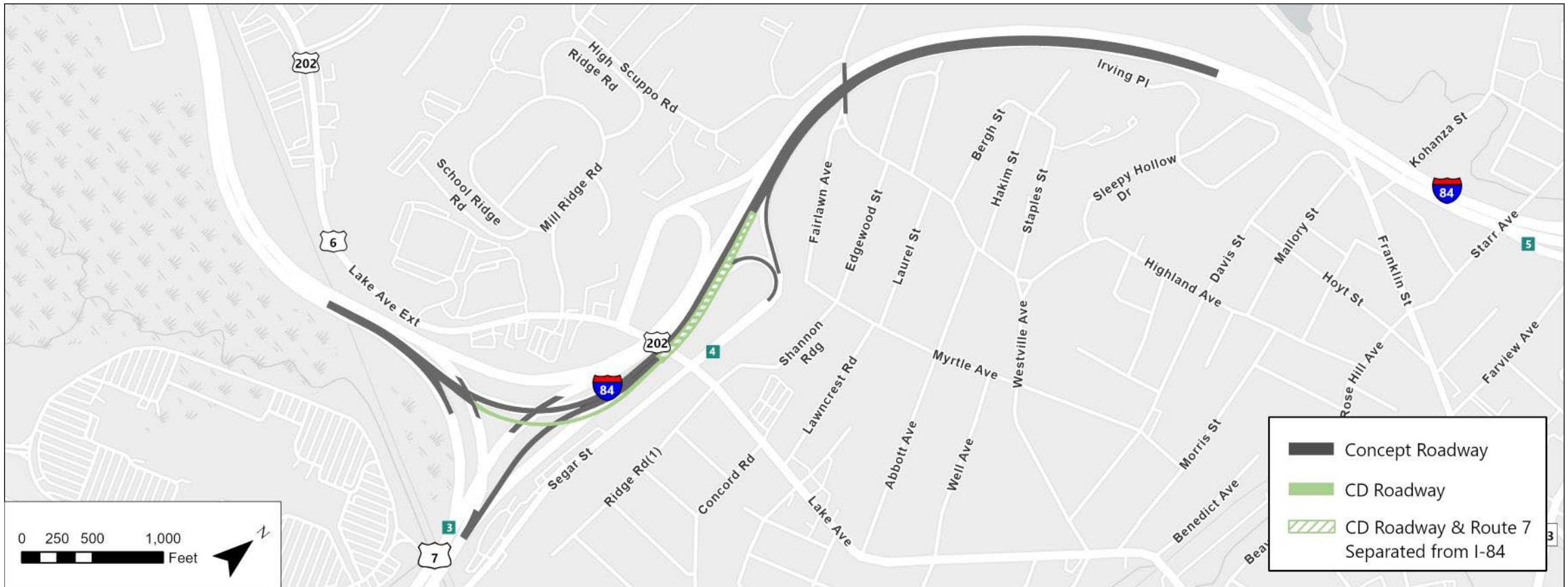
WEST SEGMENT



West Segment – Concept 6 (Interchanges 3&4 and Segar St Ramp)



West Segment – Concept 12 (Interchanges 3&4 – CD Road)





I-84 Matrix Analysis (West)

Engineering Considerations	Concept 6	Concept 12	Rating Criteria		
	Interchanges 3 & 4 - Segar St Ramp <i>rating</i>	Interchanges 3 & 4 - CD Road <i>rating</i>			
Key Engineering Considerations					
<i>Congestion and Mobility</i>					
Corrections of weaving			Completely	Partially	None
Additional Engineering Considerations					
<i>Congestion and Mobility</i>					
Number of changes to local movements (only Interchange 4)			0	1-2	>2



I-84 Matrix Analysis (West)

Other Factors Considered	
<i>Engineering Considerations with NO differentiators</i>	
<input checked="" type="radio"/>	I-84 (PM) reduction in travel time (Better)
<input checked="" type="radio"/>	Rt. 7 (PM) reduction in travel time (Better)
<input checked="" type="radio"/>	Able to meet Ramp Design Standards (Yes)
<input checked="" type="radio"/>	Improvements to Interchange 4 (Positive)
<input checked="" type="radio"/>	Scope of improvements on local network (Low)
<input checked="" type="radio"/>	Vertical geometry improvements (Yes)
<input checked="" type="radio"/>	Construction complexity and staging (Low)
<input checked="" type="radio"/>	Maintains I-84 traffic during construction (Yes)
<input checked="" type="radio"/>	Construction costs (Low)
<input type="radio"/>	Addresses lane continuity on I-84 (No)
<input type="radio"/>	Addresses left-hand ramps on I-84 (No)
<input type="radio"/>	Consistent design speed within segment (No)
<input type="radio"/>	Addresses pedestrian, bicycle, and transit for local streets (Partially)
<input type="radio"/>	Meets driver expectancy (Partially, Intchg 6)
<input type="radio"/>	Improves connection to downtown (No)
<input type="radio"/>	Improves connection to Danbury Hospital (No)
<input type="radio"/>	I-84 (AM) reduction in travel time (NA)
<input type="radio"/>	Distance between adjacent ramps (NA)
<input type="radio"/>	Rt. 7 (AM) reduction in travel time (NA)
<input type="radio"/>	Horizontal curve and sight distance (NA)



I-84 Matrix Analysis (West)

Environmental Considerations	Concept 6 Interchanges 3 & 4 - Segar St Ramp rating	Concept 12 Interchanges 3 & 4 - CD Road rating	Rating Criteria		
<i>Key Environmental Considerations</i>					
<i>Built Considerations - No differentiators</i>					
<i>Natural Considerations</i>					
Wetland Impacts			Self-Verify	PCN*	IP**
Stream impacts			No permit		Permit
<i>Additional Environmental Considerations</i>					
<i>Built Considerations</i>					
Community facility impacts			None	Potential	Yes
<i>Natural Considerations - No Differentiators</i>					

* Pre-Construction Notification

** Individual or General Permit



I-84 Matrix Analysis (West)

Other Factors Considered

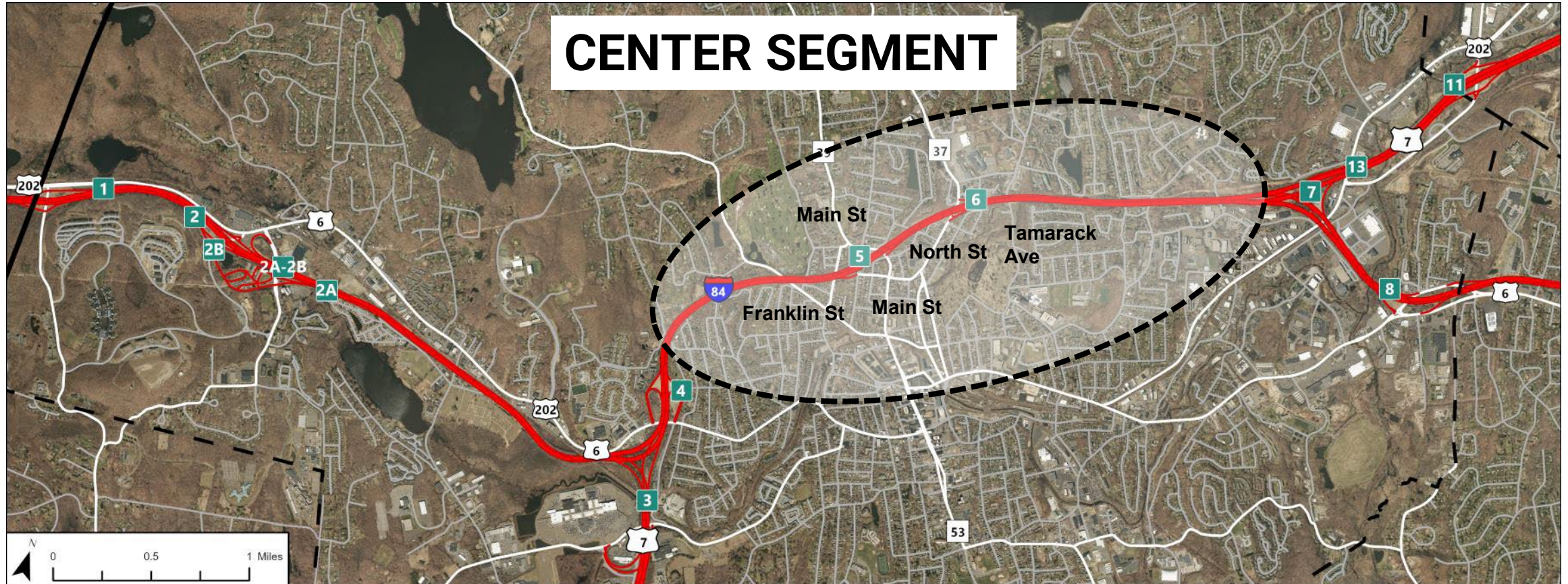
Environmental Considerations with NO differentiators

- ☐ Full property takes (Minimal)
- ☐ Dead-end streets-community cohesion (No)
- ☐ Cemetery property impacts (None)
- ☐ EJ and sensitive neighborhood impacts (Minimal)
- ☐ Potential for floodplain impacts (Minimal)
- ☐ Listed species impacts: northern long-eared bat (None)
- ☐ Listed species impacts: bog turtle (None)
- ☐ Partial property takes (Minimal)
- ☐ Section 4(f) property impacts (None)
- ☐ Historic property impacts (None)
- ☐ Visual/aesthetic impacts (None)
- ☐ Impact to NGPL (None)
- ☐ Critical environmental area impacts (None)
- ☐ Detailed noise analysis (Yes)
- ☐ Impacts to habitat for state-listed plant species (Adjacent)

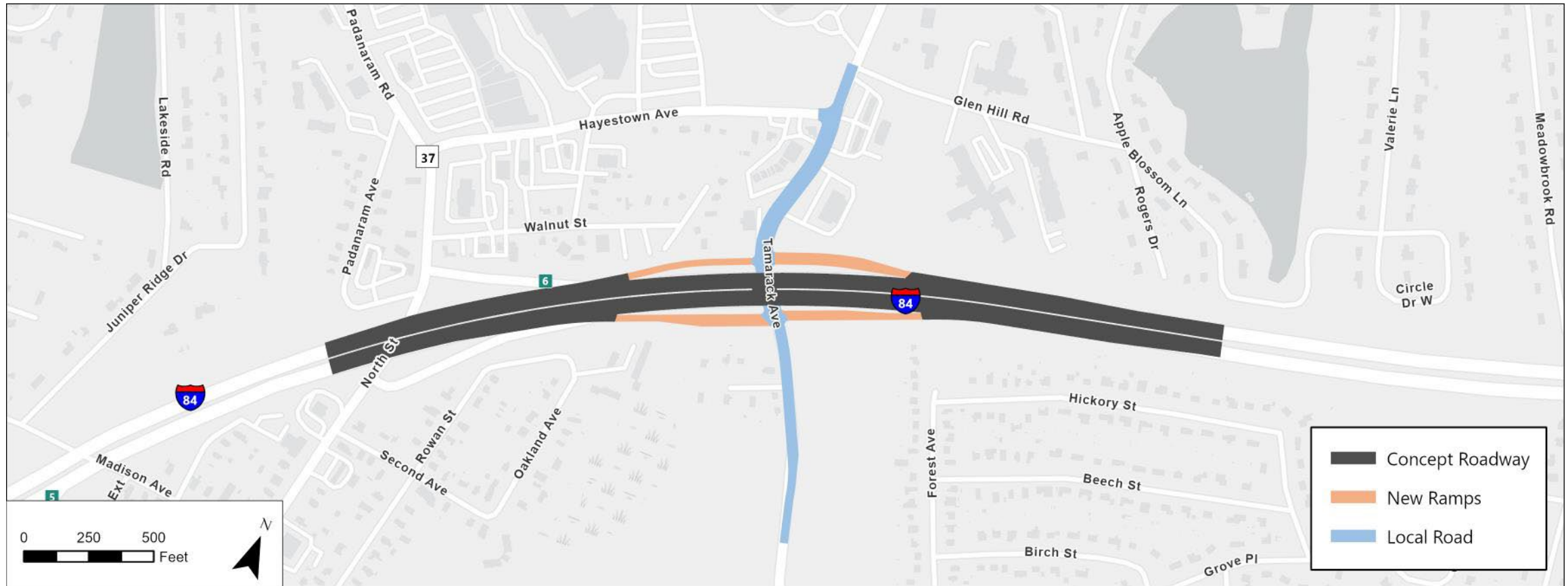


I-84 Concept Screening – West

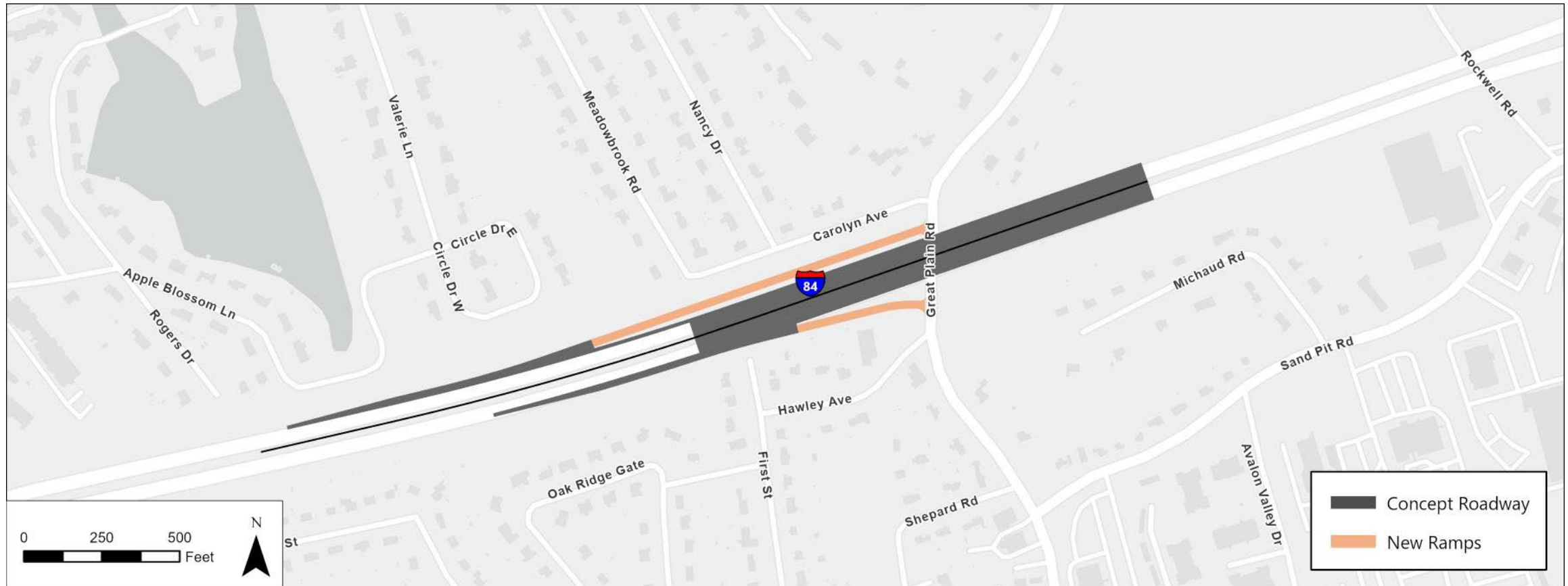
Corridor Segment		West		
Concept # By Segment		<u>C6</u> <i>Interchanges 3 & 4 Segar Street Ramp</i>	<u>C7</u> <i>Tunnel</i>	<u>C12</u> <i>Interchanges 3 & 4 CD Road</i>
Screening Category	Fatal Flaw		✗	
	Redundancy			
	Matrix Analysis	↓		↓



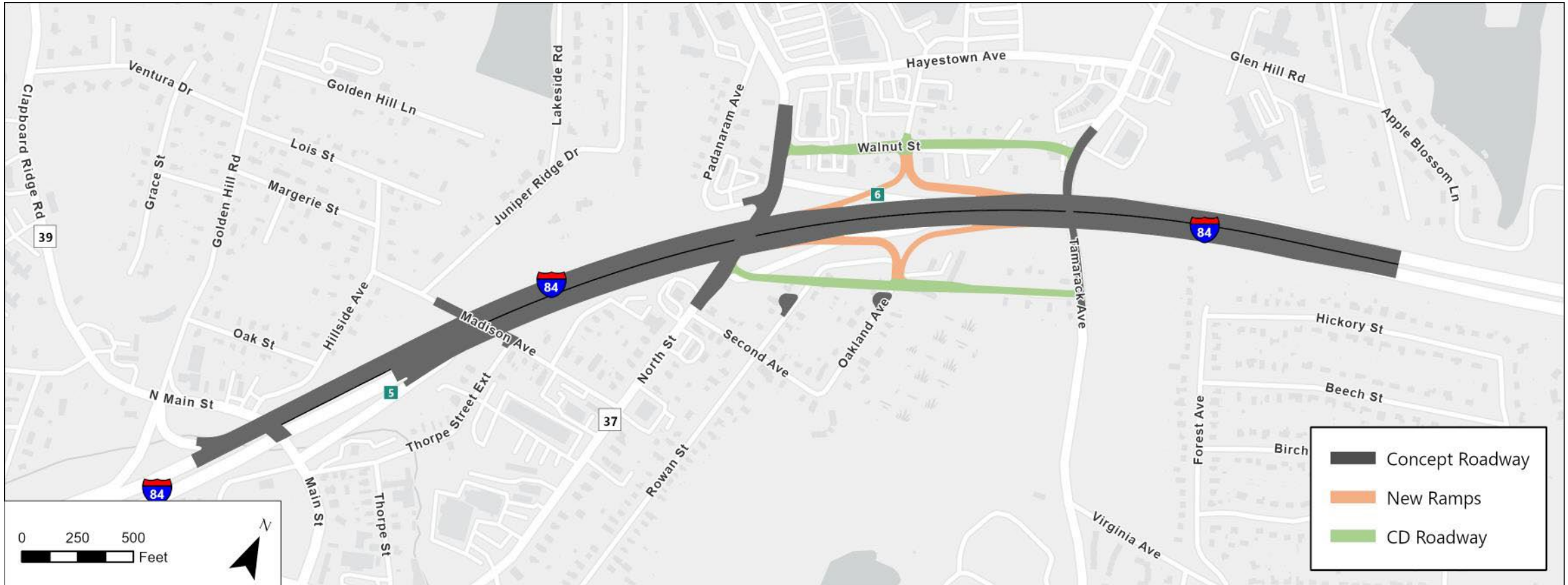
Center Segment – Concept 3 (Tamarack Ave)



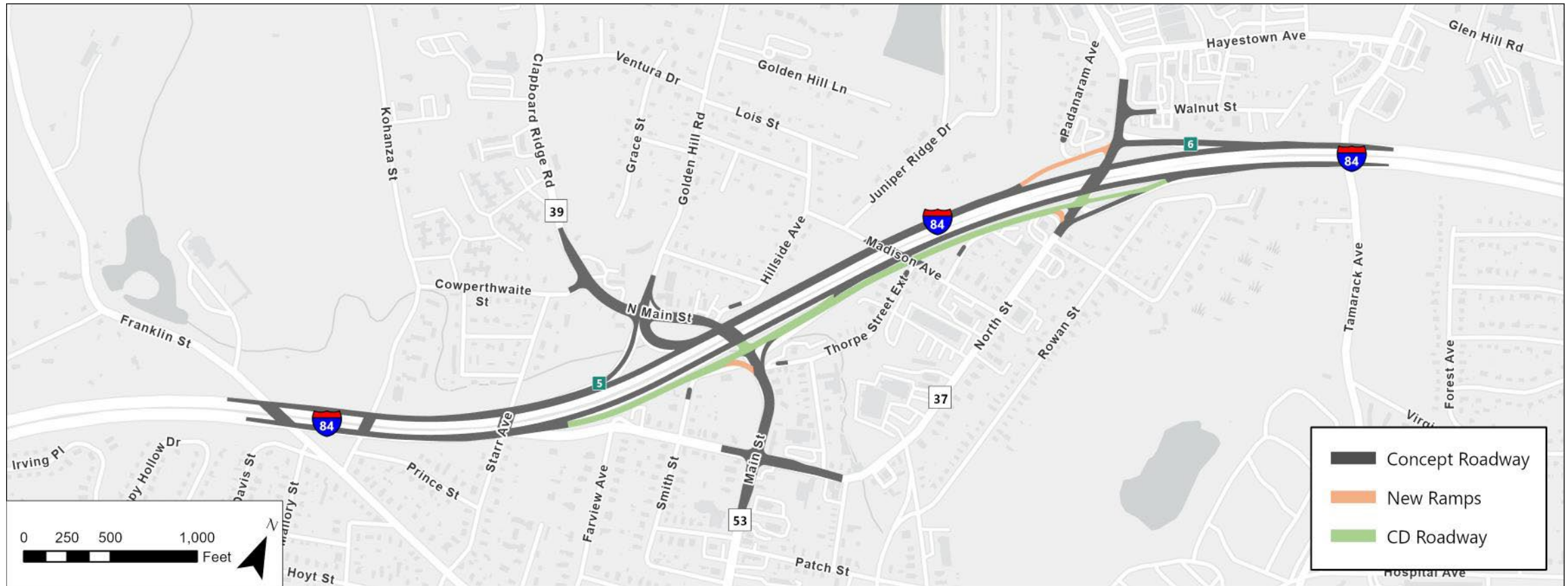
Center Segment – Concept 13 (Great Plain Road)










































Center Segment – Concept 16 (Interchange 6 CD Road)



Center Segment – Concept 26 (Interchange 6 North Street Full Access)



I-84 Matrix Analysis (Center)

Engineering Considerations	Concept 3	Concept 13	Concept 16	Concept 26	Rating Criteria		
	Tamarack Ave	Great Plain Road	Interchange 6 - CD Road	Intchg 6 North St Full Access			
	rating	rating	rating	rating			
Key Engineering Considerations							
Congestion and Mobility							
Rt. 7 (AM) reduction in travel time (minutes)*					Better	Neutral	Worse
Rt. 7 (PM) reduction in travel time (minutes)*					Better	Neutral	Worse
I-84 (AM) reduction in travel time (minutes)*					Better	Neutral	Worse
Additional Engineering Considerations							
Maintains direct access to businesses on North Street					Full	Partial	None
Scope of improvements on local network					Low	Medium	High
Geometry							
Distance between adjacent ramps (miles)					Exceeds requirement	Meets requirement	Fails to meet requirement
Meets driver expectation (full interchange)					Yes	Partially	No
Schedule and Budget							
Construction Complexity and Staging					Low	Medium	High
Construction cost (Millions)					<\$100 M	\$100-300 M	>\$300 M
*compared to no-build, adjusted for segment length							



I-84 Matrix Analysis (Center)

Other Factors Considered

Engineering Considerations with NO differentiators

- ☒ Able to meet Ramp Design Standards (Yes)
- ☒ Improves connection to Danbury Hospital (Yes)
- ☒ Improves connection to downtown (Yes)
- ☒ Addresses pedestrian, bicycle, and transit for local streets (Yes)
- ☒ Maintains I-84 Traffic during construction (Yes)
- ☐ I-84 (PM) reduction in travel time (Neutral)*
- ☐ Addresses lane continuity on I-84 (Does not)
- ☐ Addresses left-hand ramps I-84 (Does not)
- ☐ NA Corrections of weaving (NA)
- ☐ NA Number of changes to local movements (NA)
- ☐ NA Consistent design speed within segment (NA)
- ☐ NA Vertical geometry improvements (NA)
- ☐ NA Horizontal curve and sight distance (NA)



I-84 Matrix Analysis (Center)

Environmental Considerations	Concept 3 Tamarack Ave <i>rating</i>	Concept 13 Great Plain Road <i>rating</i>	Concept 16 Interchange 6 - Intchg 6 North St CD Road <i>rating</i>	Concept 26 Full Access <i>rating</i>	Rating Criteria		
<i>Key Environmental Considerations</i>							
<i>Built Considerations</i>							
Full property takes (numbers)					<10	10-24	≥25
Dead-end streets-community cohesion					No		Yes
Cemetery property impacts					No		Yes
EJ and sensitive neighborhood impacts					None/Minimal	Moderate	Strong
<i>Natural Considerations</i>							
Wetland impacts					Self-Verify	PCN*	IP**
Potential for floodplain impacts					None/Minimal	Some	Not Permittable
<i>Additional Environmental Considerations</i>							
<i>Built Considerations</i>							
Partial property takes (numbers)					<20	20-49	≥50
Section 4(f) property impacts					None	Potential	Yes
Visual/aesthetic impacts					None	Potential	Yes
Impact to NGPL					None	Potential	Yes
Community facility impacts					None	Potential	Yes
<i>Natural Considerations</i>							
Impacts to habitat for state-listed plant species					None	Adjacent	Within

* Pre-Construction Notification

** Individual or General Permit



I-84 Matrix Analysis (Center)

Other Factors Considered

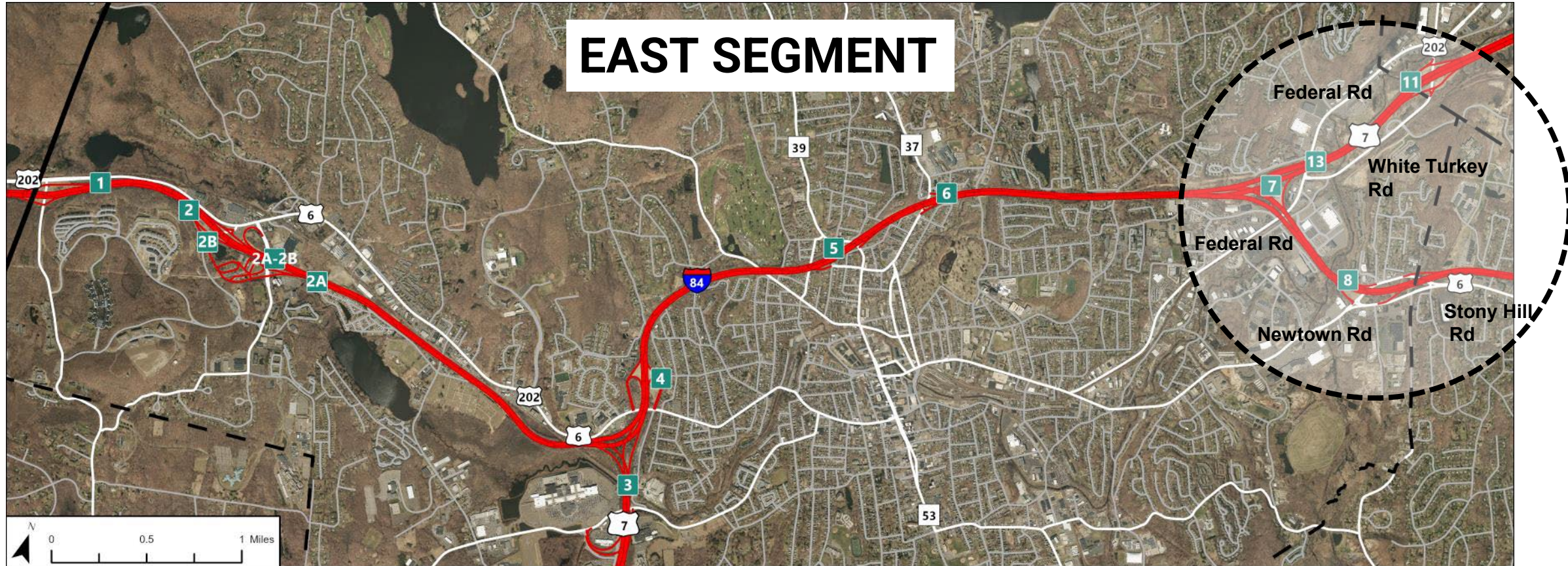
Environmental Considerations with NO differentiators

- ☐ Stream impacts (No permit)
- ☐ Listed species impacts: northern long-eared bat (None)
- ☐ Listed species impacts: bog turtle (None)
- ☐ Historic property impacts (None)
- ☐ Critical environmental area impacts (None)
- ☒ Detailed noise analysis (Yes)

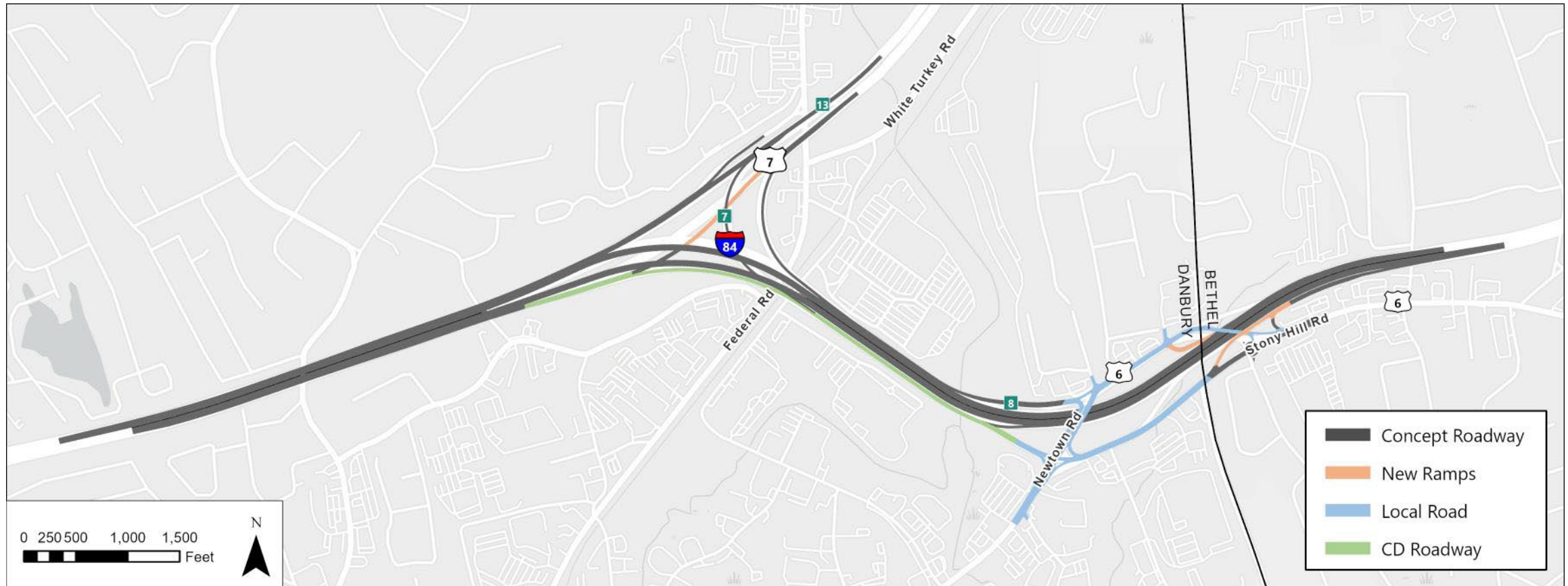


I-84 Concept Screening – Center

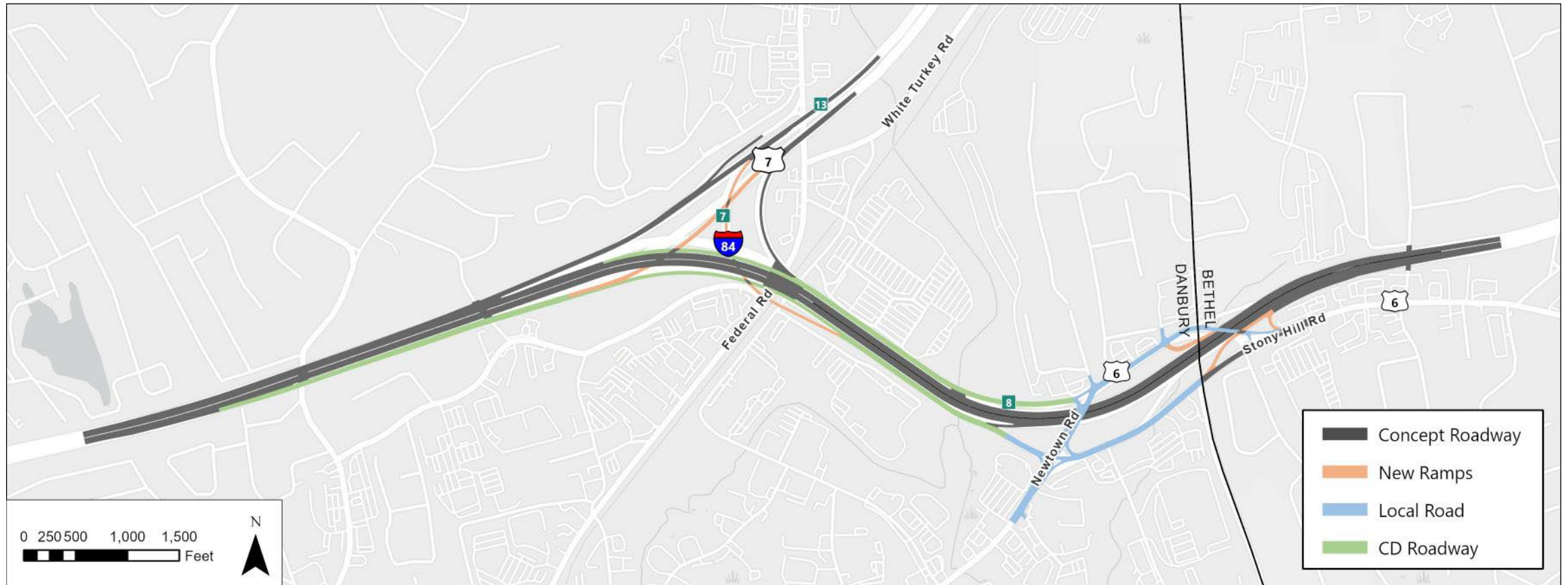
Corridor Segment		Center							
Concept # by Segment	<u>C2</u>	<u>C3</u>	<u>C11</u>	<u>C13</u>	<u>C16</u>	<u>C17</u>	<u>C24</u>	<u>C25</u>	<u>C26</u>
	CD Road Tight	Hospital Access Tamarack Avenue	CD Road Separated	Great Plain Road	Interchange 6 CD Road	I-84 Realigned	Starr Avenue Interchange 5	Three-Lane CD Road	Interchange 6 North Street Full Access
Screening Category	Fatal Flaw			✗			✗		✗
	Redundancy	✗					✗		
	Matrix Analysis		↓		↓	✗			↓



East Segment – Concept 14 (CD Road Eastbound)



East Segment – Concept 15 (CD Road)





I-84 Matrix Analysis (East)

Engineering Considerations	Concept 14	Concept 15	Rating Criteria		
	CD Road Eastbound <i>rating</i>	CD Road <i>rating</i>			
Key Engineering Considerations					
<i>Congestion and Mobility</i>					
I-84 (PM) reduction in travel time (minutes)*			Better	Neutral	Worse
Corrections of weaving			Completely	Partially	None
Additional Engineering Considerations					
Distance between adjacent ramp			Exceeds requirement	Meets requirement	Fails to meet requirement
Number of changes to local movements (I-84 and Route 7)			0	1-2	>2
<i>Geometry - No Differentiators</i>					
<i>Schedule and Budget - No Differentiators</i>					
*compared to no-build, adjusted for segment length					



I-84 Matrix Analysis (East)

Other Factors Considered	
<i>Engineering Considerations with NO differentiators</i>	
<input type="radio"/>	I-84 (AM) reduction in travel time (Better)
<input type="radio"/>	Rt. 7 (AM) reduction in travel time (Better)
<input type="radio"/>	Addresses lane continuity on I-84 (Yes)
<input type="radio"/>	Addresses left-hand ramps on I-84 (Yes)
<input type="radio"/>	Able to meet Ramp Design Standards (Yes)
<input type="radio"/>	Vertical geometry improvements (Yes)
<input type="radio"/>	Horizontal curve and sight distance (Improved, I-84 W at Intchg 7)
<input type="radio"/>	Meets driver expectancy (Yes)
<input type="radio"/>	Construction complexity and staging (Low)
<input type="radio"/>	Maintains I-84 traffic during construction (Yes)
<input type="radio"/>	Construction cost (Low)
<input type="radio"/>	Rt. 7 (PM) reduction in travel time (Neutral)
<input type="radio"/>	Addresses pedestrian, bicycle, and transit for local streets (Partially)
<input type="radio"/>	Exit 6 remains a partial interchange (Yes)
<input type="radio"/>	Consistent design speed within segment (No)
<input type="radio"/>	Scope of improvements on local network (Medium)
<input type="radio"/>	Improve connection to Danbury Hospital (No)
<input type="radio"/>	Improve connection to downtown (No)



I-84 Matrix Analysis (East)

Environmental Considerations	Concept 14	Concept 15	Rating Criteria		
	CD Road Eastbound <i>rating</i>	CD Road <i>rating</i>			
<i>Key Environmental Considerations - No Differentiators</i>					
<i>Additional Environmental Considerations - No Differentiators</i>					



I-84 Matrix Analysis (East)

Other Factors Considered

Environmental Considerations with NO differentiators

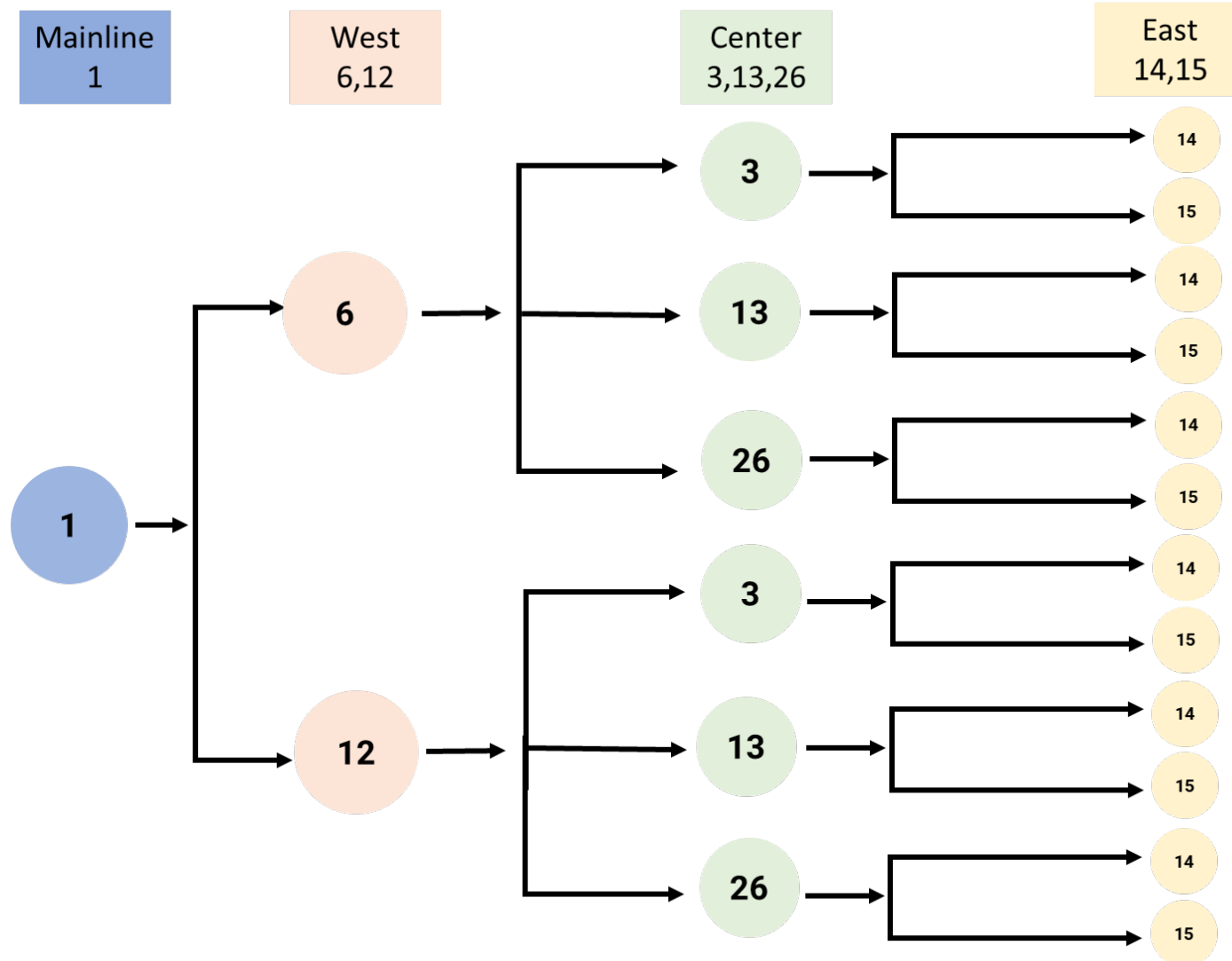
- Full property takes (Minimal)
- Dead-end streets-community cohesion (No)
- Cemetery property impacts (None)
- Listed species impacts: northern long-eared bat (None)
- Listed species impacts: bog turtle (None)
- Section 4(f) impacts (None)
- Historic property impacts (None)
- Community facility impacts (None)
- Critical environmental area impacts (None)
- EJ and sensitive neighborhood impacts (Moderate)
- Potential for floodplain impacts (Some)
- Detailed noise analysis (Yes)
- Visual/aesthetic impacts (Potential)
- Impacts to habitat for state-listed plant species (Adjacent)
- Wetland impacts (IP)
- Stream impacts (Permit)
- Partial property takes (High)
- Impact to NGPL (Yes)



I-84 Concept Screening – East

Corridor Segment		East						
Concept # By Segment		C10	C14	C15	C18	C19	C20	C21
		Interchange 7 Rt 7 Ramp	CD Road Eastbound	CD Road	I-84 Realigned	I-84 Realigned With CD Road	Interchange 8 White Turkey Connection	Great Plain Road
Screening Category	Fatal Flaw				<div>✗</div>	<div>✗</div>		
	Redundancy	<div>✗</div>					<div>✗</div>	<div>✗</div>
	Matrix Analysis		<div>↓</div>	<div>↓</div>				





12 combinations are left to assess and compare against one another in:

Concept Combinations

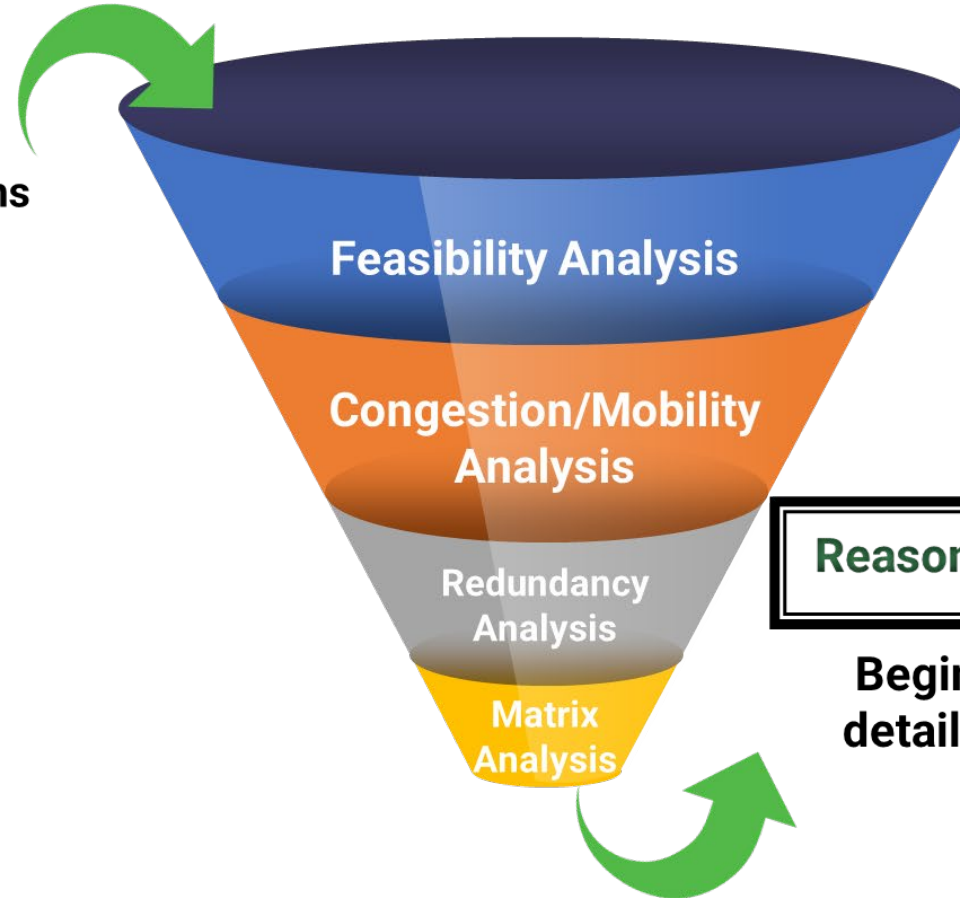
- CC-A** (M1, W6, C3, E14)
- CC-B** (M1, W6, C3, E15)
- CC-C** (M1, W6, C13, E14)
- CC-D** (M1, W6, C13, E15)
- CC-E** (M1, W6, C26, E14)
- CC-F** (M1, W6, C26, E15)
- CC-G** (M1, W12, C3, E14)
- CC-H** (M1, W12, C3, E15)
- CC-I** (M1, W12, C13, E14)
- CC-J** (M1, W12, C13, E15)
- CC-K** (M1, W12, C26, E14)
- CC-L** (M1, W12, C26, E15)



Screening of Concept Combinations

12 **Concept Combinations**
to be further screened.

- CC-A • CC-G
- CC-B • CC-H
- CC-C • CC-I
- CC-D • CC-J
- CC-E • CC-K
- CC-F • CC-L



Reasonable Range of Alternatives

**Beginning of Selection for the
detailed environmental (NEPA)
Analysis**

Next Steps

- Identification of Early Action (Breakout) Projects
- Combine concepts
- Screening of Concept Combinations
- Develop a range of reasonable alternatives to move forward into the environmental study phase
- Document the Study in a PEL Document
- Public Information Meeting Planned for late 2022