

SCC Code	SCC Item Name	Unit	Unit Cost (\$2020)	QUANTITY - WOR-BOS	QUANTITY - SPG-WOR	QUANTITY - PIT-SPG	COST - WOR-BOS	COST - SPG-WOR	COST - PIT-SPG	TOTAL COST - PIT - BOS	SCC Item Description
10.00	GUIDEWAY & TRACK ELEMENTS (route miles)			0.0	35.7	0.0		\$474,721,879	\$0	\$474,721,879	
10.01	Guideway: At-grade exclusive right-of-way	mi	\$463,500	0.0	17.3	0.0	\$0	\$8,030,050	\$0	\$8,030,050	Length of track improvements divided in half for improvements to half the ROW, minor improvements to ROW to add second track
10.02	Guideway: At-grade semi-exclusive (allows cross-traffic)									\$0	
10.03	Guideway: At-grade in mixed traffic									\$0	
10.04	Guideway: Aerial structure	mi	\$369,811,200	0.0	1.0	0.0	\$0	\$371,212,000	\$0	\$371,212,000	current undergrade bridges (does not include track)
10.05	Guideway: Built-up fill									\$0	
10.06	Guideway: Underground cut & cover									\$0	
10.07	Guideway: Underground tunnel									\$0	
10.08	Guideway: Retained cut or fill									\$0	
10.09	Track: Direct fixation									\$0	
10.10	Track: Embedded									\$0	
10.11	Track: Ballasted	mi	\$2,678,000	0.0	35.7	0.0	\$0	\$95,479,830	\$0	\$95,479,830	single track
10.11a	Track: Realigned									\$0	Assumed realignment of tracks along curvature to increase allowable speed
10.12	Track: Special (switches, turnouts)									\$0	
10.13	Track: Vibration and noise dampening									\$0	
20.00	STATIONS, STOPS, TERMINALS, INTERMODAL (number)			0	1	3	\$0	\$12,360,000	\$9,012,500	\$21,372,500	
20.01	At-grade station, stop, shelter, mall, terminal, platform	ea	\$12,360,000	0	1	0	\$0	\$12,360,000	\$0	\$12,360,000	Palmer Station
20.01a	At-grade station improvements to an existing station									\$0	
20.02	Aerial station, stop, shelter, mall, terminal, platform									\$0	
20.02a	Aerial station improvements to an existing station									\$0	
20.03	Underground station, stop, shelter, mall, terminal, platform									\$0	
20.04	Other stations, landings, terminals: Intermodal, ferry, trolley, etc.	ea		0	0	3	\$0	\$0	\$9,012,500	\$9,012,500	\$8.5 M for Blandford, \$250k for Lee
20.05	Joint development									\$0	
20.06	Automobile parking multi-story structure									\$0	
20.07	Elevators, escalators	ea		0	0	1				\$0	Pedestrian Bridge for Blandford Bus Station, Included within 20.04
30.00	SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS			0.0	35.7	0.0	\$5,150,000	\$13,390,000	\$0	\$18,540,000	
30.01	Administration Building: Office, sales, storage, revenue counting									\$0	
30.02	Light Maintenance Facility									\$0	
30.03	Heavy Maintenance Facility									\$0	
30.04	Storage or Maintenance of Way Building	ea	\$13,390,000	0	1	0	\$0	\$13,390,000	\$0	\$13,390,000	Proposed Layover Facility - Springfield
30.05	Yard and Yard Track	Track	\$2,575,000	2	0	0	\$5,150,000	\$0	\$0	\$5,150,000	Proposed Layover Facility Mod - Boston - Assume 2 tracks on an existing yard
40.00	SITWORK & SPECIAL CONDITIONS			0.0	35.7	0.0	\$0	\$449,655,751	\$0	\$449,655,751	
40.01	Demolition, Clearing, Earthwork									\$0	
40.02	Site Utilities, Utility Relocation	mi	\$8,157,600	0.0	35.7	0.0	\$0	\$290,846,250	\$0	\$290,846,250	Assume \$1500/ft (Urban)
40.03	Haz. mat'l, contam'd soil removal/mitigation, ground water treatments									\$0	
40.04	Environmental mitigation, e.g. wetlands, historic/archeologic, parks	SF	\$14	0	18,771	0	\$0	\$265,464	\$0	\$265,464	Wetlands only. Does not include impacts to open water, Article 97 Lands, flood hazard areas, NHESP habitat, or ACEC areas.
40.05	Site structures including retaining walls, sound walls	SF	\$43	0	470,625	0	\$0	\$20,359,238	\$0	\$20,359,238	Assume 25% of total length of proposed track - assume 10ft height
40.06	Pedestrian / bike access and accommodation, landscaping									\$0	
40.07	Automobile, bus, van accessways including roads, parking lots	SF	\$2,879	0	48,000	0	\$0	\$138,184,800	\$0	\$138,184,800	Overhead roadway bridge, SF of superstructure to include substructure elements (Abutment, foundations, piers, and wing walls)
40.08	Temporary Facilities and other indirect costs during construction									\$0	
50.00	SYSTEMS			0.0	35.7	0.0	\$175,100	\$27,804,909	\$0	\$27,980,009	
50.01	Train control and signals									\$0	
50.02	Traffic signals and crossing protection									\$0	
50.03	Traction power supply: substations									\$0	
50.04	Traction power distribution: catenary and third rail									\$0	
50.05	Communications	mi	\$772,500	0.0	35.7	0.0	\$0	\$27,542,259	\$0	\$27,542,259	
50.06	Fare collection system and equipment	ea	\$87,550	2	3	0	\$175,100	\$262,650	\$0	\$437,750	1 for each rail station
50.07	Central Control									\$0	CSX dispatches west of Worcester
10-50.SUB	Construction Subtotal (10-50)			0.0	35.7	0.0	\$5,325,100	\$977,932,539	\$9,012,500	\$992,270,139	
10-50.CNT	Construction Contingency (10 - 50) 35%		35%				\$1,863,785	\$342,276,389	\$3,154,375	\$347,294,548.58	
10-50.TOT	Construction Total						\$7,188,885	\$1,320,208,927	\$12,166,875	\$1,339,564,687	
60.00	ROW, LAND, EXISTING IMPROVEMENTS			0.0	35.7	0.0	\$0	\$12,197,731	\$0	\$12,197,731	
60.01	Purchase or lease of real estate	sf	\$2.27	0	5,382,935	0	\$0	\$12,197,731	\$0	\$12,197,731	Regardless of ownership, square footage was calculated based on area permanently impacted by improvements (i.e., assumes only partial acquisitions)
60.02	Relocation of existing households and businesses									\$0	
70.00	VEHICLES (number)			6				\$20,909,000		\$20,909,000	
70.01	Light Rail									\$0	
70.02	Heavy Rail									\$0	
70.03	Commuter Rail (Bi-Level Coaches)	ea	\$4,120,000	3				\$12,360,000		\$12,360,000	
70.04	Bus	ea	\$566,500	2				\$1,133,000		\$1,133,000	
70.05	Other (Locomotives)	ea	\$7,416,000	1				\$7,416,000		\$7,416,000	
70.06	Non-revenue vehicles									\$0	
70.07	Spare parts									\$0	
80.00	PROFESSIONAL SERVICES (applies to Cats. 10-50)		30%	0.0	35.7	0.0	\$2,156,666	\$396,062,678.22	\$3,650,063	\$401,869,406	
80.01	Project Development									\$0	
80.02	Engineering									\$0	
80.03	Project Management for Design and Construction									\$0	
80.04	Construction Administration & Management									\$0	
80.05	Professional Liability and other Non-Construction Insurance									\$0	
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.									\$0	
80.07	Surveys, Testing, Investigation, Inspection									\$0	
80.08	Start up									\$0	
10-80.SUB	Subtotal (10 - 80)			0.0	35.7	0.0	\$9,345,551	\$1,749,378,336	\$15,816,938	\$1,774,540,824	
90.00	UNALLOCATED CONTINGENCY		10%				\$934,555	\$174,937,834	\$1,581,694	\$177,454,082	
10-90.SUB	Subtotal (10 - 90)			0.0	35.7	0.0	\$10,280,106	\$1,924,316,170	\$17,398,631	\$1,951,994,907	
100.00	FINANCE CHARGES									\$0	
10-100.TOT	Total Project Cost (10 - 100)			0.0	35.7	0.0	\$10,280,106	\$1,924,316,170	\$17,398,631	\$1,951,994,907	

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10.00	GUIDEWAY & TRACK ELEMENTS (route miles)	mi		0.0	35.7	0.0	\$0	\$474,721,879	\$0	\$474,721,879	
10.01	Guideway: At-grade exclusive right-of-way	mi	\$463,500	0.0	17.3	0.0	\$0	\$8,030,050	\$0	\$8,030,050	Length of track improvements divided in half for improvements to half the ROW, minor improvements to ROW to add second track
10.02	Guideway: At-grade semi-exclusive (allows cross-traffic)									\$0	
10.03	Guideway: At-grade in mixed traffic									\$0	
10.04	Guideway: Aerial structure	mi	\$369,811,200	0.0	1.0	0.0	\$0	\$371,212,000	\$0	\$371,212,000	current undergrade bridges (does not include track)
10.05	Guideway: Built-up fill									\$0	
10.06	Guideway: Underground cut & cover									\$0	
10.07	Guideway: Underground tunnel									\$0	
10.08	Guideway: Retained cut or fill									\$0	
10.09	Track: Direct fixation									\$0	
10.10	Track: Embedded									\$0	
10.11	Track: Ballasted	mi	\$2,678,000	0.0	35.7	0.0	\$0	\$95,479,830	\$0	\$95,479,830	single track
10.11a	Track: Realigned									\$0	Assumed realignment of tracks along curvature to increase allowable speed
10.12	Track: Special (switches, turnouts)									\$0	
10.13	Track: Vibration and noise dampening									\$0	
20.00	STATIONS, STOPS, TERMINALS, INTERMODAL (number)			0	1	3	\$0	\$12,360,000	\$9,012,500	\$21,372,500	
20.01	At-grade station, stop, shelter, mall, terminal, platform	ea	\$12,360,000	0	1	0	\$0	\$12,360,000	\$0	\$12,360,000	Palmer Station
20.01a	At-grade station improvements to an existing station									\$0	
20.02	Aerial station, stop, shelter, mall, terminal, platform									\$0	
20.02a	Aerial station improvements to an existing station									\$0	
20.03	Underground station, stop, shelter, mall, terminal, platform									\$0	
20.04	Other stations, landings, terminals: Intermodal, ferry, trolley, etc.	ea		0	0	3	\$0	\$0	\$9,012,500	\$9,012,500	\$8.5 M for Blandford, \$250k for Lee
20.05	Joint development									\$0	
20.06	Automobile parking multi-story structure									\$0	
20.07	Elevators, escalators	ea		0	0	1				\$0	Pedestrian Bridge for Blandford Bus Station, Included within 20.04
30.00	SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS			0.0	35.7	0.0	\$5,150,000	\$13,390,000	\$0	\$18,540,000	
30.01	Administration Building: Office, sales, storage, revenue counting									\$0	
30.02	Light Maintenance Facility									\$0	
30.03	Heavy Maintenance Facility									\$0	
30.04	Storage or Maintenance of Way Building	ea	\$13,390,000	0	1	0	\$0	\$13,390,000	\$0	\$13,390,000	Proposed Layover Facility - Springfield
30.05	Yard and Yard Track	Track	\$2,575,000	2	0	0	\$5,150,000	\$0	\$0	\$5,150,000	Proposed Layover Facility Mod - Boston - Assume 2 tracks on an existing yard
40.00	SITWORK & SPECIAL CONDITIONS			0.0	35.7	0.0	\$0	\$449,655,751	\$0	\$449,655,751	
40.01	Demolition, Clearing, Earthwork									\$0	
40.02	Site Utilities, Utility Relocation	mi	\$8,157,600	0.0	35.7	0.0	\$0	\$290,846,250	\$0	\$290,846,250	Assume \$1500/ft (Urban)
40.03	Haz. mat'l, contam'd soil removal/mitigation, ground water treatments									\$0	
40.04	Environmental mitigation, e.g. wetlands, historic/archeologic, parks	SF	\$14	0	18,771	0	\$0	\$265,464	\$0	\$265,464	Wetlands only. Does not include impacts to open water, Article 97 Lands, flood hazard areas, NHESP habitat, or ACEC areas.
40.05	Site structures including retaining walls, sound walls	SF	\$43	0	470,625	0	\$0	\$20,359,238	\$0	\$20,359,238	Assume 25% of total length of proposed track - assume 10ft height
40.06	Pedestrian / bike access and accommodation, landscaping									\$0	
40.07	Automobile, bus, van accessways including roads, parking lots	SF	\$2,879	0	48,000	0	\$0	\$138,184,800	\$0	\$138,184,800	Overhead roadway bridge, SF of superstructure to include substructure elements (Abutment, foundations, piers, and wing walls)
40.08	Temporary Facilities and other indirect costs during construction									\$0	
50.00	SYSTEMS			0.0	35.7	0.0	\$175,100	\$27,804,909	\$0	\$27,980,009	
50.01	Train control and signals									\$0	
50.02	Traffic signals and crossing protection									\$0	
50.03	Traction power supply: substations									\$0	
50.04	Traction power distribution: catenary and third rail									\$0	
50.05	Communications	mi	\$772,500	0.0	35.7	0.0	\$0	\$27,542,259	\$0	\$27,542,259	1 for each rail station
50.06	Fare collection system and equipment	ea	\$87,550	2	3	0	\$175,100	\$262,650	\$0	\$437,750	CSX dispatches west of Worcester
50.07	Central Control									\$0	
10-50.SUB	Construction Subtotal (10-50)			0.0	35.7	0.0	\$5,325,100	\$977,932,539	\$9,012,500	\$992,270,139	
10-50.CNT	Construction Contingency (10 - 50) 35%		35%				\$1,863,785	\$342,276,389	\$3,154,375	\$347,294,548.58	
10-50.TOT	Construction Total						\$7,188,885	\$1,320,208,927	\$12,166,875	\$1,339,564,687	
60.00	ROW, LAND, EXISTING IMPROVEMENTS			0.0	35.7	0.0	\$0	\$12,197,731	\$0	\$12,197,731	
60.01	Purchase or lease of real estate	sf	\$2.27	0.0	5,382,935	0	\$0	\$12,197,731	\$0	\$12,197,731	Regardless of ownership, square footage was calculated based on area permanently impacted by improvements (i.e., assumes only partial acquisitions)
60.02	Relocation of existing households and businesses									\$0	
70.00	VEHICLES (number)				29			\$142,397,500		\$142,397,500	
70.01	Light Rail									\$0	
70.02	Heavy Rail									\$0	
70.03	Commuter Rail (Bi-Level Coaches)	ea	\$5,150,000		23			\$118,450,000		\$118,450,000	
70.04	Bus	ea	\$566,500		3			\$1,699,500		\$1,699,500	
70.05	Other (Locomotives)	ea	\$7,416,000		3			\$22,248,000		\$22,248,000	
70.06	Non-revenue vehicles									\$0	
70.07	Spare parts									\$0	
80.00	PROFESSIONAL SERVICES (applies to Cats. 10-50)		30%	0.0	35.7	0.0	\$2,156,666	\$396,062,678.22	\$3,650,063	\$401,869,406	
80.01	Project Development									\$0	
80.02	Engineering									\$0	
80.03	Project Management for Design and Construction									\$0	
80.04	Construction Administration & Management									\$0	
80.05	Professional Liability and other Non-Construction Insurance									\$0	
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.									\$0	
80.07	Surveys, Testing, Investigation, Inspection									\$0	
80.08	Start up									\$0	
10-80.SUB	Subtotal (10 - 80)			0.0	35.7	0.0	\$9,345,551	\$1,870,866,836	\$15,816,938	\$1,896,029,324	
90.00	UNALLOCATED CONTINGENCY		10%				\$934,555	\$187,086,684	\$1,581,694	\$189,602,932	
10-90.SUB	Subtotal (10 - 90)			0.0	35.7	0.0	\$10,280,106	\$2,057,953,520	\$17,398,631	\$2,085,632,257	
100.00	FINANCE CHARGES									\$0	
10-100.TOT	Total Project Cost (10 - 100)			0.0	35.7	0.0	\$10,280,106	\$2,057,953,520	\$17,398,631	\$2,085,632,257	

SCC Code	SCC Item Name	Unit	Unit Cost (\$2020)	QUANTITY - WOR-BOS	QUANTITY - SPG-WOR	QUANTITY - PIT-SPG	COST - WOR-BOS	COST - SPG-WOR	COST - PIT-SPG	TOTAL COST - PIT - BOS	SCC Item Description	
10.00	GUIDEWAY & TRACK ELEMENTS (route miles)	mi		0.1	35.7	15.5	\$27,938,977	\$477,389,167	\$126,158,360	\$631,486,504		
10.01	Guideway: At-grade exclusive right-of-way	mi	\$463,500	0.0	17.3	7.6	\$0	\$8,030,050	\$3,542,088	\$11,572,138	Length of track improvements divided in half for improvements to half the ROW, minor improvements to ROW to add second track	
10.02	Guideway: At-grade semi-exclusive (allows cross-traffic)									\$0		
10.03	Guideway: At-grade in mixed traffic									\$0		
10.04	Guideway: Aerial structure	mi	\$369,811,200	0.1	1.0	0.2	\$24,511,549	\$371,212,000	\$80,546,000	\$476,269,549		current undergrade bridges (does not include track)
10.05	Guideway: Built-up fill									\$0		
10.06	Guideway: Underground cut & cover									\$0		
10.07	Guideway: Underground tunnel									\$0		
10.08	Guideway: Retained cut or fill									\$0		
10.09	Track: Direct fixation									\$0		
10.10	Track: Embedded									\$0		
10.11	Track: Ballasted	mi	\$2,678,000	0.0	35.7	15.5	\$0	\$95,479,830	\$41,514,072	\$136,993,902		single track (includes "other improvements")
10.11a	Track: Realigned	mi	\$130,522	26.3	20.4	4.3	\$3,427,428	\$2,667,288	\$556,200	\$6,650,916		
10.12	Track: Special (switches, turnouts)									\$0		
10.13	Track: Vibration and noise dampening									\$0		
20.00	STATIONS, STOPS, TERMINALS, INTERMODAL (number)			0	1	1	\$0	\$12,360,000	\$12,360,000	\$24,720,000		
20.01	At-grade station, stop, shelter, mall, terminal, platform	ea	\$12,360,000	0	1	1	\$0	\$12,360,000	\$12,360,000	\$24,720,000	Palmer and Chester Stations	
20.01a	At-grade station improvements to an existing station									\$0		
20.02	Aerial station, stop, shelter, mall, terminal, platform									\$0		
20.02a	Aerial station improvements to an existing station									\$0		
20.03	Underground station, stop, shelter, mall, terminal, platform									\$0		
20.04	Other stations, landings, terminals: Intermodal, ferry, trolley, etc.									\$0		
20.05	Joint development									\$0		
20.06	Automobile parking multi-story structure									\$0		
20.07	Elevators, escalators									\$0		
30.00	SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS			0.1	35.7	15.5	\$5,150,000	\$13,390,000	\$13,390,000	\$31,930,000		
30.01	Administration Building: Office, sales, storage, revenue counting									\$0		
30.02	Light Maintenance Facility									\$0		
30.03	Heavy Maintenance Facility									\$0		
30.04	Storage or Maintenance of Way Building	ea	\$13,390,000	0	1	1	\$0	\$13,390,000	\$13,390,000	\$26,780,000	Proposed Layover Facility - Springfield and Pittsfield	
30.05	Yard and Yard Track	Track	\$2,575,000	2	0	0	\$5,150,000	\$0	\$0	\$5,150,000		Proposed Layover Facility Mod - Boston - Assume 2 tracks on an existing yard
40.00	SITWORK & SPECIAL CONDITIONS			0.1	35.7	15.5	\$0	\$449,655,751	\$169,868,039	\$619,523,790		
40.01	Demolition, Clearing, Earthwork									\$0		
40.02	Site Utilities, Utility Relocation	mi	\$8,157,600	0.0	35.7	15.5	\$0	\$290,846,250	\$126,458,250	\$417,304,500	Assume \$1500/ft (Urban)	
40.03	Haz. mat'l, contam'd soil removal/mitigation, ground water treatments									\$0		
40.04	Environmental mitigation, e.g. wetlands, historic/archeologic, parks	SF	\$14	0	18,771	814	\$0	\$265,464	\$11,512	\$276,975	Wetlands only. Does not include impacts to open water, Article 97 Lands, flood hazard areas, NHESP habitat, or ACEC areas.	
40.05	Site structures including retaining walls, sound walls	SF	\$43	0	470,625	204,625	\$0	\$20,359,238	\$8,852,078	\$29,211,315	Assume 25% of total length of proposed track - assume 10ft height	
40.06	Pedestrian / bike access and accommodation, landscaping									\$0		
40.07	Automobile, bus, van accessways including roads, parking lots	SF	\$2,879	0	48,000	12,000	\$0	\$138,184,800	\$34,546,200	\$172,731,000	Overhead roadway bridge, SF of superstructure to include substructure elements (Abutment, foundations, piers, and wing walls)	
40.08	Temporary Facilities and other indirect costs during construction									\$0		
50.00	SYSTEMS			0.1	35.7	15.5	\$175,100	\$63,648,909	\$12,150,313	\$75,974,322		
50.01	Train control and signals	ea	\$1,236,000		23			\$28,428,000		\$28,428,000	# of CPs	
50.02	Traction signals and crossing protection	ea	\$247,200		30			\$7,416,000		\$7,416,000	# of at-grade crossings	
50.03	Traction power supply: substations									\$0		
50.04	Traction power distribution: catenary and third rail									\$0		
50.05	Communications	mi	\$772,500	0.0	35.7	15.5	\$0	\$27,542,259	\$11,975,213	\$39,517,472		
50.06	Fare collection system and equipment	ea	\$87,550	2	3	2	\$175,100	\$262,650	\$175,100	\$612,850	1 for each rail station	
50.07	Central Control									\$0	CSX dispatches west of Worcester	
10-50.SUB	Construction Subtotal (10-50)			0.1	35.7	15.5	\$33,264,077	\$1,016,443,827	\$333,926,712	\$1,383,634,616		
10-50.CNT	Construction Contingency (10 - 50) 35%		35%				\$11,642,427	\$355,755,339	\$116,874,349	\$484,272,116		
10-50.TOT	Construction Total						\$44,906,503	\$1,372,199,166	\$450,801,062	\$1,867,906,731		
60.00	ROW, LAND, EXISTING IMPROVEMENTS			0.1	35.7	15.5	\$0	\$12,197,731	\$4,406,856	\$16,604,587		
60.01	Purchase or lease of real estate	sf	\$2.27	0	5,382,935	1,944,773	\$0	\$12,197,731	\$4,406,856	\$16,604,587	Regardless of ownership, square footage was calculated based on area permanently impacted by improvements (i.e., assumes only partial acquisitions)	
60.02	Relocation of existing households and businesses									\$0		
70.00	VEHICLES (number)				28			\$131,840,000		\$131,840,000		
70.01	Light Rail									\$0		
70.02	Heavy Rail									\$0		
70.03	Commuter Rail (Single-Level Coaches)	ea	\$4,120,000		23			\$94,760,000		\$94,760,000		
70.04	Bus									\$0		
70.05	Other (Locomotives)	ea	\$7,416,000		5			\$37,080,000		\$37,080,000		
70.06	Non-revenue vehicles									\$0		
70.07	Spare parts									\$0		
80.00	PROFESSIONAL SERVICES (applies to Cats. 10-50)		30%	0.1	35.7	15.5	\$13,471,951	\$411,659,749.86	\$135,240,319	\$560,372,019		
80.01	Project Development									\$0		
80.02	Engineering									\$0		
80.03	Project Management for Design and Construction									\$0		
80.04	Construction Administration & Management									\$0		
80.05	Professional Liability and other Non-Construction Insurance									\$0		
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.									\$0		
80.07	Surveys, Testing, Investigation, Inspection									\$0		
80.08	Start up									\$0		
10-80.SUB	Subtotal (10 - 80)			0.1	35.7	15.5	\$58,378,454	\$1,927,896,647	\$590,448,236	\$2,576,723,338		
90.00	UNALLOCATED CONTINGENCY		10%				\$5,837,845	\$192,789,665	\$59,044,824	\$257,672,334		
10-90.SUB	Subtotal (10 - 90)			0.1	35.7	15.5	\$64,216,300	\$2,120,686,311	\$649,493,060	\$2,834,395,671		
100.00	FINANCE CHARGES									\$0		
10-100.TOT	Total Project Cost (10 - 100)			0.1	35.7	15.5	\$64,216,300	\$2,120,686,311	\$649,493,060	\$2,834,395,671		

SCC Code	SCC Item Name	Unit	Unit Cost (\$2020)	QUANTITY - WOR-BOS	QUANTITY - SPG-WOR	QUANTITY - PIT-SPG	COST - WOR-BOS	COST - SPG-WOR	COST - PIT-SPG	TOTAL COST - PIT - BOS	SCC Item Description
10.00	GUIDEWAY & TRACK ELEMENTS (route miles)			0.1	55.3	15.5	\$27,938,977	\$814,661,692	\$129,700,448	\$972,301,117	
10.01	Guideway: At-grade exclusive right-of-way	mi	\$463,500	0.0	52.7	15.3	\$0	\$24,434,804	\$7,084,176	\$31,518,980	Length of proposed track - assume full guideway efforts
10.02	Guideway: At-grade semi-exclusive (allows cross-traffic)									\$0	
10.03	Guideway: At-grade in mixed traffic									\$0	
10.04	Guideway: Aerial structure	mi	\$369,811,200	0.1	1.7	0.2	\$24,511,549	\$642,266,800	\$80,546,000	\$747,324,349	current undergrade bridges (does not include track)
10.05	Guideway: Built-up fill									\$0	
10.06	Guideway: Underground cut & cover									\$0	
10.07	Guideway: Underground tunnel									\$0	
10.08	Guideway: Retained cut or fill				0.8					\$0	assume 50 ft of retained section appproching each end of the undergrade structures
10.09	Track: Direct fixation									\$0	
10.10	Track: Embedded									\$0	
10.11	Track: Ballasted	mi	\$2,678,000	0.0	55.3	15.5	\$0	\$147,960,088	\$41,514,072	\$189,474,160	single track (includes "other improvements")
10.11a	Track: Realigned	mi	\$130,522	26.3	0.0	4.3	\$3,427,428	\$0	\$556,200	\$3,983,628	Assumed realignment of tracks along curvature to increase allowable speed
10.12	Track: Special (switches, turnouts)									\$0	
10.13	Track: Vibration and noise dampening									\$0	
20.00	STATIONS, STOPS, TERMINALS, INTERMODAL (number)			0	3	1	\$0	\$15,965,000	\$12,360,000	\$28,325,000	
20.01	At-grade station, stop, shelter, mall, terminal, platform	ea	\$12,360,000	0	1	1	\$0	\$12,360,000	\$12,360,000	\$24,720,000	Palmer and Chester Stations
20.01a	At-grade station improvements to an existing station	ea	\$1,545,000	0	1	0	\$0	\$1,545,000	\$0	\$1,545,000	Upgrade to Worcester
20.02	Aerial station, stop, shelter, mall, terminal, platform									\$0	
20.02a	Aerial station improvements to an existing station	ea	\$2,060,000	0	1	0	\$0	\$2,060,000	\$0	\$2,060,000	Upgrade to Springfield
20.03	Underground station, stop, shelter, mall, terminal, platform									\$0	
20.04	Other stations, landings, terminals: Intermodal, ferry, trolley, etc.									\$0	
20.05	Joint development									\$0	
20.06	Automobile parking multi-story structure									\$0	
20.07	Elevators, escalators									\$0	
30.00	SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS			0.1	55.3	15.5	\$5,150,000	\$13,390,000	\$13,390,000	\$31,930,000	
30.01	Administration Building: Office, sales, storage, revenue counting									\$0	
30.02	Light Maintenance Facility									\$0	
30.03	Heavy Maintenance Facility									\$0	
30.04	Storage or Maintenance of Way Building	ea	\$13,390,000	0	1	1	\$0	\$13,390,000	\$13,390,000	\$26,780,000	Proposed Layover Facility - Springfield and Pittsfield
30.05	Yard and Yard Track	Track	\$2,575,000	2	0	0	\$5,150,000	\$0	\$0	\$5,150,000	Proposed Layover Facility Mod - Boston - Assume 2 tracks on an existing yard
40.00	SITWORK & SPECIAL CONDITIONS			0.1	55.3	15.5	\$0	\$891,271,738	\$167,760,402	\$1,059,032,140	
40.01	Demolition, Clearing, Earthwork	cy	\$49		3,150,000			\$155,736,000		\$155,736,000	
40.02	Site Utilities, Utility Relocation	mi	\$8,157,600	0.0	55.3	15.5	\$0	\$450,709,192	\$126,458,250	\$577,167,442	Assume \$1500/ft (Urban)
40.03	Haz. mat'l, contam'd soil removal/mitigation, ground water treatments									\$0	
40.04	Environmental mitigation, e.g. wetlands, historic/archeologic, parks	SF	\$14	0	363,943	814	\$0	\$5,146,843	\$11,512	\$5,158,354	Wetlands only. Does not include impacts to open water, Article 97 Lands, flood hazard areas, NHESP habitat, or ACEC areas.
40.05	Site structures including retaining walls, sound walls	SF	\$33	0	729,303	204,625	\$0	\$24,037,824	\$6,744,440	\$30,782,264	Assume 25% of total length of proposed track - assume 10ft height
40.06	Pedestrian / bike access and accommodation, landscaping									\$0	
40.07	Automobile, bus, van accessways including roads, parking lots	SF	\$2,879	0	88,800	12,000	\$0	\$255,641,880	\$34,546,200	\$290,188,080	Overhead roadway bridge, SF of superstructure to include substructure elements (Abutment, foundations, piers, and wing walls)
40.08	Temporary Facilities and other indirect costs during construction									\$0	
50.00	SYSTEMS			0.1	55.3	15.5	\$175,100	\$79,302,445	\$12,150,313	\$91,627,858	
50.01	Train control and signals	ea	\$1,236,000		23			\$28,428,000		\$28,428,000	# of CPs
50.02	Traction signals and crossing protection	ea	\$247,200		30			\$7,416,000		\$7,416,000	# of at-grade crossings
50.03	Traction power supply: substations									\$0	
50.04	Traction power distribution: catenary and third rail									\$0	
50.05	Communications	mi	\$772,500	0.0	55.3	15.5	\$0	\$42,680,795	\$11,975,213	\$54,656,008	
50.06	Fare collection system and equipment	ea	\$87,550	2	3	2	\$175,100	\$262,650	\$175,100	\$612,850	1 for each rail station
50.07	Central Control	ea	\$515,000		1			\$515,000		\$515,000	Separate track, new Central Control needed
10-50.SUB	Construction Subtotal (10-50)			0.1	55.3	15.5	\$33,264,077	\$1,814,590,875	\$335,361,163	\$2,183,216,115	
10-50.CNT	Construction Contingency (10 - 50) 35%		35%				\$11,642,427	\$635,106,806	\$117,376,407	\$764,125,640	
10-50.TOT	Construction Total						\$44,906,503	\$2,449,697,681	\$452,737,570	\$2,947,341,755	
60.00	ROW, LAND, EXISTING IMPROVEMENTS			0.1	55.3	15.5	\$0	\$37,237,679	\$4,406,856	\$41,644,535	
60.01	Purchase or lease of real estate	sf	\$2.27	0	13,951,403	1,944,773	\$0	\$31,613,879	\$4,406,856	\$36,020,735	Regardless of ownership, square footage was calculated based on area that would be permanently impacted by improvements (i.e., assumes only partial acquisitions)
60.02	Relocation of existing households and businesses	ea	\$61,800	0	91	0	\$0	\$5,623,800	\$0	\$5,623,800	Count of primary buildings/structures that would be permanently impacted by improvements
70.00	VEHICLES (number)				33			\$155,736,000		\$155,736,000	
70.01	Light Rail									\$0	
70.02	Heavy Rail									\$0	
70.03	Commuter Rail (Single-Level Coaches)	ea	\$4,120,000		27			\$111,240,000		\$111,240,000	
70.04	Bus									\$0	
70.05	Other (Locomotives)	ea	\$7,416,000		6			\$44,496,000		\$44,496,000	
70.06	Non-revenue vehicles									\$0	
70.07	Spare parts									\$0	
80.00	PROFESSIONAL SERVICES (applies to Cats. 10-50)		30%	0.1	55.3	15.5	\$13,471,951	\$734,909,304	\$135,821,271	\$884,202,526	
80.01	Project Development									\$0	
80.02	Engineering									\$0	
80.03	Project Management for Design and Construction									\$0	
80.04	Construction Administration & Management									\$0	
80.05	Professional Liability and other Non-Construction Insurance									\$0	
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.									\$0	
80.07	Surveys, Testing, Investigation, Inspection									\$0	
80.08	Start up									\$0	
10-80.SUB	Subtotal (10 - 80)			0.1	55.3	15.5	\$58,378,454	\$3,377,580,665	\$592,965,697	\$4,028,924,816	
90.00	UNALLOCATED CONTINGENCY		10%				\$5,837,845	\$337,758,066	\$59,296,570	\$402,892,482	
10-90.SUB	Subtotal (10 - 90)			0.1	55.3	15.5	\$64,216,300	\$3,715,338,731	\$652,262,267	\$4,431,817,298	
100.00	FINANCE CHARGES									\$0	
10-100.TOT	Total Project Cost (10 - 100)			0.1	55.3	15.5	\$64,216,300	\$3,715,338,731	\$652,262,267	\$4,431,817,298	

SCC Code	SCC Item Name	Unit	Unit Cost (\$2020)	QUANTITY - WOR-BOS	QUANTITY - SPG-WOR	QUANTITY - PIT-SPG	COST - WOR-BOS	COST - SPG-WOR	COST - PIT-SPG	TOTAL COST - PIT - BOS	SCC Item Description
10.00	GUIDEWAY & TRACK ELEMENTS (route miles)	mi		0.1	52.1	0.0	\$27,938,977	\$1,284,276,192	\$0	\$1,312,215,168	
10.01	Guideway: At-grade exclusive right-of-way	mi	\$463,500	0.0	49.1	0.0	\$0	\$22,737,555	\$0	\$22,737,555	Length of proposed track - assume full guideway efforts
10.02	Guideway: At-grade semi-exclusive (allows cross-traffic)									\$0	
10.03	Guideway: At-grade in mixed traffic									\$0	
10.04	Guideway: Aerial structure	mi	\$369,811,200	0.1	3.0	0.0	\$24,511,549	\$1,122,040,800	\$0	\$1,146,552,349	current undergrade bridges (does not include track)
10.05	Guideway: Built-up fill									\$0	
10.06	Guideway: Underground cut & cover									\$0	
10.07	Guideway: Underground tunnel									\$0	
10.08	Guideway: Retained cut or fill									\$0	
10.09	Track: Direct fixation									\$0	
10.10	Track: Embedded									\$0	
10.11	Track: Ballasted	mi	\$2,678,000	0.0	52.1	0.0	\$0	\$139,497,837	\$0	\$139,497,837	single track (includes "other improvements")
10.11a	Track: Realigned	mi	\$130,522	26.3	0.0	0.0	\$3,427,428	\$0	\$0	\$3,427,428	Assumed realignment of tracks along curvature to increase allowable speed
10.12	Track: Special (switches, turnouts)									\$0	
10.13	Track: Vibration and noise dampening									\$0	
20.00	STATIONS, STOPS, TERMINALS, INTERMODAL (number)			0	2	3	\$0	\$3,605,000	\$9,012,500	\$12,617,500	
20.01	At-grade station, stop, shelter, mall, terminal, platform									\$0	
20.01a	At-grade station improvements to an existing station	ea	\$1,545,000	0	1	0	\$0	\$1,545,000	\$0	\$1,545,000	Upgrade to Worcester
20.02	Aerial station, stop, shelter, mall, terminal, platform									\$0	
20.02a	Aerial station improvements to an existing station	ea	\$2,060,000	0	1	0	\$0	\$2,060,000	\$0	\$2,060,000	Upgrade to Springfield
20.03	Underground station, stop, shelter, mall, terminal, platform									\$0	
20.04	Other stations, landings, terminals: Intermodal, ferry, trolley, etc.	ea		0	0	3	\$0	\$0	\$9,012,500	\$9,012,500	\$8.5 M for Blandford, \$250k for Lee
20.05	Joint development									\$0	
20.06	Automobile parking multi-story structure									\$0	
20.07	Elevators, escalators					1				\$0	Pedestrian Bridge for Blandford Bus Station, Included within 20.04
30.00	SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS			0.1	52.1	0.0	\$5,150,000	\$13,390,000	\$0	\$18,540,000	
30.01	Administration Building: Office, sales, storage, revenue counting									\$0	
30.02	Light Maintenance Facility									\$0	
30.03	Heavy Maintenance Facility									\$0	
30.04	Storage or Maintenance of Way Building	ea	\$13,390,000	0	1	0	\$0	\$13,390,000	\$0	\$13,390,000	Proposed Layover Facility - Springfield
30.05	Yard and Yard Track	Track	\$2,575,000	2	0	0	\$5,150,000	\$0	\$0	\$5,150,000	Proposed Layover Facility Mod - Boston - Assume 2 tracks on an existing yard
40.00	SITWORK & SPECIAL CONDITIONS			0.1	52.1	0.0	\$0	\$1,140,416,345	\$0	\$1,140,416,345	
40.01	Demolition, Clearing, Earthwork	cy	\$49		8,700,000			\$430,128,000		\$430,128,000	
40.02	Site Utilities, Utility Relocation	mi	\$8,157,600	0.0	52.1	0.0	\$0	\$424,931,871	\$0	\$424,931,871	Assume \$1500/ft (Urban)
40.03	Haz. mat'l, contam'd soil removal/mitigation, ground water treatments									\$0	
40.04	Environmental mitigation, e.g. wetlands, historic/archeologic, parks	SF	\$14	0	498,629	0	\$0	\$7,051,561	\$0	\$7,051,561	Wetlands only. Does not include impacts to open water, Article 97 Lands, flood hazard areas, NHESP habitat, or ACEC areas.
40.05	Site structures including retaining walls, sound walls	SF	\$33	0	687,592	0	\$0	\$22,663,033	\$0	\$22,663,033	Assume 25% of total length of proposed track - assume 10ft height
40.06	Pedestrian / bike access and accommodation, landscaping									\$0	
40.07	Automobile, bus, van accessways including roads, parking lots	SF	\$2,879	0	88,800	0	\$0	\$255,641,880	\$0	\$255,641,880	Overhead roadway bridge, SF of superstructure to include substructure elements (Abutment, foundations, piers, and wing walls)
40.08	Temporary Facilities and other indirect costs during construction									\$0	
50.00	SYSTEMS			0.1	52.1	0.0	\$175,100	\$78,257,061	\$0	\$78,432,161	
50.01	Train control and signals	ea	\$1,236,000		28			\$34,608,000		\$34,608,000	# of CPs
50.02	Traffic signals and crossing protection	ea	\$247,200		11			\$2,719,200		\$2,719,200	# of at-grade crossings
50.03	Traction power supply: substations									\$0	
50.04	Traction power distribution: catenary and third rail									\$0	
50.05	Communications	mi	\$772,500	0.0	52.1	0.0	\$0	\$40,239,761	\$0	\$40,239,761	
50.06	Fare collection system and equipment	ea	\$87,550	2	2	0	\$175,100	\$175,100	\$0	\$350,200	1 for each rail station
50.07	Central Control	ea	\$515,000		1			\$515,000		\$515,000	Separate track, new Central Control needed
10-50.SUB	Construction Subtotal (10-50)			0.1	52.1	0.0	\$33,264,077	\$2,519,944,598	\$9,012,500	\$2,562,221,174	
10-50.CNT	Construction Contingency (10 - 50) 35%		35%				\$11,642,427	\$881,980,609	\$3,154,375	\$896,777,411	
10-50.TOT	Construction Total						\$44,906,503	\$3,401,925,207	\$12,166,875	\$3,458,998,588	
60.00	ROW, LAND, EXISTING IMPROVEMENTS			0.1	52.1	0.0	\$0	\$37,538,150	\$0	\$37,538,150	
60.01	Purchase or lease of real estate	sf	\$2.27	0	13,756,730	0	\$0	\$31,172,750	\$0	\$31,172,750	Regardless of ownership, square footage was calculated based on area that would be permanently impacted by improvements (i.e., assumes only partial acquisitions)
60.02	Relocation of existing households and businesses	ea	\$61,800	0	103	0	\$0	\$6,365,400	\$0	\$6,365,400	Count of primary buildings/structures that would be permanently impacted by improvements
70.00	VEHICLES (number)				21			\$82,194,000		\$82,194,000	
70.01	Light Rail									\$0	
70.02	Heavy Rail									\$0	
70.03	Commuter Rail (Single-Level Coaches)	ea	\$4,120,000		14			\$57,680,000		\$57,680,000	
70.04	Bus	ea	\$566,500		4			\$2,266,000		\$2,266,000	
70.05	Other (Locomotives)	ea	\$7,416,000		3			\$22,248,000		\$22,248,000	
70.06	Non-revenue vehicles									\$0	
70.07	Spare parts									\$0	
80.00	PROFESSIONAL SERVICES (applies to Cats. 10-50)		30%	0.1	52.1	0.0	\$13,471,951	\$1,020,577,562	\$3,650,063	\$1,037,699,576	
80.01	Project Development									\$0	
80.02	Engineering									\$0	
80.03	Project Management for Design and Construction									\$0	
80.04	Construction Administration & Management									\$0	
80.05	Professional Liability and other Non-Construction Insurance									\$0	
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.									\$0	
80.07	Surveys, Testing, Investigation, Inspection									\$0	
80.08	Start up									\$0	
10-80.SUB	Subtotal (10 - 80)			0.1	52.1	0.0	\$58,378,454	\$4,542,234,919	\$15,816,938	\$4,616,430,311	
90.00	UNALLOCATED CONTINGENCY		10%				\$5,837,845	\$454,223,492	\$1,581,694	\$461,643,031	
10-90.SUB	Subtotal (10 - 90)			0.1	52.1	0.0	\$64,216,300	\$4,996,458,411	\$17,398,631	\$5,078,073,342	
100.00	FINANCE CHARGES									\$0	
10-100.TOT	Total Project Cost (10 - 100)			0.1	52.1	0.0	\$64,216,300	\$4,996,458,411	\$17,398,631	\$5,078,073,342	

SCC Code	SCC Item Name	Unit	Unit Cost (\$2020)	QUANTITY - WOR-BOS	QUANTITY - SPG-WOR	QUANTITY - PIT-SPG	COST - WOR-BOS	COST - SPG-WOR	COST - PIT-SPG	TOTAL COST - PIT - BOS	SCC Item Description
10.00	GUIDEWAY & TRACK ELEMENTS (route miles)	mi		35.0	46.2	52.1	\$2,938,250,260	\$2,856,998,101	\$2,979,022,513	\$8,774,270,875	
10.01	Guideway: At-grade exclusive right-of-way	mi	\$463,500	27.6	39.2	44.9	\$12,813,141	\$18,158,139	\$20,802,898	\$51,774,179	Length of proposed track - assume full guideway efforts
10.02	Guideway: At-grade semi-exclusive (allows cross-traffic)									\$0	
10.03	Guideway: At-grade in mixed traffic									\$0	
10.04	Guideway: Aerial structure	mi	\$369,811,200	7.4	7.0	7.2	\$2,737,723,520	\$2,591,480,000	\$2,679,030,000	\$8,008,233,520	current aerial structure (16,500) + potential aerial structure (97,838)
10.05	Guideway: Built-up fill									\$0	
10.06	Guideway: Underground cut & cover									\$0	
10.07	Guideway: Underground tunnel									\$0	
10.08	Guideway: Retained cut or fill									\$0	
10.09	Track: Direct fixation									\$0	
10.10	Track: Embedded									\$0	
10.11	Track: Ballasted	mi	\$2,678,000	70.1	92.4	104.3	\$187,713,598	\$247,359,962	\$279,189,615	\$714,263,176	single track for the entire alignment (does not include "other improvements" section near South Station) x2
10.11a	Track: Realigned									\$0	Assumed realignment of tracks along curvature to increase allowable speed
10.12	Track: Special (switches, turnouts)									\$0	
10.13	Track: Vibration and noise dampening									\$0	
20.00	STATIONS, STOPS, TERMINALS, INTERMODAL (number)			1	3	3	\$1,854,000	\$16,274,000	\$51,294,000	\$69,422,000	
20.01	At-grade station, stop, shelter, mall, terminal, platform	ea	\$24,720,000	0	1	2	\$0	\$12,360,000	\$49,440,000	\$61,800,000	\$12 M for Palmer, \$24 M each for Blandford and Lee Stations
20.01a	At-grade station improvements to an existing station	ea	\$1,854,000	1	1	1	\$1,854,000	\$1,854,000	\$1,854,000	\$5,562,000	Upgrades to Back Bay, Worcester, and Pittsfield
20.02	Aerial station, stop, shelter, mall, terminal, platform									\$0	
20.02a	Aerial station improvements to an existing station	ea	\$2,060,000	0	1	0	\$0	\$2,060,000	\$0	\$2,060,000	Upgrade to Springfield
20.03	Underground station, stop, shelter, mall, terminal, platform									\$0	
20.04	Other stations, landings, terminals: Intermodal, ferry, trolley, etc.									\$0	
20.05	Joint development									\$0	
20.06	Automobile parking multi-story structure									\$0	
20.07	Elevators, escalators									\$0	
30.00	SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS			35.0	46.2	52.1	\$5,150,000	\$13,390,000	\$13,390,000	\$31,930,000	
30.01	Administration Building: Office, sales, storage, revenue counting									\$0	
30.02	Light Maintenance Facility									\$0	
30.03	Heavy Maintenance Facility									\$0	
30.04	Storage or Maintenance of Way Building	ea	\$13,390,000	0	1	1	\$0	\$13,390,000	\$13,390,000	\$26,780,000	Proposed Layover Facility - Springfield and Pittsfield
30.05	Yard and Yard Track	Track	\$2,575,000	2	0	0	\$5,150,000	\$0	\$0	\$5,150,000	Proposed Layover Facility Mod - Boston - Assume 2 tracks on an existing yard
40.00	SITWORK & SPECIAL CONDITIONS			35.0	46.2	52.1	\$393,531,254	\$2,731,081,651	\$480,166,986	\$3,604,779,891	
40.01	Demolition, Clearing, Earthwork	cy	\$49		46,600,000			\$2,303,904,000		\$2,303,904,000	Calculated by Civil 3D corridor model. Approx. 7M cy, 8M cy, 15M cy of total cut by segment of which 5%, 10%, 30% assumed rock cut in segments 1, 2, 3 respectively. 16M cy total fill.
40.02	Site Utilities, Utility Relocation	mi	\$8,157,600	35.0	46.2	52.1	\$285,902,250	\$376,748,250	\$425,227,260	\$1,087,877,760	Assume \$1500/ft (Urban)
40.03	Haz. mat'l, contam'd soil removal/mitigation, ground water treatments									\$0	
40.04	Environmental mitigation, e.g. wetlands, historic/archeologic, parks	SF	\$14	669,642	190,866	1,304,100	\$9,470,004	\$2,699,201	\$18,442,458	\$30,611,664	Wetlands only. Does not include impacts to open water, Article 97 Lands, flood hazard areas, NHESP habitat, or ACEC areas.
40.05	Site structures including retaining walls, sound walls	SF	\$33	462,625	609,625	688,070	\$15,248,120	\$20,093,240	\$22,678,787	\$58,020,147	Assume 25% of total length of proposed track - assume 10ft height
40.06	Pedestrian / bike access and accommodation, landscaping									\$0	
40.07	Automobile, bus, van accessways including roads, parking lots	SF	\$2,879	28,800	9,600	4,800	\$82,910,880	\$27,636,960	\$13,818,480	\$124,366,320	Overhead roadway bridge, SF of superstructure to include substructure elements (Abutment, foundations, piers, and wing walls)
40.08	Temporary Facilities and other indirect costs during construction									\$0	
50.00	SYSTEMS			35.0	46.2	52.1	\$110,384,415	\$168,596,956	\$166,479,780	\$445,461,150	
50.01	Train control and signals	ea	\$1,236,000		15			\$18,540,000		\$18,540,000	# of CPs
50.02	Traffic signals and crossing protection	ea	\$247,200		4			\$988,800		\$988,800	# of at-grade crossings
50.03	Traction power supply: substations	ea	\$412,000	6	8	9	\$2,543,918	\$3,445,948	\$3,854,021	\$9,843,887	assume 6 mile spacing for the length of electrified track
50.04	Traction power distribution: catenary and third rail	mi	\$2,175,360	37.0	50.2	56.1	\$80,591,320	\$109,167,640	\$122,095,376	\$311,854,336	catenary for double track - assume length of track construction, plus 10 miles to electrify the remaining distance to South Station
50.05	Communications	mi	\$772,500	35.0	46.2	52.1	\$27,074,077	\$35,676,918	\$40,267,733	\$103,018,727	
50.06	Fare collection system and equipment	ea	\$87,550	2	3	3	\$175,100	\$262,650	\$262,650	\$700,400	1 for each rail station
50.07	Central Control	ea	\$515,000		1			\$515,000		\$515,000	All new track requires Central Control
10-50.SUB	Construction Subtotal (10-50)			35.0	46.2	52.1	\$3,449,169,929	\$5,786,340,709	\$3,690,353,279	\$12,925,863,916	
10-50.CNT	Construction Contingency (10 - 50) 35%		35%				\$1,207,209,475	\$2,025,219,248	\$1,291,623,648	\$4,524,052,371	
10-50.TOT	Construction Total						\$4,656,379,404	\$7,811,559,957	\$4,981,976,926	\$17,449,916,286	
60.00	ROW, LAND, EXISTING IMPROVEMENTS			35.0	46.2	52.1				\$101,402,434	
60.01	Purchase or lease of real estate	sf	\$1.55	14,290,883	20,759,535	22,342,225	\$22,079,413	\$32,073,482	\$34,518,738	\$88,671,634	Regardless of ownership, square footage was calculated based on area that would be permanently impacted by improvements (i.e., assumes only partial acquisitions)
60.02	Relocation of existing households and businesses	ea	\$61,800	37	103	66	\$2,286,600	\$6,365,400	\$4,078,800	\$12,730,800	Count of primary buildings/structures that would be permanently impacted by improvements
70.00	VEHICLES (number)				8			\$370,800,000		\$370,800,000	
70.01	Light Rail									\$0	
70.02	Heavy Rail									\$0	
70.03	Commuter Rail (Electric Trainsets)	ea	\$46,350,000		8			\$370,800,000		\$370,800,000	
70.04	Bus									\$0	
70.05	Other									\$0	
70.06	Non-revenue vehicles									\$0	
70.07	Spare parts									\$0	
80.00	PROFESSIONAL SERVICES (applies to Cats. 10-50)		30%	35.0	46.2	52.1	\$1,396,913,821	\$2,343,467,987	\$1,494,593,078	\$5,234,974,886	
80.01	Project Development									\$0	
80.02	Engineering									\$0	
80.03	Project Management for Design and Construction									\$0	
80.04	Construction Administration & Management									\$0	
80.05	Professional Liability and other Non-Construction Insurance									\$0	
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.									\$0	
80.07	Surveys, Testing, Investigation, Inspection									\$0	
80.08	Start up									\$0	
10-80.SUB	Subtotal (10 - 80)			35.0	46.2	52.1	\$6,077,659,238	\$10,564,266,826	\$6,515,167,542	\$23,157,093,606	
90.00	UNALLOCATED CONTINGENCY		10%				\$607,765,924	\$1,056,426,683	\$651,516,754	\$2,315,709,361	
10-90.SUB	Subtotal (10 - 90)			35.0	46.2	52.1	\$6,685,425,162	\$11,620,693,508	\$7,166,684,296	\$25,472,802,967	
100.00	FINANCE CHARGES									\$0	
10-100.TOT	Total Project Cost (10 - 100)			35.0	46.2	52.1	\$6,685,425,162	\$11,620,693,508	\$7,166,684,296	\$25,472,802,967	

SCC Code	SCC Item Name	Unit	Unit Cost (\$2020)	QUANTITY - WOR-BOS	QUANTITY - SPG-WOR	QUANTITY - PIT-SPG	COST - WOR-BOS	COST - SPG-WOR	COST - PIT-SPG	TOTAL COST - PIT - BOS	SCC Item Description
10.00	GUIDEWAY & TRACK ELEMENTS (route miles)	mi		0.1	35.7	15.5	\$27,938,977	\$485,419,217	\$129,700,448	\$643,058,642	
10.01	Guideway: At-grade exclusive right-of-way	mi	\$463,500	0.0	34.6	15.3	\$0	\$16,060,099	\$7,084,176	\$23,144,276	Length of proposed track - assume full guideway efforts
10.02	Guideway: At-grade semi-exclusive (allows cross-traffic)									\$0	
10.03	Guideway: At-grade in mixed traffic									\$0	
10.04	Guideway: Aerial structure	mi	\$369,811,200	0.1	1.0	0.2	\$24,511,549	\$371,212,000	\$80,546,000	\$476,269,549	current undergrade bridges (does not include track)
10.05	Guideway: Built-up fill									\$0	
10.06	Guideway: Underground cut & cover									\$0	
10.07	Guideway: Underground tunnel									\$0	
10.08	Guideway: Retained cut or fill									\$0	
10.09	Track: Direct fixation									\$0	
10.10	Track: Embedded									\$0	
10.11	Track: Ballasted	mi	\$2,678,000	0.0	35.7	15.5	\$0	\$95,479,830	\$41,514,072	\$136,993,902	single track (includes "other improvements")
10.11a	Track: Realigned	mi	\$130,522	26.3	20.4	4.3	\$3,427,428	\$2,667,288	\$556,200	\$6,650,916	Assumed realignment of tracks along curvature to increase allowable speed
10.12	Track: Special (switches, turnouts)									\$0	
10.13	Track: Vibration and noise dampening									\$0	
20.00	STATIONS, STOPS, TERMINALS, INTERMODAL (number)			0	1	1	\$0	\$12,360,000	\$12,360,000	\$24,720,000	
20.01	At-grade station, stop, shelter, mall, terminal, platform	ea	\$12,360,000	0	1	1	\$0	\$12,360,000	\$12,360,000	\$24,720,000	Palmer and Chester Stations
20.01a	At-grade station improvements to an existing station	ea		0	0	0	\$0	\$0	\$0	\$0	
20.02	Aerial station, stop, shelter, mall, terminal, platform	ea		0	0	0	\$0	\$0	\$0	\$0	
20.02a	Aerial station improvements to an existing station	ea		0	0	0	\$0	\$0	\$0	\$0	
20.03	Underground station, stop, shelter, mall, terminal, platform									\$0	
20.04	Other stations, landings, terminals: Intermodal, ferry, trolley, etc.	ea		0	0	0	\$0	\$0	\$0	\$0	
20.05	Joint development									\$0	
20.06	Automobile parking multi-story structure									\$0	
20.07	Elevators, escalators									\$0	
30.00	SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS			0.1	35.7	15.5	\$5,150,000	\$13,390,000	\$13,390,000	\$31,930,000	
30.01	Administration Building: Office, sales, storage, revenue counting									\$0	
30.02	Light Maintenance Facility									\$0	
30.03	Heavy Maintenance Facility									\$0	
30.04	Storage or Maintenance of Way Building	ea	\$13,390,000	0	1	1	\$0	\$13,390,000	\$13,390,000	\$26,780,000	Proposed Layover Facility - Springfield and Pittsfield
30.05	Yard and Yard Track	Track	\$2,575,000	2	0	0	\$5,150,000	\$0	\$0	\$5,150,000	Proposed Layover Facility Mod - Boston - Assume 2 tracks on an existing yard
40.00	SITWORK & SPECIAL CONDITIONS			0.1	35.7	15.5	\$0	\$333,603,694	\$116,095,859	\$449,699,553	
40.01	Demolition, Clearing, Earthwork									\$0	
40.02	Site Utilities, Utility Relocation	mi		0.0	35.7	15.5				\$0	Assume \$1500/ft (Urban) and \$400/ft (Rural)
40.02a	Utility Relocation: Existing RR ROW, Rural	mi	\$2,175,360	0.0	19.4	9.0	\$0	\$42,200,748	\$19,553,520	\$61,754,268	
40.02b	Utility Relocation: Existing RR ROW, Urban	mi	\$8,157,600	0.0	16.3	6.5	\$0	\$132,593,445	\$53,132,550	\$185,725,995	
40.03	Haz. mat'l, contam'd soil removal/mitigation, ground water treatments									\$0	
40.04	Environmental mitigation, e.g. wetlands, historic/archeologic, parks	SF	\$14	0	18,771	814	\$0	\$265,464	\$11,512	\$276,975	Wetlands only. Does not include impacts to open water, Article 97 Lands, flood hazard areas, NHESP habitat, or ACEC areas.
40.05	Site structures including retaining walls, sound walls	SF	\$43	0	470,625	204,625	\$0	\$20,359,237.50	\$8,852,078	\$29,211,315	\$43/SF cost for WOR to SPR only, \$33/SF used for SPR to PIT
40.06	Pedestrian / bike access and accommodation, landscaping									\$0	
40.07	Automobile, bus, van accessways including roads, parking lots	SF	\$2,879	0	48,000	12,000	\$0	\$138,184,800	\$34,546,200	\$172,731,000	Overhead roadway bridge, SF of superstructure to include substructure elements (Abutment, foundations, piers, and wing walls)
40.08	Temporary Facilities and other indirect costs during construction									\$0	
50.00	SYSTEMS			0.1	35.7	15.5	\$175,100	\$63,648,909	\$12,150,313	\$75,974,322	
50.01	Train control and signals	ea	\$1,236,000		23			\$28,428,000		\$28,428,000	# of CPs
50.02	Traffic signals and crossing protection	ea	\$247,200		30			\$7,416,000		\$7,416,000	# of at-grade crossings
50.03	Traction power supply: substations									\$0	
50.04	Traction power distribution: catenary and third rail									\$0	
50.05	Communications	mi	\$772,500	0.0	35.7	15.5	\$0	\$27,542,259	\$11,975,213	\$39,517,472	
50.06	Fare collection system and equipment	ea	\$87,550	2	3	2	\$175,100	\$262,650	\$175,100	\$612,850	1 for each rail station
50.07	Central Control									\$0	CSX dispatches west of Worcester
10-50.SUB	Construction Subtotal (10-50)			0.1	35.7	15.5	\$33,264,077	\$908,421,820	\$283,696,621	\$1,225,382,517	
10-50.CNT	Construction Contingency (10 - 50) 35%		35%				\$11,642,427	\$317,947,637	\$99,293,817	\$428,883,881	
10-50.TOT	Construction Total						\$44,906,503	\$1,226,369,456	\$382,990,438	\$1,654,266,398	
60.00	ROW, LAND, EXISTING IMPROVEMENTS			0.1	35.7	15.5	\$0	\$12,197,731	\$4,406,856	\$16,604,587	
60.01	Purchase or lease of real estate	sf	\$2.27	0	5,382,935	1,944,773	\$0	\$12,197,731	\$4,406,856	\$16,604,587	Regardless of ownership, square footage was calculated based on area that would be permanently impacted by improvements (i.e., assumes only partial acquisitions)
60.02	Relocation of existing households and businesses									\$0	
70.00	VEHICLES (number)				28			\$131,840,000		\$131,840,000	
70.01	Light Rail									\$0	
70.02	Heavy Rail									\$0	
70.03	Commuter Rail (Bi-Level Coaches)	ea	\$4,120,000		23			\$94,760,000		\$94,760,000	
70.04	Bus									\$0	
70.05	Other (Locomotives)	ea	\$7,416,000		5			\$37,080,000		\$37,080,000	
70.06	Non-revenue vehicles									\$0	
70.07	Spare parts									\$0	
80.00	PROFESSIONAL SERVICES (applies to Cats. 10-50)		30%	0.1	35.7	15.5	\$13,471,951	\$367,910,837	\$114,897,131	\$496,279,919	
80.01	Project Development									\$0	
80.02	Engineering									\$0	
80.03	Project Management for Design and Construction									\$0	
80.04	Construction Administration & Management									\$0	
80.05	Professional Liability and other Non-Construction Insurance									\$0	
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.									\$0	
80.07	Surveys, Testing, Investigation, Inspection									\$0	
80.08	Start up									\$0	
10-80.SUB	Subtotal (10 - 80)			0.1	35.7	15.5	\$58,378,454	\$1,738,318,024	\$502,294,425	\$2,298,990,903	
90.00	UNALLOCATED CONTINGENCY		5%				\$2,918,923	\$86,915,901	\$25,114,721	\$114,949,545	
10-90.SUB	Subtotal (10 - 90)			0.1	35.7	15.5	\$61,297,377	\$1,825,233,925	\$527,409,146	\$2,413,940,449	
100.00	FINANCE CHARGES									\$0	
10-100.TOT	Total Project Cost (10 - 100)			0.1	35.7	15.5	\$61,297,377	\$1,825,233,925	\$527,409,146	\$2,413,940,449	

SCC Code	SCC Item Name	Unit	Unit Cost (\$2020)	QUANTITY - WOR-BOS	QUANTITY - SPG-WOR	QUANTITY - PIT-SPG	COST - WOR-BOS	COST - SPG-WOR	COST - PIT-SPG	TOTAL COST - PIT - BOS	SCC Item Description
10.00	GUIDEWAY & TRACK ELEMENTS (route miles)			0.1	55.3	15.5	\$27,938,977	\$814,661,692	\$129,700,448	\$972,301,117	
10.01	Guideway: At-grade exclusive right-of-way	mi	\$463,500	0.0	52.7	15.3	\$0	\$24,434,804	\$7,084,176	\$31,518,980	Length of proposed track - assume full guideway efforts
10.02	Guideway: At-grade semi-exclusive (allows cross-traffic)									\$0	
10.03	Guideway: At-grade in mixed traffic									\$0	
10.04	Guideway: Aerial structure	mi	\$369,811,200	0.1	1.7	0.2	\$24,511,549	\$642,266,800	\$80,546,000	\$747,324,349	current undergrade bridges (does not include track)
10.05	Guideway: Built-up fill									\$0	
10.06	Guideway: Underground cut & cover									\$0	
10.07	Guideway: Underground tunnel									\$0	
10.08	Guideway: Retained cut or fill				0.8					\$0	assume 50 ft of retained section appraising each end of the undergrade structures
10.09	Track: Direct fixation									\$0	
10.10	Track: Embedded									\$0	
10.11	Track: Ballasted	mi	\$2,678,000	0.0	55.3	15.5	\$0	\$147,960,088	\$41,514,072	\$189,474,160	single track (includes "other improvements")
10.11a	Track: Realigned	mi	\$130,522	26.3	0.0	4.3	\$3,427,428	\$0	\$556,200	\$3,983,628	Assumed realignment of tracks along curvature to increase allowable speed
10.12	Track: Special (switches, turnouts)									\$0	
10.13	Track: Vibration and noise dampening									\$0	
20.00	STATIONS, STOPS, TERMINALS, INTERMODAL (number)			0	3	1	\$0	\$15,965,000	\$12,360,000	\$28,325,000	
20.01	At-grade station, stop, shelter, mall, terminal, platform	ea	\$12,360,000	0	1	1	\$0	\$12,360,000	\$12,360,000	\$24,720,000	Palmer and Chester Stations
20.01a	At-grade station improvements to an existing station	ea	\$1,545,000	0	1	0	\$0	\$1,545,000	\$0	\$1,545,000	Upgrade to Worcester
20.02	Aerial station, stop, shelter, mall, terminal, platform	ea	\$0	0	0	0	\$0	\$0	\$0	\$0	
20.02a	Aerial station improvements to an existing station	ea	\$2,060,000	0	1	0	\$0	\$2,060,000	\$0	\$2,060,000	Upgrade to Springfield
20.03	Underground station, stop, shelter, mall, terminal, platform									\$0	
20.04	Other stations, landings, terminals: Intermodal, ferry, trolley, etc.	ea	\$0	0	0	0	\$0	\$0	\$0	\$0	
20.05	Joint development									\$0	
20.06	Automobile parking multi-story structure									\$0	
20.07	Elevators, escalators									\$0	
30.00	SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS			0.1	55.3	15.5	\$5,150,000	\$13,390,000	\$13,390,000	\$31,930,000	
30.01	Administration Building: Office, sales, storage, revenue counting									\$0	
30.02	Light Maintenance Facility									\$0	
30.03	Heavy Maintenance Facility									\$0	
30.04	Storage or Maintenance of Way Building	ea	\$13,390,000	0	1	1	\$0	\$13,390,000	\$13,390,000	\$26,780,000	Proposed Layover Facility - Springfield and Pittsfield
30.05	Yard and Yard Track	Track	\$2,575,000	2	0	0	\$5,150,000	\$0	\$0	\$5,150,000	Proposed Layover Facility Mod - Boston - Assume 2 tracks on an existing yard
40.00	SITWORK & SPECIAL CONDITIONS			0.1	55.3	15.5	\$0	\$741,891,172	\$116,095,859	\$857,987,031	
40.01	Demolition, Clearing, Earthwork	cy	\$49		3,150,000			\$155,736,000		\$155,736,000	
40.02	Site Utilities, Utility Relocation	mi		0.0	55.3	15.5				\$0	Assume \$1500/ft (Urban) and \$400/ft (Rural)
40.02a	Utility Relocation: Existing RR ROW, Rural	mi	\$2,175,360	0.0	25.0	9.0	\$0	\$54,320,206	\$19,553,520	\$73,873,726	
40.02b	Utility Relocation: Existing RR ROW, Urban	mi	\$8,157,600	0.0	30.3	6.5	\$0	\$247,008,420	\$53,132,550	\$300,140,970	
40.03	Haz. mat'l, contam'd soil removal/mitigation, ground water treatments									\$0	
40.04	Environmental mitigation, e.g. wetlands, historic/archeologic, parks	SF	\$14	0	363,943	814	\$0	\$5,146,843	\$11,512	\$5,158,354	Wetlands only. Does not include impacts to open water, Article 97 Lands, flood hazard areas, NHESP habitat, or ACEC areas.
40.05	Site structures including retaining walls, sound walls	SF	\$33	0	729,303	204,625	\$0	\$24,037,824	\$8,852,078	\$32,889,901	\$33/SF cost for WOR to SPR only, \$43/SF used for SPR to PIT
40.06	Pedestrian / bike access and accommodation, landscaping									\$0	
40.07	Automobile, bus, van accessways including roads, parking lots	SF	\$2,879	0	88,800	12,000	\$0	\$255,641,880	\$34,546,200	\$290,188,080	Overhead roadway bridge, SF of superstructure to include substructure elements (Abutment, foundations, piers, and wing walls)
40.08	Temporary Facilities and other indirect costs during construction									\$0	
50.00	SYSTEMS			0.1	55.3	15.5	\$175,100	\$79,302,445	\$12,150,313	\$91,627,858	
50.01	Train control and signals	ea	\$1,236,000		23			\$28,428,000		\$28,428,000	# of CPs
50.02	Traffic signals and crossing protection	ea	\$247,200		30			\$7,416,000		\$7,416,000	# of at-grade crossings
50.03	Traction power supply: substations									\$0	
50.04	Traction power distribution: catenary and third rail									\$0	
50.05	Communications	mi	\$772,500	0.0	55.3	15.5	\$0	\$42,680,795	\$11,975,213	\$54,656,008	
50.06	Fare collection system and equipment	ea	\$87,550	2	3	2	\$175,100	\$262,650	\$175,100	\$612,850	1 for each rail station
50.07	Central Control	ea	\$515,000		1			\$515,000		\$515,000	Separate track, new Central Control needed
10-50.SUB	Construction Subtotal (10-50)			0.1	55.3	15.5	\$33,264,077	\$1,665,210,309	\$283,696,621	\$1,982,171,006	
10-50.CNT	Construction Contingency (10 - 50) 35%		35%				\$11,642,427	\$582,823,608	\$99,293,817	\$693,759,852	
10-50.TOT	Construction Total						\$44,906,503	\$2,248,033,917	\$382,990,438	\$2,675,930,858	
60.00	ROW, LAND, EXISTING IMPROVEMENTS			0.1	55.3	15.5	\$0	\$37,237,626	\$4,406,856	\$41,644,482	
60.01	Purchase or lease of real estate	sf	\$2.27	0	13,951,380	1,944,773	\$0	\$31,613,826	\$4,406,856	\$36,020,682	Regardless of ownership, square footage was calculated based on area that would be permanently impacted by improvements (i.e., assumes only partial acquisitions)
60.02	Relocation of existing households and businesses	ea	\$61,800	0	91	0	\$0	\$5,623,800	\$0	\$5,623,800	Count of primary buildings/structures that would be permanently impacted by improvements
70.00	VEHICLES (number)				33			\$155,736,000		\$155,736,000	
70.01	Light Rail									\$0	
70.02	Heavy Rail									\$0	
70.03	Commuter Rail (Bi-Level Coaches)	ea	\$4,120,000		27			\$111,240,000		\$111,240,000	
70.04	Bus									\$0	
70.05	Other (Locomotives)	ea	\$7,416,000		6			\$44,496,000		\$44,496,000	
70.06	Non-revenue vehicles									\$0	
70.07	Spare parts									\$0	
80.00	PROFESSIONAL SERVICES (applies to Cats. 10-50)		30%	0.1	55.3	15.5	\$13,471,951	\$674,410,175	\$114,897,131	\$802,779,257	
80.01	Project Development									\$0	
80.02	Engineering									\$0	
80.03	Project Management for Design and Construction									\$0	
80.04	Construction Administration & Management									\$0	
80.05	Professional Liability and other Non-Construction Insurance									\$0	
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.									\$0	
80.07	Surveys, Testing, Investigation, Inspection									\$0	
80.08	Start up									\$0	
10-80.SUB	Subtotal (10 - 80)			0.1	55.3	15.5	\$58,378,454	\$3,115,417,718	\$502,294,425	\$3,676,090,597	
90.00	UNALLOCATED CONTINGENCY		5%				\$2,918,923	\$155,770,886	\$25,114,721	\$183,804,530	
10-90.SUB	Subtotal (10 - 90)			0.1	55.3	15.5	\$61,297,377	\$3,271,188,604	\$527,409,146	\$3,859,895,127	
100.00	FINANCE CHARGES									\$0	
10-100.TOT	Total Project Cost (10 - 100)			0.1	55.3	15.5	\$61,297,377	\$3,271,188,604	\$527,409,146	\$3,859,895,127	

SCC Code	SCC Item Name	Unit	Unit Cost (\$2020)	QUANTITY - WOR-BOS	QUANTITY - SPG-WOR	QUANTITY - PIT-SPG	COST - WOR-BOS	COST - SPG-WOR	COST - PIT-SPG	TOTAL COST - PIT - BOS	SCC Item Description
10.00	GUIDEWAY & TRACK ELEMENTS (route miles)	mi		0.1	52.8	15.5	\$27,938,977	\$1,201,106,608	\$129,700,448	\$1,358,746,033	
10.01	Guideway: At-grade exclusive right-of-way	mi	\$463,500	0.0	50.0	15.3	\$0	\$23,161,481	\$7,084,176	\$30,245,657	Length of proposed track - assume full guideway efforts
10.02	Guideway: At-grade semi-exclusive (allows cross-traffic)									\$0	
10.03	Guideway: At-grade in mixed traffic									\$0	
10.04	Guideway: Aerial structure	mi	\$369,811,200	0.1	2.8	0.2	\$24,511,549	\$1,036,592,000	\$80,546,000	\$1,141,649,549	current undergrade bridges (does not include track)
10.05	Guideway: Built-up fill									\$0	
10.06	Guideway: Underground cut & cover									\$0	
10.07	Guideway: Underground tunnel									\$0	
10.08	Guideway: Retained cut or fill									\$0	assume 50 ft of retained section appproching each end of the undergrade structures
10.09	Track: Direct fixation									\$0	
10.10	Track: Embedded									\$0	
10.11	Track: Ballasted	mi	\$2,678,000	0.0	52.8	15.5	\$0	\$141,328,407	\$41,514,072	\$182,842,479	single track (includes "other improvements")
10.11a	Track: Realigned	mi	\$130,522	26.3	0.2	4.3	\$3,427,428	\$24,720	\$556,200	\$4,008,348	Assumed realignment of tracks along curvature to increase allowable speed
10.12	Track: Special (switches, turnouts)									\$0	
10.13	Track: Vibration and noise dampening									\$0	
20.00	STATIONS, STOPS, TERMINALS, INTERMODAL (number)			0	3	1	\$0	\$15,965,000	\$12,360,000	\$28,325,000	
20.01	At-grade station, stop, shelter, mall, terminal, platform	ea	\$12,360,000	0	1	1	\$0	\$12,360,000	\$12,360,000	\$24,720,000	Palmer and Chester Stations
20.01a	At-grade station improvements to an existing station	ea	\$1,545,000	0	1	0	\$0	\$1,545,000	\$0	\$1,545,000	Upgrade to Worcester
20.02	Aerial station, stop, shelter, mall, terminal, platform	ea	\$0	0	0	0	\$0	\$0	\$0	\$0	
20.02a	Aerial station improvements to an existing station	ea	\$2,060,000	0	1	0	\$0	\$2,060,000	\$0	\$2,060,000	Upgrade to Springfield
20.03	Underground station, stop, shelter, mall, terminal, platform									\$0	
20.04	Other stations, landings, terminals: Intermodal, ferry, trolley, etc.	ea	\$0	0	0	0	\$0	\$0	\$0	\$0	
20.05	Joint development									\$0	
20.06	Automobile parking multi-story structure									\$0	
20.07	Elevators, escalators									\$0	
30.00	SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS			0.1	52.8	15.5	\$5,150,000	\$13,390,000	\$13,390,000	\$31,930,000	
30.01	Administration Building: Office, sales, storage, revenue counting									\$0	
30.02	Light Maintenance Facility									\$0	
30.03	Heavy Maintenance Facility									\$0	
30.04	Storage or Maintenance of Way Building	ea	\$13,390,000	0	1	1	\$0	\$13,390,000	\$13,390,000	\$26,780,000	Proposed Layover Facility - Springfield and Pittsfield
30.05	Yard and Yard Track	Track	\$2,575,000	2	0	0	\$5,150,000	\$0	\$0	\$5,150,000	Proposed Layover Facility Mod - Boston - Assume 2 tracks on an existing yard
40.00	SITWORK & SPECIAL CONDITIONS			0.1	52.8	15.5	\$0	\$773,339,326	\$116,095,859	\$889,435,186	
40.01	Demolition, Clearing, Earthwork	cy	\$49		3,927,373			\$194,169,339		\$194,169,339	
40.02	Site Utilities, Utility Relocation	mi		0.0	52.4	15.5				\$0	Assume \$1500/ft (Urban) and \$400/ft (Rural)
40.02a	Utility Relocation: Existing RR ROW, Rural	mi	\$2,175,360	0.0	22.1	9.0	\$0	\$48,109,240	\$19,553,520	\$67,662,760	
40.02b	Utility Relocation: Existing RR ROW, Urban	mi	\$8,157,600	0.0	30.3	6.5	\$0	\$247,008,420	\$53,132,550	\$300,140,970	
40.03	Haz. mat'l, contam'd soil removal/mitigation, ground water treatments									\$0	
40.04	Environmental mitigation, e.g. wetlands, historic/archeologic, parks	sf	\$14		385,381	814	\$0	\$5,450,017	\$11,512	\$5,461,529	Wetlands only. Does not include impacts to open water, Article 97 Lands, flood hazard areas, NHESP habitat, or ACEC areas.
40.05	Site structures including retaining walls, sound walls	SF	\$33	0	696,615	204,625	\$0	\$22,960,430	\$8,852,078	\$31,812,508	\$33/SF cost for WOR to SPR only, \$43/SF used for SPR to PIT
40.06	Pedestrian / bike access and accommodation, landscaping									\$0	
40.07	Automobile, bus, van accessways including roads, parking lots	SF	\$2,879		88,800	12,000	\$0	\$255,641,880	\$34,546,200	\$290,188,080	Overhead roadway bridge, SF of superstructure to include substructure elements (Abutment, foundations, piers, and wing walls)
40.08	Temporary Facilities and other indirect costs during construction									\$0	
50.00	SYSTEMS			0.1	52.8	15.5	\$175,100	\$76,647,860	\$12,150,313	\$88,973,273	
50.01	Train control and signals	ea	\$1,236,000		23			\$28,428,000		\$28,428,000	# of CPs
50.02	Traffic signals and crossing protection	ea	\$247,200		27			\$6,674,400		\$6,674,400	# of at-grade crossings
50.03	Traction power supply: substations									\$0	
50.04	Traction power distribution: catenary and third rail									\$0	
50.05	Communications	mi	\$772,500	0.0	52.8	15.5	\$0	\$40,767,810	\$11,975,213	\$52,743,023	
50.06	Fare collection system and equipment	ea	\$87,550	2	3	2	\$175,100	\$262,650	\$175,100	\$612,850	1 for each rail station
50.07	Central Control	ea	\$515,000		1			\$515,000		\$515,000	Separate track, new Central Control needed
10-50.SUB	Construction Subtotal (10-50)			0.1	52.8	15.5	\$33,264,077	\$2,080,448,794	\$283,696,621	\$2,397,409,491	
10-50.CNT	Construction Contingency (10 - 50) 35%		35%				\$11,642,427	\$728,157,078	\$99,293,817	\$839,093,322	
10-50.TOT	Construction Total						\$44,906,503	\$2,808,605,872	\$382,990,438	\$3,236,502,813	
60.00	ROW, LAND, EXISTING IMPROVEMENTS			0.1	52.8	15.5	\$0	\$37,459,865	\$4,406,856	\$41,866,721	
60.01	Purchase or lease of real estate	sf	\$2.27	0	13,858,546	1,944,773	\$0	\$31,403,465	\$4,406,856	\$35,810,321	Regardless of ownership, square footage was calculated based on area that would be permanently impacted by improvements (i.e., assumes only partial acquisitions)
60.02	Relocation of existing households and businesses	ea	\$61,800	0	98	0	\$0	\$6,056,400	\$0	\$6,056,400	Count of primary buildings/structures that would be permanently impacted by improvements
70.00	VEHICLES (number)				33			\$155,736,000		\$155,736,000	
70.01	Light Rail									\$0	
70.02	Heavy Rail									\$0	
70.03	Commuter Rail (Bi-Level Coaches)		\$4,120,000		27			\$111,240,000		\$111,240,000	
70.04	Bus									\$0	
70.05	Other (Locomotives)		\$7,416,000		6			\$44,496,000		\$44,496,000	
70.06	Non-revenue vehicles									\$0	
70.07	Spare parts									\$0	
80.00	PROFESSIONAL SERVICES (applies to Cats. 10-50)		30%	0.1	52.8	15.5	\$13,471,951	\$842,581,762	\$114,897,131	\$970,950,844	
80.01	Project Development									\$0	
80.02	Engineering									\$0	
80.03	Project Management for Design and Construction									\$0	
80.04	Construction Administration & Management									\$0	
80.05	Professional Liability and other Non-Construction Insurance									\$0	
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.									\$0	
80.07	Surveys, Testing, Investigation, Inspection									\$0	
80.08	Start up									\$0	
10-80.SUB	Subtotal (10 - 80)			0.0	0.0	0.0	\$58,378,454	\$3,844,383,499	\$502,294,425	\$4,405,056,378	
90.00	UNALLOCATED CONTINGENCY		5%				\$2,918,923	\$192,219,175	\$25,114,721	\$220,252,819	
10-90.SUB	Subtotal (10 - 90)			0.0	0.0	0.0	\$61,297,377	\$4,036,602,673	\$527,409,146	\$4,625,309,197	
100.00	FINANCE CHARGES									\$0	
10-100.TOT	Total Project Cost (10 - 100)			0.0	0.0	0.0	\$61,297,377	\$4,036,602,673	\$527,409,146	\$4,625,309,197	