



Appendix J

Concept Screening Metrics and Analyses

I-84 Danbury PEL Study

Prepared for: The Connecticut Department of Transportation

August 2025

Appendix J

Concept Screening Metrics and Analyses

The following tables provide detailed definitions and descriptions of each metric considered in the SMA. Information is presented on how the metric is defined, why it is considered, how it is measured, and where it was applied (i.e., segment) (Table J-1). Individual tables have been organized by engineering and environmental considerations and key versus additional considerations. Following these tables are completed screening matrices for each concept in each segment (Tables J-2 through J-5), containing ratings for each applicable consideration.

Table J-1
Summary of Metrics Used in Screening Metrics and Analyses

Key Considerations - Engineering				
Considerations	Definition	Justification	Measurement/Application	Applicable Segments
Reduction in travel time	Whether a concept's traffic model reduces travel time throughout PEL corridor during peak times for year 2040 prediction.	The most direct measure of congestion improvement in a segment.	The reduction in time, in minutes, was calculated by comparing the concept's modeled travel time to the travel time (delay) experienced by motorists modeled in the 2040 no-build scenario. Therefore, each range within the rating criteria can be different than others depending on the 2040 prediction for that time and place. This was only calculated for Mainline concepts but was considered for the remaining segments using a qualitative methodology.	All
Corrections of weaving	Whether the concept corrects all, some, or none of the weaving movements that currently exist at the interchanges within the concept's limits. Weaving movements are made when one motorist must cross the path of another motorist along the length of the highway without the aid of signals or other traffic control devices.	Design deficiency that contributes to congestion .	Corrections of weaving were calculated by counting the remaining weaving motions that drivers would experience, then placing the counts into three categories based on whether weaving motions were removed completely, partially (one or more remain), or none.	Mainline, West, East

Key Considerations - Engineering				
Considerations	Definition	Justification	Measurement/Application	Applicable Segments
Addresses lane continuity	Whether vehicles can remain in one lane throughout a roadway or segment to maintain through travel, or whether the lanes frequently shift, forcing drivers to change lanes even if their travel goals would not require it.	Design deficiency that contributes to congestion .	Continuity was studied and if it was maintained for a segment, then it was scored as a 'yes', otherwise scored as a 'no'.	All
Addresses left-hand ramps on I-84	Whether some or all the existing left-hand ramps are replaced with the more standard right-hand ramps.	Replacement of left-hand ramps improves congestion .	Left-hand ramps were studied and if they were replaced for a segment, then it was scored as a 'yes', otherwise scored as a 'no'.	Mainline, West, East

Additional Considerations – Engineering				
Considerations	Definition	Justification	Measurement/Application	Applicable Segments
Meets driver expectation	Driver expectation is a subjective metric that is defined by a driver's readiness to respond to situations, events, and information in predictable and successful ways. It is an important consideration in the design and operation of a roadway and can be affected by several parameters such as interchange access, roadway geometry, left lane exits, lane drops and sight distances.	Non-standard roadway features limit driver expectancy which can contribute to congestion and both local and highway mobility at interchanges.	Categorically scored as either yes, partially', or 'no' depending on the outcome of the study of factors related to driver experience as opposed to engineering measurements.	West, Center, East

Additional Considerations – Engineering				
Considerations	Definition	Justification	Measurement/Application	Applicable Segments
Distance between adjacent ramps	Distance measured between adjacent exit and entrance ramps.	Design deficiency that contributes to congestion .	Consideration scored on whether that distance meets current design standards, can meet design standard exceptions, or fails to meet standards.	Center, East
Maintains direct access to businesses on North Street	Whether a Center segment concept maintains full, partial, or no access to businesses on North Street in Danbury.	Increasing direct access results in mobility improvements.	Categorically scored as either 'full' if a full interchange at North Street is part of a concept, 'partial' if a partial interchange is planned, or 'none' if no interchange at North Street is a part of the concept.	Center
Number of changes to local movements	The degree to which a concept alters movements on local roads adjacent to the interchanges within concept limits. This includes altering travel patterns. Each time a driver must significantly change direction to reach a destination, efficiency is reduced. If the number of changes is zero, travel efficiency is maximized.	Mobility decreases as the number of local movements increases.	Categorically scored as none (0 changes), a few (1-2), or more (>2) based on changes to the local network, where driver would experience an increase in the number of changes compared to the previous road configuration.	West, East

Additional Considerations – Engineering				
Considerations	Definition	Justification	Measurement/Application	Applicable Segments
Scope of improvements to local network	The scope of changes and improvements necessitated by the concept to the surrounding local road network, including intersections.	The number and scope of improvements is tied to improving mobility in the local road network.	Scored based on three categories of ‘low’, ‘medium’, and ‘high’ based on the level of improvements anticipated to the local network. A ‘low’ scope of improvement would entail little to no improvements to accommodate the concept, whereas ‘high’ would involve large and complex changes to adjacent intersections and movements or other large changes to the local roads.	West, Center, East
Construction complexity and staging	The degree to which a concept’s construction methods are complex and require multiple stages, ranging from low complexity to high.	The higher the complexity, the higher the impact . Higher impacts will affect congestion and mobility for the term of construction.	Categorically scored as ‘low’, ‘medium’, and ‘high’ based on anticipated construction methods and staging complexity. A subjective measure based on professional knowledge and experience given the work each concept is likely to require. In the SMA, construction complexity for a concept is relative to the complexity of other concepts in the same segment.	All
Construction cost	Estimated construction costs based on complexity and components of the concept.	The higher the cost, the higher the impact .	Calculated based on 2022 estimated costs for construction work. Does not include design fees, environmental documentation, or permitting work. Absolute estimate is less important than the cost’s comparison among concepts within a segment.	All
Horizontal Curve and Sight Distance	Whether a concept improves or worsens the sight distance around a horizontal curve.	A lower sight distance around a horizontal curve increases congestion .	Categorically scored on whether a concept ‘improves’, remains the ‘same’, or ‘worsens’ the sight distance around a horizontal curve.	Mainline, East

Additional Considerations – Engineering				
Considerations	Definition	Justification	Measurement/Application	Applicable Segments
Acceleration/deceleration lane lengths increased on all interchanges	Whether the interchange acceleration and deceleration lane lengths have been increased or not.	Design deficiency that contributes to congestion .	Categorically scored on whether a concept would improve, scored as a 'yes', or not improve, scored as a 'no', the acceleration/deceleration lane lengths at all interchanges.	Mainline
Vertical geometry improvements	Sight distances can be reduced by hills or low spots in a roadway. Improvements in vertical geometry address these sight distances.	Design deficiency that contributes to congestion .	Categorically scored on whether a concept would improve, scored as a 'yes', or not improve, scored as a 'no', the vertical geometry.	Mainline, West, East
Maintain I-84 traffic during construction	Whether I-84 traffic can be maintained during construction or construction would greatly alter or restrict traffic movements.	Congestion increases if I-84 traffic cannot be maintained during construction.	Categorically scored on whether a concept would maintain I-84 traffic during construction. If traffic can be maintained, it is scored as a 'yes', or if not, it is scored as a 'no'.	All
Improves connection to Danbury Hospital	Whether a concept improves the connection to the Danbury Hospital as compared to the existing route and time from I-84. This is primarily a concern for interchanges in the Center segment.	Improves mobility in local road network.	Categorically scored on whether a concept would improve connection to the hospital compared to the existing route and time. An improvement is scored as a 'yes', or no improvement, being scored as a 'no'. Route to the hospital and time from I-84 was calculated for each concept and compared to existing data.	Center

Additional Considerations – Engineering				
Considerations	Definition	Justification	Measurement/Application	Applicable Segments
Improves connection to downtown	Whether a concept improves the connection to downtown Danbury as compared to the existing route and time using I-84. This is primarily a concern for interchanges in the Center segment.	Improves mobility in local road network.	Categorically scored on whether a concept would improve connection to downtown Danbury compared to the existing route and time. An improvement is scored as a 'yes', or no improvement, being scored as a 'no'.	Center
Consistent design speed within segment	Whether or not a concept is designed to maintain a consistent speed of traffic through the segment, or whether it contains bottlenecks or design issues that cause unnecessary traffic slowing.	A less consistent speed contributes to increased congestion .	Categorically scored on whether a concept is designed to maintain a consistent speed of traffic through the segment. Speed is based on traffic modeling. Scored as a 'yes' (is designed to maintain a consistent speed) or 'no' (if not designed as such) only.	Mainline, West, East
Enhance pedestrian, bicycle, and transit for local streets	Whether or not the concept's design can accommodate or give opportunities for multi-modal options.	Improves mobility in local road network.	Categorically scored on whether a concept can enhance multi-modal options or not. It is scored as 'yes', 'partially' (provides some enhancements but not fully), or 'no' (provides little to no enhancements).	West, Center, East

Key Considerations – Built Environment				
Considerations	Definition	Justification	Measurement/Application	Applicable Segments
Property acquisitions	Based on current property boundaries, determining whether a property may be impacted by the concept buildout.	Property acquisitions are a direct measure of concept impacts . Typically, full property acquisitions are a result of more expansive or extensive improvements, with the concept deviating further from the existing footprint. Partial property acquisitions are less extensive by nature and do not alter the primary use of the property or otherwise do not warrant the full property to be acquired. Partial property acquisitions are an additional consideration, not key, when looking at the built environment.	Used GIS to map the concept's footprint and analyze intersecting properties. Properties are analyzed by type (full or partial property acquisition) and by land use (residential, commercial, and other) with impacts determined on an individual property basis per concept. Factors considered were total area impacted (sq. feet), the distance impacts extended into the property (feet), where the impacts occurred relative to the intended use of the property, and finally if the primary structure is being impacted. Typical reasons for determining a full property acquisition include impacts to structures, impacts to site access such as driveways or severed local road access, impacts altering the reasonable use of the site, etc. Typical reasons for determining a partial property acquisition include minimal impacts in lower priority areas of the property or impacts that do not alter the reasonable use of the site. Additionally, properties with impacts less than 200 sq. feet, or that do not extend more than 5 feet onto the property and do not impact the functionality of the property are not included in the partial property acquisitions count. For the screening process, total property acquisitions were placed into three impact categories (low, medium, high). Ranges for each category were based on applying professional judgement to how these anticipated impacts should be qualified given the length of each segment.	All

Key Considerations – Built Environment				
Considerations	Definition	Justification	Measurement/Application	Applicable Segments
Dead-end streets - community cohesion	Whether or not a concept would cause community mobility issues including dead ending of streets, restricting movements within existing neighborhoods, affecting movements of emergency response vehicles, and removing housing/displacing residents.	Related to local mobility .	Used GIS to map the concept's footprint, then comparing the existing street network to determine where local streets have the potential to be affected. Any dead-ends were counted, along with major changes to local street access. Scored as either 'no' if little to no such effects to community cohesion were determined, or 'yes' if many such effects including many dead-ends and re-routing of local streets were identified.	All
Sensitive neighborhood impacts	Impacts to sensitive neighborhoods estimated by concept design footprint, using categorical rating criteria of none/minimal, moderate, or strong.	Direct measure of concept impacts .	Used GIS to map concept's footprint, then comparing listed sensitive neighborhood property layers to determine how many and types of such properties that could be affected by the concept. The results were categorized as 'none/minimal', 'moderate' (some of the properties potentially impacted are sensitive), or 'strong' (most of the properties potentially impacted are sensitive).	All
Cemetery property impacts	Whether or not a concept will impact nearby cemetery properties but not specific gravesites. Potential impacts to gravesites are considered a fatal flaw in the screening process.	Contributes to overall assessment of concept impacts .	Used GIS to map the concept's footprint, then comparing known cemetery property layers to determine if any overlaps occur and how likely they are to occur. Scored as 'none', 'potential' (just overlapping the edge or very close to the edge of cemetery property), or 'yes' (definite overlap with cemetery property).	All

Additional Considerations – Built Environment				
Considerations	Definition	Justification	Measurement/Application	Applicable Segments
Community facility impacts	The degree to which the concept will impact community infrastructure or resources, such as schools, libraries, public safety facilities, community centers, transportation facilities, and hospitals.	Contributes to overall assessment of concept impacts .	Used GIS to map the concept footprint, then comparing known community facility property layers to determine if any overlaps occur and how likely they are to occur. Scored as 'none', 'potential' (just overlapping the edge or very close to the edge of the property), or 'yes' (definite overlap with property).	All
Section 4(f) property impacts	Whether a concept will impact any Section 4(f) properties or not, including publicly owned parks, recreation areas, or wildlife refuges.	Contributes to overall assessment of concept impacts	Used GIS to map the concept's footprint, then comparing known Section 4(f) property layers to determine if any overlaps occur and how likely they are to occur. Scored as 'none', 'potential' (just overlapping the edge or very close to the edge of the property), or 'yes' (definite overlap with property).	All
Visual/aesthetic impacts	The degree to which a concept will impact both the aesthetics of the highway corridor as well as the viewsheds from nearby properties.	Contributes to overall assessment of concept impacts	Impacts to the highway corridor or views from local properties were scored as 'none', 'potential' (may have visual/aesthetic impacts), or 'yes' (likely visual/aesthetic impacts).	All
Impact to natural gas pipeline (NGPL)	The degree to which the existing natural gas pipelines within the corridor could be impacted by a concept's construction activity.	Contributes to overall assessment of concept impacts	Used GIS to map concept's footprint, then compared to estimated NGPL location to determine if any overlaps occur and how likely they are to occur. Applied a 50-foot buffer to the NGPL pipeline layer in GIS. Scored as 'none', 'potential' (footprint just overlapping the edge or very close to the edge of the pipeline ROW), or 'yes' (definite overlap with pipeline ROW).	All
Historic property impacts	Whether or not a concept will impact any registered, historic properties.	Contributes to overall assessment of concept impacts	Used GIS to map concept's footprint, then comparing known historic property layers to determine if any overlaps with registered properties occur and how likely they are to occur. Scored as 'none' or 'yes' (definite overlap with a registered property).	All

Key Considerations –Natural Environment				
Considerations	Definition	Justification	Measurement/Application	Applicable Segments
Wetland impacts	Whether a concept has potential to impact assumed jurisdictional wetlands, and if impacted, the potential level of permitting needed based on the overlap of the concept footprint onto the wetland features.	Contributes to overall assessment of concept impacts and permitting complexity.	Used GIS to map concept's footprint, then comparing delineated wetland feature layers and calculating acres of impact. Categorically scored based on the level of permitting with the U.S. Army Corps of Engineers, New England District. District's permit thresholds: 0 to 0.11 acres of impact is 'Self-Verification', 0.11 to 1.0 acres is a 'Pre-Construction Notice (PCN)', and greater than 1.0 acres is an 'Individual Permit (IP)'.	All
Stream impacts	Whether a concept has potential to impact assumed jurisdictional streams and watercourses, and if impacted, the potential level of permitting needed based on the overlap of the concept footprint onto the stream features.	Contributes to overall assessment of concept impacts and permitting complexity.	Used GIS to map concept's footprint, then comparing delineated stream feature layers and calculating acres of impact. Categorically scored based on the level of permitting with on the U.S. Army Corps of Engineers, New England District. District's permit thresholds of 'Self-Verify' (≤5,000 square feet of stream impacts), 'PCN' (≤1 acre), or 'IP' (>1 acre).	All
Potential for floodplain impacts	The potential of a concept to impact floodplains is based on the concept's footprint onto the FEMA-defined floodplain.	Contributes to overall assessment of concept impacts and permitting complexity.	Used GIS to map the concept's footprint, then comparing recorded floodplain boundary feature layers and calculating acres of impact. The degree of potential impact is based on whether the impact would be 'none/minimal' (not require a permit), 'some' (may require a permit), or 'not permissible' (potentially is not permissible due to extreme impacts).	All

Key Considerations –Natural Environment				
Considerations	Definition	Justification	Measurement/Application	Applicable Segments
Listed species impacts	Whether or not a concept would impact Federal Threatened and Endangered species known populations or hibernacula.	Contributes to overall assessment of concept impacts .	Consulted available mapping and Connecticut State officials to determine if any known hibernacula or other potentially occupied habitat for a species is within the PEL Study Area. The degree of potential impact is based on whether the impact would be ‘none’ (no known overlap with nor close to species areas), ‘potential’ (potential to overlap with or close to species areas), or ‘yes’ (known overlap with species’ areas). Regardless of score, consultation with natural resource agencies would still occur during permitting.	All

















































Additional Considerations –Natural Environment				
Considerations	Definition	Justification	Measurement/Application	Applicable Segments
Impacts on habitat for sensitive plants and wildlife	The degree to which a concept’s footprint could impact known potential habitat for state-listed plant species as defined by the Natural Diversity Data Base (NDDDB) or habitat specifically designated by CT DEEP as being critical to threatened or endangered species.	Contributes to overall assessment of concept impacts .	Used GIS to map the concept’s footprint, then comparing recorded NDDDB feature layers and determining overlap. The degree of impact was categorized as either ‘none’ (no impact/overlap within sensitive habitat), adjacent’ (immediately adjacent to a sensitive habitat area), or ‘within’ (overlapping within a sensitive habitat area).	All

Table J-2
Mainline Segment – Screening Matrix Analysis

Engineering Considerations	Concept 1	Concept 9	Concept 22	Rating Criteria		
	Lane Continuity	US 7 Median	I-84 Express			
	Rating	Rating	Rating			
<i>Key Considerations</i>						
<i>Congestion and Mobility</i>						
I-84 (P.M.) reduction in travel time (minutes)				≥ 50*	10-49	< 10**
Rt. 7 (A.M.) reduction in travel time (minutes)				≥ 40*	8-39	< 8**
Rt. 7 (P.M.) reduction in travel time (minutes)				≥ 55*	11-54	< 11**
Corrections of weaving				Completely	Partially	None
<i>Additional Considerations</i>						
<i>Schedule and Budget</i>						
Construction Complexity and Staging				Low	Medium	High
Construction cost (billions)				≤\$1 B	>\$1-2 B	>\$2 B
<i>Non-Differentiators</i>						
I-84 (A.M.) reduction in travel time (minutes)				≥ 25*	5-24	< 5**
Addresses lane continuity on I-84				Yes	No	
Addresses left-hand ramps on I-84				Yes	No	
Acceleration/deceleration lane lengths improved at all interchanges				Yes		No
Vertical geometry improvements				Yes		No
Maintain I-84 traffic during construction				Yes		No
Consistent design speed within segment				Yes	No	

*Compared to no-build




































**20% of no-build

Environmental Considerations	Concept 1	Concept 9	Concept 22	Rating Criteria		
	Lane Continuity	US 7 Median	I-84 Express			
	Rating	Rating	Rating			
<i>Key Considerations</i>						
<i>Built Considerations</i>						
Full property acquisitions (numbers)				<15	15-25	>25
Sensitive neighborhood impacts				None/Minimal	Moderate	Strong
<i>Additional Considerations</i>						
<i>Built Considerations</i>						
Partial property acquisitions (numbers)				<40	40-80	>80
Community facility impacts				None	Potential	Yes
<i>Non-Differentiators</i>						
Dead-end streets-community cohesion				No		Yes
Cemetery property impacts				None	Potential	Yes
Section 4(f) property impacts				None	Potential	Yes
Visual/aesthetic impacts				None	Potential	Yes
Impact to NGPL				None	Potential	Yes
Historic property impacts				None		Yes
Wetland impacts				Self-Verify	PCN*	IP**
Stream impacts				Self-Verify	PCN*	IP**
Potential for floodplain impacts				None/Minimal	Some	Not Permittable
Impacts on habitat for sensitive plants and wildlife				None	Adjacent	Within
Listed species impacts				None	Potential	Yes














*Pre-Construction Notification

**Individual or General Permit

Table J-3
West Segment – Screening Matrix Analysis

Engineering Considerations	Concept 6	Concept 12	Rating Criteria		
	Interchanges 3 & 4 - Segar St. Eastbound	Interchanges 3 & 4 CD Road			
	Rating	Rating			
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
Non-Differentiators					
I-84 (P.M.) reduction in travel time*			Better	Same	Worse
Rt. 7 (P.M.) reduction in travel time*			Better	Same	Worse
Addresses lane continuity on I-84			Yes	No	
Addresses left-hand ramps on I-84			Yes	No	
Meets driver expectancy (Interchange 6)			Yes	Partially	No
Scope of improvements on local network			Low	Medium	High
Construction complexity and staging			Low	Medium	High
Construction costs			Low	Medium	High
Vertical geometry improvements			Yes		No
Maintains I-84 traffic during construction			Yes		No
Improves connection to Danbury Hospital			Yes		No
Improves connection to downtown			Yes		No
Consistent design speed within segment			Yes	No	
Addresses pedestrian, bicycle, and transit for local streets			Yes	Partially	No
































































* Compared to no-build, adjusted for segment length

Environmental Considerations	Concept 6	Concept 12	Rating Criteria		
	Interchanges 3 & 4 – Segar St. Eastbound	Interchanges 3 & 4 CD Road			
	Rating	Rating			
Key Considerations					
<i>Natural Considerations</i>					
Wetland Impacts			Self-Verify	PCN*	IP**
Stream impacts			Self-Verify	PCN*	IP**
Additional Considerations					
<i>Built Considerations</i>					
Community facility impacts			None	Potential	Yes
Non-Differentiators					
Full property acquisitions (numbers)			≤10	10-20	≥20
Dead-end streets-community cohesion			No		Yes
Cemetery property impacts			None	Potential	Yes
Sensitive neighborhood impacts			None/Minimal	Moderate	Strong
Potential for floodplain impacts			None/Minimal	Some	Not Permittable
Listed species impacts			None	Potential	Yes
Partial property acquisitions (numbers)			≤10	10-20	≥20
Section 4(f) property impacts			None	Potential	Yes
Historic property impacts			None		Yes
Visual/aesthetic impacts			None	Potential	Yes
Impact to NGPL			None	Potential	Yes
Impacts on habitat for sensitive plants and wildlife			None	Adjacent	Within































































*Pre-Construction Notification

**Individual or General Permit

Table J-4
Center Segment – Screening Matrix Analysis

Engineering Considerations	Concept 3	Concept 13	Concept 16	Concept 26	Rating Criteria		
	Tamarack Avenue	Great Plain Rd	Interchange 6 – CD Road	Interchange 6 – North St On-Ramp			
	Rating	Rating	Rating	Rating			
Key Engineering Considerations							
<i>Congestion and Mobility</i>							
Rt. 7 (A.M.) reduction in travel time (minutes)*					Better	Neutral	Worse
Rt. 7 (P.M.) reduction in travel time (minutes)*					Better	Neutral	Worse
I-84 (A.M.) 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
<i>Geometry</i>							
Distance between adjacent ramps (miles)					Exceeds Requirement	Meets Requirement	Fails to meet Requirement
Meets driver expectation (full interchange)					Yes	Partially	No
<i>Schedule and Budget</i>							
Construction Complexity and Staging					Low	Medium	High
Construction cost (Millions)					<\$100 M	\$100-300 M	>\$300M
Non-Differentiators							
I-84 (P.M.) reduction in travel time*					Better	Neutral	Worse
Addresses lane continuity on I-84					Yes	No	
Maintains I-84 Traffic during construction					Yes		No
Improves connection to Danbury Hospital					Yes		No
Improves connection to downtown					Yes		No
Addresses pedestrian, bicycle, and transit for local streets					Yes	Partially	No












































*Compared to no-build, adjusted for segment length

Environmental Considerations	Concept 3	Concept 13	Concept 16	Concept 26	Rating Criteria		
	Tamarack Avenue	Great Plain Road	Interchange 6 - CD Road	Interchange 6 - North St On-Ramp			
	Rating	Rating	Rating	Rating			
<i>Key Environmental Considerations</i>							
<i>Built Considerations</i>							
Full property acquisitions (numbers)					<10	10-24	≥25
Dead-end streets-community cohesion					No		Yes
Cemetery property impacts					No		Yes
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 acquisitions (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 on habitat for sensitive plants and wildlife					None	Adjacent	Within
<i>Non-Differentiators</i>							
Stream impacts					Self-Verify	PCN*	IP**
Listed species impacts					None	Potential	Yes
Historic property impacts					None		Yes





*Pre-Construction Notification

**Individual or General Permit

Table J-5
East Segment – Screening Matrix Analysis

Engineering Considerations	Concept 14	Concept 15	Rating Criteria		
	CD Road Eastbound	CD Road			
	Rating	Rating			
Key Engineering Considerations					
<i>Congestion and Mobility</i>					
I-84 (P.M.) reduction in travel time (minutes)*			Better	Neutral	Worse
Corrections of weaving			Completely	Partially	None
Additional Engineering Considerations					
Distance between adjacent ramps			Exceeds requirement	Meets requirement	Fails to meet requirement
Number of changes to local movements (I-84 and Route 7)			0	1-2	>2
Non-Differentiators					
I-84 (A.M.) reduction in travel time*			Better	Neutral	Worse
Rt. 7 (A.M.) reduction in travel time*			Better	Neutral	Worse
Rt. 7 (P.M.) reduction in travel time*			Better	Neutral	Worse
Addresses lane continuity on I-84			Yes	No	
Addresses left-hand ramps on I-84			Yes	No	
Meets driver expectation			Yes	Partially	No
Scope of improvements on local network			Low	Medium	High
Construction complexity and staging			Low	Medium	High
Construction cost			Low	Medium	High
Horizontal curve and sight distance (I-84 W at Interchange 7)			Improves	Same	Worsens
Vertical geometry improvements			Yes		No
Maintains I-84 traffic during construction			Yes		No
Improve connection to Danbury Hospital			Yes		No
Improve connection to downtown			Yes		No
Consistent design speed within segment			Yes	No	
Enhance pedestrian, bicycle, and transit for local streets			Yes	Partially	No

*Compared to no-build, adjusted for segment length

Environmental Considerations	Concept 14	Concept 15	Rating Criteria		
	CD Road Eastbound	CD Road			
	Rating	Rating			
<i>Non-Differentiators</i>					
Full property acquisitions			≤10	10-20	≥20
Dead-end streets-community cohesion			No		Yes
Cemetery property impacts			None	Potential	Yes
Sensitive neighborhood impacts			None/Minimal	Moderate	Strong
Wetland impacts			Self-Verify	PCN*	IP**
Stream impacts			Self-Verify	PCN*	IP**
Potential for floodplain impacts			None/Minimal	Some	Not Permittable
Listed species impacts			None	Potential	Yes
Partial property acquisitions			≤10	10-20	≥20
Section 4(f) impacts			None	Potential	Yes
Historic property impacts			None		Yes
Visual/aesthetic impacts			None	Potential	Yes
Impact to NGPL			None	Potential	Yes
Community facility impacts			None	Potential	Yes
Impacts on habitat for sensitive plants and wildlife			None	Adjacent	Within

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