

# DANBURY BRANCH IMPROVEMENT PROGRAM TASK 5

## ENVIRONMENTAL TECHNICAL MEMORANDUM IMPACTS ANALYSIS

STATE PROJECT 302-008



### SECTION 11: PRIME FARMLAND AND ACTIVE FARMLAND

APRIL 2011

## SECTION 11. PRIME FARMLAND AND ACTIVE FARMLAND

### METHODOLOGY

Impacts on prime farmland and active farmland were evaluated by comparing the locations of improvement concepts associated with each of the Build Alternatives with the GIS base-mapping (existing conditions) of those resources. Improvement concept plans were visually compared with the GIS resource mapping to derive quantitative estimates (in acres and square feet) of direct impacts. Direct impacts were considered to potentially occur where project activities are anticipated to be located within the boundaries of prime or active farmland.

It should be noted that the scale of the study corridor mapping is intended for analyzing trends over very large areas (the entire study corridor). Results provide an understanding of possible scale-of-magnitude impacts and point to locations of particular potential concern. Site-specific plans, surveys and mapping have not been produced for potential improvements at this planning stage. More defined impacts at any one site can be determined during the project design stage.

**Table 1: Potential Direct Impact Zones Associated with Project Improvements**

<b>Improvement Type</b>	<b>Potential Direct Impact Zone</b>
Passenger Stations (New or Upgrades)	Footprint of new or improved structures and parking areas plus 15 feet around all sides.
Bridges (New or Replacement)	Footprint of structure plus 25 feet around all sides.
Curve Shifts	Footprint of new alignment plus 15 feet from center line of new track in the direction of the track shift.
Rail Sidings and Maintenance Yards	Footprint of new facilities plus 15 feet around all sides.
Electrical Substations and RTUs	Footprint of new facilities plus 20 feet around all sides.
Catenary Poles and Anchors	10 square feet per pole or anchor; pole locations are always within 15 feet of center line of nearest track.
Communication and signal (C&S)	None: C&S system improvements assumed to occur adjacent to tracks on previously disturbed and maintained right-of-way.

The types and locations of specific improvements for each build alternative are shown in Tables 2, 3, and 4 for Alternatives C, D, and E. Where an improvement type is not included in an alternative, it is not shown on the table. Potential impacts are expressed as area impacts, in square feet and acres.

### IMPACTS

#### **Alternative A: No Build**

The No Build Alternative would not impact farms or farmlands as no new construction would take place as part of this alternative.

## **Alternative B: Transportation System Management (TSM)**

The TSM Alternative would not impact farms or farmlands as no new construction would take place as part of this alternative.

## **Alternative C: South Norwalk to Danbury Improvements**

Impacts to prime or active farmland that could result from the Alternative C improvements are shown in Table 2 and described below by improvement type. There is no identified active farmland in the Alternative C section of the study corridor. Total potential surface area impacts are estimated at 0.3 acres of prime farmlands, which are identified on the attached graphic. These estimates include permanent impacts plus temporary construction-period impacts.

### Passenger Stations (Existing Station Upgrades)

There is no identified farmland in the vicinity of upgrades to existing passenger stations.

### Traction Power System - Electrification

Facilities associated with a new Traction Power System (facilities for electrification) would extend from approximately MP 1.1 in Norwalk to MP 23.9 in Danbury. Facilities include electrical substations, smaller remote housing units (RTUs), and catenary and support structures.

#### *Substations and remote housing units (RTUs)*

None of the two RTUs or four electrical substations would be situated within identified farmland.

#### *Catenary and support structures*

For Alternative C, there are an estimated eight catenary poles potentially located within prime farmland. These poles are in the area of the Curve 9C track reconfiguration that requires property acquisition with a potential impact to 0.3 acres of prime farmland.

### Track Reconfigurations, Sidings and Connections

Many track reconfigurations are included in Alternative C to improve rail operations and/or speed. There are approximately 23 curve reconfigurations plus a reconfiguration to improve the branch connection with the New Haven mainline in South Norwalk. This branch connection improvement appears as CP241 under the Track Reconfigurations in Table 2. There are no passing or storage sidings included in Alternative C.

#### *Track curve reconfigurations*

Although there is prime farmland adjacent to the railroad right-of-way in the Alternative C section of the study corridor, only one track reconfiguration is expected to have potential impact.

Reconfiguration of Curve 9C in Wilton would potentially impact 0.3 acres. This 0.3 acres is part of 0.5 acres of property that is estimated to be acquired to accommodate the curve realignment. This realignment would allow the operating speed to increase from 50 mph to 60 mph, which is one of the project goals. There is no engineering option that would have less of an overall impact.

### Structures and Bridges

Although there is prime farmland adjacent to some of the undergrade bridges included in Alternative C, no bridge work has potential impact. There is no farmland near the overhead bridge in this alternative.

### **Alternative D: Extension from Danbury to New Milford**

Alternative D would involve reconstruction of the entire 14.7 miles of single track from Danbury to New Milford. This work would be required to provide a higher grade of rail on new ties in order to accommodate passenger train speeds up to 60 miles per hour. All work except for the two stations and storage yard are planned to be within the existing railroad right-of-way.

Although there is prime and active farmland adjacent to the railroad right-of-way in the Alternative D section of the study corridor, none are potentially impacted

### Passenger Stations (New)

The construction of new passenger stations and their associated passing sidings in Brookfield and New Milford would not impact farmland.

### Traction Power System - Electrification Option

Electrification is an option under Alternative D, extending from approximately MP 23.9 in Danbury to MP 39 in New Milford. Facilities required for electrification include electrical substations and catenary and support structures. There are no RTUs in this alternative. In addition, seven overhead bridges would need to be raised to provide the required clearance to allow the catenary wires to pass under them. These work items are included under “Traction Power System – Electrification” in Table 3.

### Track Reconfigurations, Storage Sidings, and Connections

There are five track curve reconfigurations included under Alternative D to improve rail operations and/or speed. Crossover connections at the Danbury Yard and at MP 26.96, approximately 2.6 miles north of Danbury Yard, are included for operational improvements. One storage siding is included. There are no potential impacts to farmland anticipated due to these improvements.

### Structures and Bridges

There are six undergrade bridge replacements included in Alternative D. There are no potential impacts to farmland anticipated due to these bridge improvements.

### Storage and Maintenance Yards

There are no potential impacts to active farms and prime farmlands anticipated with construction of the New Milford Storage and Maintenance Yard.

### **Alternative E: Improvements from South Norwalk to Wilton (Merritt 7)**

Alternative E would provide for partial electrification of the Danbury Branch from South Norwalk to Wilton, from approximately MP 1.1 to MP 7.5.

As noted in Table 4, although there is prime farmland adjacent to the railroad right-of-way in the Alternative E section of the study corridor, no work has potential impact.

**Table 2: Potential Prime Farmland and Active Farmland Impacts from Alternative C**

Improvement Type	Location	Study Milepost (MP)		Within Farmlands	Potential Active Farmland Impact		Potential Prime Farmland Impact	
		From	To		Square Feet (sf)	Acres (ac)	Square Feet (sf)	Acres (ac)
<b>Existing Stations (Upgrades)</b>								
Merritt 7	Norwalk	3.6	3.6	No	0	0	0	0
Cannondale	Wilton	8.85	8.85	No	0	0	0	0
Branchville	Ridgefield	12.65	12.65	No	0	0	0	0
Redding	Redding	17.1	17.1	No	0	0	0	0
Bethel	Bethel	21	21	No	0	0	0	0
<b>Undergrade Bridges</b>								
Washington & South Main St.	Norwalk	0.0	0.0	No	0	0	0	0
Marshall St.	Norwalk	0.1	0.1	No	0	0	0	0
Ann St.	Norwalk	0.2	0.2	No	0	0	0	0
Norwalk River	Norwalk	3.2	3.2	No	0	0	0	0
Small stream	Norwalk	5.12	5.12	No*	0	0	0	0
Small stream	Norwalk	6.43	6.43	No	0	0	0	0
Norwalk River	Wilton	6.64	6.64	No*	0	0	0	0
Norwalk River	Wilton	8.7	8.7	No*	0	0	0	0
Norwalk River	Wilton	9.42	9.42	No	0	0	0	0
Old Mill Rd.	Wilton	11.01	11.01	No	0	0	0	0
Norwalk River	Wilton	11.55	11.55	No	0	0	0	0
Factory Pond	Wilton	12.17	12.17	No	0	0	0	0
Old Redding Rd.	Redding	14.16	14.16	No	0	0	0	0
Simpaug Tpke.	Redding	14.8	14.8	No	0	0	0	0
Umpawaug Pond Brook	Redding	16.4	16.4	No	0	0	0	0
Saugatuck River	Redding	17.1	17.1	No	0	0	0	0
Grassy Plains Rd. (Rt. 53)	Bethel	19.64	19.64	No	0	0	0	0
Sympaug Brook	Bethel	21.4	21.4	No	0	0	0	0
<b>Overhead Bridges</b>								
Route 7	Wilton	7.87	7.87	No	0	0	0	0
<b>Traction Power System - Electrification</b>								
Catenary and support structures	Norwalk to Danbury	1.1	23.9	Yes	0	0	8 poles	**
RTU (CP401)	Norwalk	0.63	0.63	No	0	0	0	0
Substation (SUB-41D)	Norwalk	1.62	1.62	No	0	0	0	0
Substation (SUB-170D)	Wilton	7.25	7.25	No	0	0	0	0
Substation (SUB-305D)	Ridgefield	13	13	No	0	0	0	0
Substation (SUB-RED)	Redding	17.2	17.2	No	0	0	0	0
RTU (CP421)	Bethel	20.22	20.22	No	0	0	0	0
Substation (SUB-560D)	Danbury	23.3	23.3	No	0	0	0	0

**Table 2: Potential Prime Farmland and Active Farmland Impacts from Alternative C**

Improvement Type	Location	Study Milepost (MP)		Within Farmlands	Potential Active Farmland Impact		Potential Prime Farmland Impact	
		From	To		Square Feet (sf)	Acres (ac)	Square Feet (sf)	Acres (ac)
<b>Track Reconfigurations</b>								
CP 241	Norwalk	0	0.3	No	0	0	0	0
Curves 0E, 1A & 1B	Norwalk	1	1.7	No	0	0	0	0
Curves 2B, 3A, 3B & 3C	Norwalk	2.7	4	No	0	0	0	0
Curve 3D	Norwalk	3.82	3.96	No	0	0	0	0
Curve 4C	Wilton	4.8	4.97	No	0	0	0	0
Curve 5	Wilton	5.75	5.83	No*	0	0	0	0
Curve 6A	Wilton	6.07	6.24	No*	0	0	0	0
Curve 6B	Wilton	6.53	6.68	No*	0	0	0	0
Curves 7E & 8	Wilton	7.71	8.47	No	0	0	0	0
Curve 9C	Wilton	9.53	9.84	Yes	0	0.0	13,000	0.3
Curves 10B & 11A	Wilton	11	11.47	No	0	0	0	0
Curve 12A	Wilton	12.21	12.33	No	0	0	0	0
Curve 12B	Wilton/Ridgefield	12.42	12.57	No	0	0	0	0
Curve 13B	Redding	13.25	13.4	No	0	0	0	0
Curve 13C	Redding	13.46	13.59	No	0	0	0	0
Curve 13D	Redding	13.63	13.7	No	0	0	0	0
Curve 14A	Redding	13.97	14.1	No	0	0	0	0
Curves 14B, 14C, 14D & 15A	Redding	14.24	15.14	No	0	0	0	0
Curves 15B & 15C	Redding	15.26	15.77	No	0	0	0	0
Curves 16A & 16B	Redding	16.58	16.89	No	0	0	0	0
Curve 17A	Redding	17.25	17.45	No	0	0	0	0
Curve 17B	Redding	17.57	17.72	No*	0	0	0	0
Curve 17C	Redding	17.83	18.01	No	0	0	0	0
Curve 19A	Bethel	19.07	19.18	No	0	0	0	0
<b>Rail Storage and Maintenance Yards</b>								
Danbury Yard	Danbury	23	24	No	0	0	0	0
<b>TOTAL</b>								
					0	0.00	13,000	0.30

\*There is farmland adjacent to the railroad, but work is within the existing ROW.

\*\*Catenary poles are within the same 0.3 acre impact area as the Curve 9C track reconfiguration.

**Table 3: Potential Prime Farmland and Active Farmland Impacts from Alternative D**

Improvement Type	Location	Study Milepost (MP)		Within Farmlands	Potential Active Farmland Impact		Potential Prime Farmland Impact	
		From	To		Square Feet (sf)	Acres (ac)	Square Feet (sf)	Acres (ac)
<b>Proposed Stations</b>								
Brookfield Station	Brookfield	31.5	31.5	No	0	0	0	0
Brookfield Passing Siding at Station	Brookfield	31.46	31.96	No	0	0	0	0
New Milford Station	New Milford	38.35	38.35	No	0	0	0	0
New Milford Passing Siding at Station	New Milford	38.0	38.46	No	0	0	0	0
<b>Undergrade Bridges</b>								
Still River	Danbury	26.6	26.6	No	0	0	0	0
Junction Rd. (Rt. 133)	Brookfield	29.47	29.47	No	0	0	0	0
Farm Pass	Brookfield	29.9	29.9	No	0	0	0	0
Old Middle Rd.	Brookfield	33.07	33.07	No*	0	0	0	0
Still River	New Milford	35.1	35.1	No*	0	0	0	0
Housatonic Ave.	New Milford	38.62	38.62	No	0	0	0	0
<b>Traction Power System - Electrification</b>								
Catenary and support structures	Danbury to New Milford	23.9	39.0 +/-	No*	0	0	0	0
Raise Bridge - White St.	Danbury	24.33	24.33	No	0	0	0	0
Raise Bridge - I-84	Danbury	26.2	26.2	No	0	0	0	0
Raise Bridge - I-84	Danbury	26.2	26.2	No	0	0	0	0
Substation (SUB-BRK)	Brookfield	29.5	29.5	No	0	0	0	0
Raise Bridge - Silvermine Rd.	Brookfield	30.2	30.2	No	0	0	0	0
Raise Bridge - Whisconier Rd. (Rt. 25)	Brookfield	31.26	31.26	No	0	0	0	0
Raise Bridge - Old Pumpkin Hill Rd.	New Milford	33.9	33.9	No*	0	0	0	0
Raise Bridge - Erickson Rd.	New Milford	34.74	34.74	No*	0	0	0	0
Substation	New Milford	39.0 +/-	39.0 +/-	No	0	0	0	0
<b>Curve Reconfigurations</b>								
Curve 1A	Brookfield	28.22	28.43	No	0	0	0	0
Curve 1B	Brookfield	28.72	28.82	No	0	0	0	0
Curve 6A	New Milford	33.2	33.35	No	0	0	0	0
Curve 8A	New Milford	33.53	35.6	No	0	0	0	0
Curve 9A	New Milford	35.96	36.12	No*	0	0	0	0



**Table 3: Potential Prime Farmland and Active Farmland Impacts from Alternative D**

Improvement Type	Location	Study Milepost (MP)		Within Farmlands	Potential Active Farmland Impact		Potential Prime Farmland Impact	
		From	To		Square Feet (sf)	Acres (ac)	Square Feet (sf)	Acres (ac)
<b>Storage Sidings</b>								
Storage Siding	Danbury/Brookfield	27.24	27.58	No	0	0	0	0
<b>Rail Storage and Maintenance Yards</b>								
New Milford Yard	New Milford	39.0 +/-	39.0 +/-	No	0	0	0	0
<b>TOTAL</b>					0	0	0	0

\*There is farmland adjacent to the railroad, but work is within the existing ROW.

**Table 4: Potential Prime Farmland and Active Farmland Impacts from Alternative E**

Improvement Type	Location	Study Milepost (MP)		Within Farmlands	Potential Active Farmland Impact		Potential Prime Farmland Impact	
		From	To		Square Feet (sf)	Acres (ac)	Square Feet (sf)	Acres (ac)
<b>Existing Stations (Upgrades)</b>								
Merritt 7	Norwalk	3.6	3.6	No	0	0	0	0
<b>Undergrade Bridges</b>								
Washington & South Main St.	Norwalk	0.0	0.0	No	0	0	0	0
Marshall St.	Norwalk	0.1	0.1	No	0	0	0	0
Ann St.	Norwalk	0.2	0.2	No	0	0	0	0
Norwalk River	Norwalk	3.2	3.2	No	0	0	0	0
Small stream	Norwalk	5.12	5.12	No*	0	0	0	0
Small stream	Norwalk	6.43	6.43	No	0	0	0	0
Norwalk River	Wilton	6.64	6.64	No*	0	0	0	0
<b>Traction Power System - Electrification</b>								
Catenary and support structures	Norwalk to Danbury	1.1	23.9	No	0	0	0	0
RTU (CP401)	Norwalk	0.63	0.63	No	0	0	0	0
Substation (SUB-41D)	Norwalk	1.62	1.62	No	0	0	0	0
Substation (SUB-170D)	Wilton	7.25	7.25	No	0	0	0	0
<b>Track Reconfigurations</b>								
CP 241	Norwalk	0	0.3	No	0	0	0	0
Curves 0E, 1A & 1B	Norwalk	1	1.7	No	0	0	0	0
Curves 2B, 3A, 3B & 3C	Norwalk	2.7	4	No	0	0	0	0
Curve 3D	Norwalk	3.82	3.96	No	0	0	0	0
Curve 4C	Wilton	4.8	4.97	No	0	0	0	0
Curve 5	Wilton	5.75	5.83	No*	0	0	0	0
Curve 6A	Wilton	6.07	6.24	No*	0	0	0	0
Curve 6B	Wilton	6.53	6.68	No*	0	0	0	0
<b>TOTAL</b>					0	0	0	0

\*There is farmland adjacent to the railroad, but work is within the existing ROW.



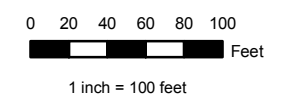
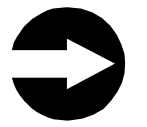
# Danbury Commuter Rail Electrification Study

## Farmland Impacts



### Legend

- Existing Track Centerline
- Proposed Realignment Track Centerline
- Existing Right of Way
- New Right of Way
- Fill Line
- 1,000 Foot Study Corridor
- Water Channel
- Prime Farmland
- Impacted Area



### Track Realignment Curve 9C