

Town of Putnam, Connecticut
 Air Line Gap Trail Connection - Cost Summary
 Opinion of Cost - 10/31/2022

Below is a summary of anticipated costs relative to a preferred route developed during a master planning process. The costs are preliminary in nature and reflect a conceptual line diagram that depicts the routes. For future planning purposes 3-5% per year should be added beyond 2022.

<u>Preferred Trail Option</u>	<u>Cost</u>
Road Construction/ Renovations Includes traffic control, demolition, and site preparation of existing road, sidewalk and curb. Also includes construction of modified roadways, with curbs, and drainage infrastructures along Providence Street. Inflation, survey, and design and engineering costs are also included.	\$ 2,013,730
Trail Construction Includes demolition and site preparation to install 12' wide bituminous trail from Providence Street to the Air Line Trail Head on Riverside Drive in Thompson. 8' wide concrete walks with lighting are included adjacent to the Providence Road modifications. Landscaping enhancements, traffic control, inflation, survey, and design and engineering costs are also included.	\$ 7,057,526
TOTAL ESTIMATED COST OF PREFERRED TRAIL DESIGN:	\$ 9,071,256
<u>Additional Alternates</u> <i>12' Pedestrian Bridge Alternate + Preferred Trail and Road:</i> Includes traffic control, demolition and site preparation of roads, sidewalk, curb and trail. Includes construction of preferred road and trail as well as additional 12' wide bituminous trail connection and pedestrian bridge.	\$ 9,855,436
<i>Intervale Road and Trail Alternate + Preferred Trail and Road:</i> Includes traffic control, demolition and site preparation of roads, sidewalk, curb and trail. Includes construction of preferred road and trail and the Intervale Alternate (less the length of preferred trail between the alternate route). The Intervale Alternate includes alternate 12' wide trail route and road modifications along Intervale and Mechanics Street (roadway, curbs, 10' wide concrete walks, lighting, and drainage infrastructures). Also includes inflation, survey, and design and engineering costs.	\$ 11,787,721

Not Included:

Costs for structural engineering, ROW and permitting are not included in this estimate.

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	Qty.	Unit	Unit Cost	Ext Cost
SITE PREPARATION AND DEMOLITION				
R&D Bituminous Concrete Pavement	7,100	SY	\$ 6.00	\$ 42,600
R&D Concrete Pavement (DOT)	1,200	SY	\$ 13.00	\$ 15,600
R&D of Granite Curb	3350	LF	\$ 8.00	\$ 26,800
		Subtotal		\$ 85,000
SITE IMPROVEMENTS				
Bituminous Concrete Pavement - 4" Depth	1,740	TON	\$ 120.00	\$ 208,754
Processed Aggregate - 6" Depth	1,261	CY	\$ 50.00	\$ 63,030
Compacted Granular Fill - 6" Depth (DOT)	1,261	CY	\$ 43.00	\$ 54,205
Granite Curb	3,400	LF	\$ 50.00	\$ 170,000
		Subtotal		\$ 495,989
SITE UTILITIES				
Precast Concrete CB	17	EA	\$ 4,000.00	\$ 68,000
15" RCP (DOT)	3,400	LF	\$ 68.00	\$ 231,200
		Subtotal		\$ 299,200
Subtotal				\$ 880,189
Minor Item Allowance @ 30%				\$ 264,057
Total Construction Cost				\$ 1,144,246
Inflation @ 4.47% each year				\$ 279,647
Clearing and Grubbing @ 2% Total Cost (DOT)				\$ 17,604
Maintenance and Protection of Traffic @ 3% Total Cost (DOT)				\$ 26,406
Mobilization and Project Closeout @ 6.5% (DOT)				\$ 57,212
Construction Staking @ 1% (DOT)				\$ 8,802
Contingency 30%				\$ 264,057
TOTAL ESTIMATED COST:				\$ 1,797,974
Design & Engineering Costs 12%				\$ 215,757

Shared Used Path Design Guide

Cost Estimator



PROJECT COST SUMMARY

Project Name: Air Line Trail Gap Connection - Option 2
Project Location: Putnam, CT

PROJECT CATEGORY

ESTIMATED PRICE

<u>Path</u>	Length: 9,021 ft	Width: 8 ft to 12 ft	\$900,200.00
	# Segments: 2	# Intersections: 2	
<u>Structures</u>			\$2,561,500.00
<u>Landscaping Restoration & Enhancements</u>			\$579,600.00
<u>Lighting & Security</u>			\$309,000.00

CONSTRUCTION COST

<u>Traffic Control</u>	Assume 4% of construction cost	TTCP COST	\$45,010.00
		SUBTOTAL	\$4,395,310.00
		Contingency (assume 15%)	\$659,296.50
		CONSTRUCTION COST	\$5,054,606.50
<u>Cost Escalation</u>	Construction Year: 2027	CONSTRUCTION TOTAL	\$6,289,920.00
	Assumed 4.47% increase in costs per year	COST PER MILE	\$3,681,500.00

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**Use this estimated cost on PIF forms - escalation is already included on the MassDOT Website

NON-CONSTRUCTION COSTS (NOT ESCALATED)

<u>Survey</u>	Based on existing conditons	SURVEY COST	\$144,500.00
<u>Design</u>	Assume 12% of construction cost	DESIGN COST	\$623,106.00
		PROJECT TOTAL	\$7,057,526.00

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- Costs for ROW and permitting are not included in this estimate.
- Your project includes culverts and/or bridges. Please consult a structural engineer for more accurate costs.

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Cost Estimator



PROJECT INPUTS - PAGE 1 OF 2

PROJECT DESCRIPTION		INPUT	CLICK INFO	
1	What year is the project expected to begin construction?	2027	i	
2	Should the estimate include cost of engineering design and/or traffic control?	Both	i	
3	How many distinct segments of path are there? (differing exist. or prop. conditons) <i>Input a number between 1 and 4.</i>	2	i	
		Segment 1 Segment 2		
4	What is the length of the segment of path? (<i>in feet</i>)	1,332 ft	7,689 ft	i
5	What are the existing conditions of the area?	Roadway	Wooded/hilly	i
6	What type of path is being proposed?	Roadway Sidepath	Rail with Trail	i
7	What material will the shared used path be?	Concrete	Asphalt	i
8	What material will the shoulders be?	Grass	Grass	i
9	What is the width of the path? (<i>Typ. range: 10 ft to 14 ft</i>)	8 ft	12 ft	i
10	Will a separate equestrian path be provided?	No	No	i
<i>*Clear out any extra data shown in red*</i>				
11	What length of the path requires boardwalk due to <u>unavoidable</u> wetlands? <i>Please see the Guidance Document and consult the MassGIS website to locate wetlands:</i>	500 ft	i	
12	Are there steep separations or resource areas that may require retaining walls?	OLIVER	i	
13	Is the ROW constrained in any locations?	Yes	i	
14	How many crossings with roadways are there? <i>Please fill in the information in the chart on the next page.</i>	Most of the length	i	
15	How many crossings are there over bodies of water? <i>Please fill in the information in the chart on the next page.</i>	2	i	
16	How many crossings are there with a active railroads? <i>Please fill in the information in the chart on the next page.</i>	1	i	
17	What is the extent of landscape restoration and enhancements?	0	i	
18	How many parking spaces will be provided?	Moderate	i	
19	Will the path require lighting along its length?	0	i	
19a	<i>If not along the entire length, what length requires lighting?</i>	Yes	i	
19b	<i>If there is lighting, should security be included?</i>	1,332 ft	i	
		No	i	

CHECK FOR ERRORS

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Roadway Crossing Information Table

<u>Treatment</u>
None
Culvert

[illegible][illegible]

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proceeding*

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Cost Estimator



ESTIMATING TOOL ASSUMPTIONS

The statewide unit cost prices are exported from the MassDOT website.

Estimating tool excludes costs associated with environmental permitting and right-of-way.

Two (2) foot shoulders are also assumed on each side of the path.

Assume there is a wooden rail fence for 50% of length if area identified as hilly or waterfront; 25% otherwise. Boardwalks are assumed to have fencing along their entire length on both sides.

For a roadway sidepath, assume closed drainage and curbing are required.

Catch basins and manholes are placed every 250 feet and granite curb is estimated for the length of the segment(s).

Culverts are assumed to meet the minimum size requirements using a 10' x 16' precast box.

Light standards are placed every 50 feet along the length of the path.

The tool can perform estimates for shared use paths within the following ranges:

20 roadway crossings, 5 river crossings, 5 railroad crossings

Assume two (2) curb ramps at each intersection crossing, each with an area of about 15 square yards.

Security cameras will be hard-wired to avoid monthly fees & storage issues. Connection to data centers not included.

Surveillance cameras are assumed at every 500 feet along the length for which security is required.

The design cost associated with landscaping is included in the estimated cost.

Work limits do not extend on to side streets at intersections. This work must be calculated outside of the tool.

Survey cost is calculated using an average base price developed through analysis of current design projects and a multiplier based on existing conditions specified on Projects Inputs - Page 1 of 2.

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Cost Estimator



PROJECT COST SUMMARY

Project Name: Air Line Trail Gap Connection - Option 2 with Bridge
Project Location: Putnam, CT

PROJECT CATEGORY

ESTIMATED PRICE

<u>Path</u>	Length: 9,532 ft	Width: 8 ft to 12 ft	\$939,200.00
	# Segments: 2	# Intersections: 2	
<u>Structures</u>			\$2,974,500.00
<u>Landscaping Restoration & Enhancements</u>			\$610,900.00
<u>Lighting & Security</u>			\$309,000.00

CONSTRUCTION COST

<u>Traffic Control</u>	Assume 4% of construction cost	TTCP COST	\$46,960.00	
		SUBTOTAL	\$4,880,560.00	
		Contingency (assume 15%)	\$732,084.00	
		CONSTRUCTION COST	\$5,612,644.00	**
<u>Cost Escalation</u>	Construction Year: 2027	CONSTRUCTION TOTAL	\$6,984,340.00	
Assumed 4.47% increase in costs per year		COST PER MILE	\$3,868,790.00	

**Use this estimated cost on PIF forms - escalation is already included on the MassDOT Website

NON-CONSTRUCTION COSTS (NOT ESCALATED)

<u>Survey</u>	Based on existing conditons	SURVEY COST	\$152,900.00
<u>Design</u>	Assume 13% of construction cost	DESIGN COST	\$704,466.00
		PROJECT TOTAL	\$7,841,706.00

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- Costs for ROW and permitting are not included in this estimate.
- Your project includes culverts and/or bridges. Please consult a structural engineer for more accurate costs.

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Cost Estimator



PROJECT INPUTS - PAGE 1 OF 2

PROJECT DESCRIPTION	INPUT	CLICK INFO
1 What year is the project expected to begin construction?	2027	i
2 Should the estimate include cost of engineering design and/or traffic control?	Both	i
3 How many distinct segments of path are there? (differing exist. or prop. conditons) <i>Input a number between 1 and 4.</i>	2	i
	Segment 1 Segment 2	
4 What is the length of the segment of path? (<i>in feet</i>)	1,332 ft 8,200 ft	i
5 What are the existing conditions of the area?	Roadway Wooded/hilly	i
6 What type of path is being proposed?	Roadway Sidepath Rail with Trail	i
7 What material will the shared used path be?	Concrete Asphalt	i
8 What material will the shoulders be?	Grass Grass	i
9 What is the width of the path? (<i>Typ. range: 10 ft to 14 ft</i>)	8 ft 12 ft	i
10 Will a separate equestrian path be provided?	No No	i
<i>*Clear out any extra data shown in red*</i>		
11 What length of the path requires boardwalk due to <u>unavoidable</u> wetlands? <i>Please see the Guidance Document and consult the MassGIS website to locate wetlands:</i>	500 ft OLIVER	i
12 Are there steep separations or resource areas that may require retaining walls?	Yes	i
13 Is the ROW constrained in any locations?	Most of the length	i
14 How many crossings with roadways are there? <i>Please fill in the information in the chart on the next page.</i>	2	i
15 How many crossings are there over bodies of water? <i>Please fill in the information in the chart on the next page.</i>	2	i
16 How many crossings are there with a active railroads? <i>Please fill in the information in the chart on the next page.</i>	0	i
17 What is the extent of landscape restoration and enhancements?	Moderate	i
18 How many parking spaces will be provided?	0	i
19 Will the path require lighting along its length?	Yes	i
19a <i>If not along the entire length, what length requires lighting?</i>	1,332 ft	i
19b <i>If there is lighting, should security be included?</i>	No	i

CHECK FOR ERRORS

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Cost Estimator



PROJECT INPUTS - PAGE 2 OF 2

Roadway Crossing Information Table

	Location Info	Speed Info	Lane Info	Traffic Info	Type Info	Lighting Info	
#	Location	Speed (mph)	Total # Lanes	Traffic	Type	Lighting Needs	
1	Intersection (Stop/Signals)	<30	2	Heavy	At-Grade	Yes, new lighting	Treatment None Culvert
2	Mid-Block	30-40	2	Moderate	Underpass	Yes, new lighting	

River Crossing Information Table

	River Info	Bridge Info	Lighting Info
#	River Width (ft)	Existing Bridge?	Lighting Needs
1	50	No	No lighting required
2	16	No	No lighting required

Railroad Crossing Information Table

	Rail Length	Type Info	Structure Info	Lighting Info
#	Length (ft)	Type	Existing Structure?	Lighting Needs

CHECK FOR ERRORS



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proceeding*

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Cost Estimator



ESTIMATING TOOL ASSUMPTIONS

The statewide unit cost prices are exported from the MassDOT website.

Estimating tool excludes costs associated with environmental permitting and right-of-way.

Two (2) foot shoulders are also assumed on each side of the path.

Assume there is a wooden rail fence for 50% of length if area identified as hilly or waterfront; 25% otherwise. Boardwalks are assumed to have fencing along their entire length on both sides.

For a roadway sidepath, assume closed drainage and curbing are required.

Catch basins and manholes are placed every 250 feet and granite curb is estimated for the length of the segment(s).

Culverts are assumed to meet the minimum size requirements using a 10' x 16' precast box.

Light standards are placed every 50 feet along the length of the path.

The tool can perform estimates for shared use paths within the following ranges:

20 roadway crossings, 5 river crossings, 5 railroad crossings

Assume two (2) curb ramps at each intersection crossing, each with an area of about 15 square yards.

Security cameras will be hard-wired to avoid monthly fees & storage issues. Connection to data centers not included.

Surveillance cameras are assumed at every 500 feet along the length for which security is required.

The design cost associated with landscaping is included in the estimated cost.

Work limits do not extend on to side streets at intersections. This work must be calculated outside of the tool.

Survey cost is calculated using an average base price developed through analysis of current design projects and a multiplier based on existing conditions specified on Projects Inputs - Page 1 of 2.

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	Qty.	Unit	Unit Cost	Ext Cost
SITE PREPARATION AND DEMOLITION				
R&D Bituminous Concrete Pavement	12,100	SY	\$ 6.00	\$ 72,600
R&D Concrete Pavement (DOT)	3,100	SY	\$ 13.00	\$ 40,300
R&D of Granite Curb	7750	LF	\$ 8.00	\$ 62,000
		Subtotal		\$ 174,900

SITE IMPROVEMENTS				
Bituminous Concrete Pavement - 4" Depth	2,967	TON	\$ 120.00	\$ 356,040
Processed Aggregate - 6" Depth	2,150	CY	\$ 50.00	\$ 107,500
Compacted Granular Fill - 6" Depth (DOT)	2,150	CY	\$ 43.00	\$ 92,450
Granite Curb	7,800	LF	\$ 50.00	\$ 390,000
		Subtotal		\$ 945,990

SITE UTILITIES				
Precast Concrete CB	39	EA	\$ 4,000.00	\$ 156,000
15" RCP (DOT)	7,800	LF	\$ 68.00	\$ 530,400
		Subtotal		\$ 686,400

Subtotal				\$ 1,807,290
Minor Item Allowance @ 30%				\$ 542,187
Total Construction Cost				\$ 2,349,477
Inflation @ 4.47% each year				\$ 574,199

Clearing and Grubbing @ 2% Total Cost (DOT)				\$ 36,146
Maintenance and Protection of Traffic @ 3% Total Cost (DOT)				\$ 54,219
Mobilization and Project Closeout @ 6.5% (DOT)				\$ 117,474
Construction Staking @ 1% (DOT)				\$ 18,073
Contingency 30%				\$ 542,187

TOTAL ESTIMATED COST:				\$ 3,691,774
Design & Engineering Costs 12%				\$ 443,013

Shared Used Path Design Guide

Cost Estimator



PROJECT COST SUMMARY

Project Name: Air Line Trail Gap Connection - Option 2 with Intervale Option
Project Location: Putnam, CT

PROJECT CATEGORY

ESTIMATED PRICE

<u>Path</u>	Length: 9,821 ft	Width: 8 ft to 12 ft	\$1,214,700.00
	# Segments: 2	# Intersections: 2	
<u>Structures</u>			\$2,598,100.00
<u>Landscaping Restoration & Enhancements</u>			\$578,100.00
<u>Lighting & Security</u>			\$309,000.00

CONSTRUCTION COST

<u>Traffic Control</u>	Assume 4% of construction cost	TTCP COST	\$60,740.00	
		SUBTOTAL	\$4,760,640.00	
		Contingency (assume 15%)	\$714,096.00	
		CONSTRUCTION COST	\$5,474,736.00	**
<u>Cost Escalation</u>	Construction Year: 2027	CONSTRUCTION TOTAL	\$6,812,730.00	
Assumed 4.47% increase in costs per year		COST PER MILE	\$3,662,680.00	

**Use this estimated cost on PIF forms - escalation is already included on the MassDOT Website

NON-CONSTRUCTION COSTS (NOT ESCALATED)

<u>Survey</u>	Based on existing conditons	SURVEY COST	\$153,900.00
<u>Design</u>	Assume 13% of construction cost	DESIGN COST	\$686,304.00
		PROJECT TOTAL	\$7,652,934.00

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- Costs for ROW and permitting are not included in this estimate.
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Shared Used Path Design Guide

Cost Estimator



PROJECT INPUTS - PAGE 1 OF 2

PROJECT DESCRIPTION

INPUT

CLICK INFO

1	What year is the project expected to begin construction?	2027	i				
2	Should the estimate include cost of engineering design and/or traffic control?	Both	i				
3	How many distinct segments of path are there? (differing exist. or prop. conditons) <i>Input a number between 1 and 4.</i>	2	i				
4	What is the length of the segment of path? (<i>in feet</i>)	<table border="1"> <thead> <tr> <th>Segment 1</th> <th>Segment 2</th> </tr> </thead> <tbody> <tr> <td>3,049 ft</td> <td>6,772 ft</td> </tr> </tbody> </table>	Segment 1	Segment 2	3,049 ft	6,772 ft	i
Segment 1	Segment 2						
3,049 ft	6,772 ft						
5	What are the existing conditions of the area?	Roadway Wooded/hilly	i				
6	What type of path is being proposed?	Roadway Sidepath Rail with Trail	i				
7	What material will the shared used path be?	Concrete Asphalt	i				
8	What material will the shoulders be?	Grass Grass	i				
9	What is the width of the path? (<i>Typ. range: 10 ft to 14 ft</i>)	8 ft 12 ft	i				
10	Will a separate equestrian path be provided?	No No	i				
<i>*Clear out any extra data shown in red*</i>							
11	What length of the path requires boardwalk due to <u>unavoidable</u> wetlands? <i>Please see the Guidance Document and consult the MassGIS website to locate wetlands:</i>	500 ft OLIVER	i				
12	Are there steep separations or resource areas that may require retaining walls?	Yes	i				
13	Is the ROW constrained in any locations?	Most of the length	i				
14	How many crossings with roadways are there? <i>Please fill in the information in the chart on the next page.</i>	2	i				
15	How many crossings are there over bodies of water? <i>Please fill in the information in the chart on the next page.</i>	1	i				
16	How many crossings are there with a active railroads? <i>Please fill in the information in the chart on the next page.</i>	0	i				
17	What is the extent of landscape restoration and enhancements?	Moderate	i				
18	How many parking spaces will be provided?	0	i				
19	Will the path require lighting along its length?	Yes	i				
19a	<i>If not along the entire length, what length requires lighting?</i>	1,332 ft	i				
19b	<i>If there is lighting, should security be included?</i>	No	i				

CHECK FOR ERRORS

Click Button before proceeding

Roadway Crossing Information Table

<u>Treatment</u>
None
Culvert

[illegible][illegible]

*Click Button before
proceeding*

Shared Used Path Design Guide

Cost Estimator



ESTIMATING TOOL ASSUMPTIONS

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Catch basins and manholes are placed every 250 feet and granite curb is estimated for the length of the segment(s).

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Light standards are placed every 50 feet along the length of the path.

The tool can perform estimates for shared use paths within the following ranges:

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Assume two (2) curb ramps at each intersection crossing, each with an area of about 15 square yards.

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