



Vermont Agency of Transportation

# Report on Shared-Use Path and Sidewalk Costs

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Produced by the VTrans Bicycle and Pedestrian Program

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## **A. Introduction**

This report is primarily intended to provide cost estimate information for items commonly included on sidewalk and shared use path projects. This is the fourth edition of a report first published in 2006. The previous report focused on updating cost estimates to be more reflective of typical bid item quantities and total project costs experienced on sidewalk and shared use path projects. This report includes additional detailed information on project engineering costs, as well as construction engineering costs.

## **B. Methodology**

Data for this report was obtained from the bid analyses and plans of sidewalk and path projects completed between January 2014 and February 2019. Using the low bid unit pricing for actual projects, a table was developed to track low bid project costs. The overall pay item average price was then determined along with a usage indicator from the 51 projects selected.

Of the 51 selected projects, 39 had verifiable costs for local administration, preliminary engineering and construction engineering. These 39 projects were analyzed to determine per foot costs shown in section “D” of this report. Engineering costs were taken from VTRANS’s project databases and reflect actual costs incurred by towns. These average costs projections include design and administration costs for the Preliminary Engineering Category (PE), and include inspection and administration costs in the Construction Engineering Category (CE.)

## **C. Intended use of this data**

The Vermont Agency of Transportation (VTrans) staff, Regional Planning Commissions (RPCs,) and municipalities often need to estimate the relative cost of proposed bicycle and/or pedestrian infrastructure. At the local level, a community may be considering making improvements with a given amount of money and need to determine how much they will be able to accomplish. RPCs sometimes perform or hire consultants to perform feasibility/scoping studies for projects in member towns and need to determine if cost estimates are reasonable. VTrans or other state Agency staff review applications for bicycle or pedestrian improvement projects and must judge whether proposed construction costs are reasonable. VTrans staff may also need preliminary costs when considering the inclusion of bicycle or pedestrian facilities as part of a roadway, bridge, or other transportation project.

**The information in this report should be used for planning or verification purposes only and is not intended to substitute for “good engineering judgment” and detailed project cost estimates.** When referencing the data from this report, please cite the source as the 2020 VTrans Bicycle and Pedestrian Program Unit Cost Report. It is also worth noting that over time, construction costs trend upward. If an estimate is being developed for a project that won’t be constructed for several years, an inflation factor should be used.

Appendix A provides an average pay item cost for locally managed projects developed through the VTrans Municipal Assistance Bureau (MAB). Data were compiled from 51 projects that went to bid between January 2014 and February 2019. Special Provision items near the end of the appendix are those items that were unique to a project or that made a modification to how the standard pay item is defined in the VTrans Standard

Specifications for Construction. **This is the most accurate list of unit pricing available for locally managed bicycle and pedestrian projects at the time of this report.**

The VTrans Five Year Averaged Price List can be found at the link below. This list provides a 5-year average cost for pay items used on VTrans administered projects. Most of the projects that generated this list are paving, roadway re-construction and bridge projects much larger than the typical locally managed sidewalk or shared-use path project. The VTrans 5-year average price list may be useful for items not included in the VTrans MAB pay item cost link from above.

<https://vtrans.vermont.gov/sites/aot/files/estimating/documents/5YearEnglishAveragedPriceList11.pdf>

**D. Average Project Costs**

The overall average per foot project costs for different types of locally managed, federally funded projects were also examined during this report production. This data may be useful when trying to determine funding needs for a project prior to conceptual level plans. The data is based on the actual low bid construction costs and the overall project length of 39 locally managed, Federally funded projects. Local project management and Preliminary Engineering (PE) costs were included in the PE costs shown below. Administration by the Municipality & Construction Engineering (CE) costs were included in the CE costs shown below. Overall project costs were adjusted to remove unique project costs such as structures (bridges, retaining walls, tunnels), and other site-specific conditions that were found in the project low bids that resulted in increased construction expense to a magnitude that is not normal for the project type.

<b>39 Total Projects Evaluated</b>	
<b>\$392,504.57</b>	<b>Average Project Low Bid Amount (Construction Cost)</b>
<b>\$238.55</b>	<b>Average Project Construction Cost per Ft. (No Admin. or Engineering Costs)</b>
<b>\$325.38</b>	<b>Average Total Project Cost per Ft. (includes Construction, Admin, Engineering and Inspection Costs)</b>
<b>21.9%</b>	<b>Average Preliminary Engineering (PE) and Administration Costs as a percentage of the Total Construction Costs</b>
<b>14.3%</b>	<b>Average Construction Engineering (CE) Costs as a percentage of the Total Construction Costs</b>

**E. Calculated Unit Construction Costs**

Using average pay item pricing, unit costs for different configurations of shared-use paths and sidewalks have been calculated. These projections include typical material quantities for standard configurations of sidewalk or shared use path. Other items such as fencing, drainage, lighting, landscaping, mobilization, signs, and other routinely incidental items are calculated using a ratio of incidental construction costs to total cost. These estimates do not account for extreme topographic conditions, structures (bridges, retaining walls, tunnels), and other site-specific conditions that would result in increased construction expense.

The following assumptions for typical sections were used to develop the various sidewalk and shared-use path unit costs:

- All sidewalks – 12” of sub-base material
- Concrete sidewalks – 5” thick concrete
- Bituminous sidewalks – 2” thick lift
- Aggregate sidewalks – 3” compacted material

- All shared-use paths – 6” of sand or earth and 12” of gravel sub-base material
- Bituminous paths – 2” thick lift
- Aggregate paths – 4” compacted material

An additional resource to use for early planning of projects are the VTRANS Standard Drawings. A full listing of these drawings can be found on the Agency web site at <https://vtrans.vermont.gov/cadd/downloads/standard-drawings>

The tables of unit costs represent construction costs only and do not include other costs associated with developing a shared-use path or sidewalk project such as engineering, administration, right of way or construction inspection. For guidance on other project costs, see Section D. – Average Project Costs.

**1. Sidewalk Costs**

Sidewalk and curb can be constructed with differing configurations, and the costs vary. Deciding on the different types of curbing, primarily granite compared to concrete, is often a decision that communities struggle with. Although granite curbing has a higher initial cost than concrete, the life cycle cost should be considered. Granite curbing has superior durability and aesthetic qualities and is the preferred curbing treatment in Vermont. Additionally, when a sidewalk needs eventual complete replacement, it is often possible to pull out and re-use granite curbing. Table 1 shows the current unit costs of different sidewalk and curb combinations.

**Table 1 – 5 ft. Wide Sidewalk Unit Costs**

<b>Curb/Walk Configuration</b>	<b>Basic Cost/Foot</b>	<b>Total Cost/Foot</b>
Concrete Walk w/No Curb	<b>\$63</b>	<b>\$184</b>
Concrete Walk w/Granite Curb	<b>\$109</b>	<b>\$317</b>
Concrete Walk w/Concrete Curb	<b>\$95</b>	<b>\$277</b>
Bituminous Walk w/No Curb	<b>\$33</b>	<b>\$94</b>
Bituminous Walk w/Granite Curb	<b>\$78</b>	<b>\$227</b>
Bituminous Walk w/Concrete Curb	<b>\$64</b>	<b>\$187</b>
Aggregate Walk w/No Curb	<b>\$28</b>	<b>\$68</b>
Aggregate Walk w/Granite Curb	<b>\$74</b>	<b>\$214</b>
Aggregate Walk w/Concrete Curb	<b>\$60</b>	<b>\$175</b>

“Basic” costs of sidewalk construction consist solely of the items that are required to build the sidewalk itself, such as gravel sub-base, concrete, and granite curbing, as well as the excavation of the area in which the sidewalk is built. The “total” cost reflects the combined cost of sidewalk construction with other costs that are incidental to the construction. For example, pavement markings, new signs, traffic control, contractor mobilization, drainage, and landscaping are included in the total costs.

**2. Shared Use Path Costs**

Fewer shared use paths than sidewalks were constructed in the five-year period of bid items that were analyzed. Some of the unit costs from sidewalks were used to develop the per foot path costs. Table 2 shows the current costs of various shared-use path configurations.

**Table 2 – Shared Use Path Unit Costs**

Shared Use Path Configuration	Basic Cost/Foot	Total Cost/Foot
8 Ft. Wide Bituminous Concrete Path	\$71	\$297
10 Ft. Wide Bituminous Concrete Path	\$82	\$342
12 Ft. Wide Bituminous Concrete Path	\$92	\$384
8 Ft. Wide Aggregate Surface Path	\$64	\$267
10 Ft. Wide Aggregate Surface Path	\$72	\$301
12 Ft. Wide Aggregate Surface Path	\$80	\$334

As with sidewalks, the “Basic” costs of path construction consist solely of the items that are required to build the path itself, such as excavation, gravel sub-base, and bituminous concrete pavement. The “total” cost reflects the combined cost of path construction with other costs that are incidental to the construction. For example, pavement markings, new signs, traffic control, drainage, and landscaping are included in the total costs. Incidental costs for shared use paths are a much higher percentage of the total. Paths often have more significant quantities of items like fencing, drainage structures and higher mobilization costs for contractors due to more remote locations.

**3. On-Road Bicycle Lanes**

There are two main ways that bicycle lanes are provided. One is where it is a matter of simple pavement markings and the other is where additional paved width is needed. Where adequate existing paved width exists, the primary cost of converting an existing paved shoulder to a bike lane is the addition of bike lane symbols and some new signs. Bike lanes also include the 4” white line separating them from adjacent travel lanes. It is debatable whether that white line should be included in the cost of providing bike lanes since it would normally be provided anyway. Both versions of the costs have been provided. The two possible permutations reflect waterborne paint and durable markings (epoxy, laid in tape, polyurea and others).

**Table 3 – Typical Bike Lane Costs (no widening needed)**

Pavement Marking Material	Cost per Mile without 4" White line	Cost per Mile with 4" White line
<b>Waterborne Paint</b>	\$4200	\$14,600
<b>Durable Markings</b>	\$10,200	\$34,400

It is difficult to accurately estimate the cost of widening an existing road to provide wider paved shoulders. There are many variables that may come into play. Are there steep ditches that will need to be moved? Is there curbing that will need to be removed and reset? Are there utility poles or sub-surface drainage that will be impacted? The calculated widening cost was based on widening a road with 2' shoulders and 11' lanes (2-11-11-2 configuration,) to a widened 5' shoulder and 11' lanes (5-11-11-5 configuration.) Estimated depths of sub-base and paving materials were taken from a recent roadway reconstruction project.

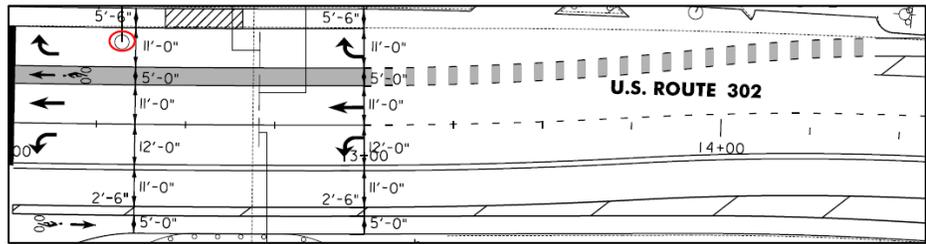
For planning purposes, the **cost to widen by 6 feet (3 feet either side) ranges from \$420,000 - \$510,000 per mile.**

One reason that the cost of bike lanes is so variable is that if road widening is necessary, the conditions encountered e.g. ledge, re-ditching or the need for additional Right of Way, will be different in every situation. As was mentioned before, the most cost-effective way to add a bike lane is to include it as an element of a new road construction, road resurfacing or reconstruction project.

For example, the city of South Burlington included bike lanes as part of major road reconstruction projects on Shelburne Road and on Kennedy Drive. These projects involved adding extra lanes to the existing road, necessitating significant expenditures for right of way, excavation, repaving, and moving utilities. In this case, the cost of adding eight extra feet of excavation, paving, and striping was relatively low compared to the overall cost of the projects.

#### **4. Green Pavement Markings for bike lanes**

There is a relatively new option available for enhancing the visibility of bike lanes. Where there are clear potential conflict areas, such as when a right turn only lane is provided, bike lanes can be highlighted through the use of a green pavement marking. A typical right turn lane treatment, with the advanced dotted green lines and an area of solid green on the approach to the intersection, would result in 80 square yards of green pavement marking. Although not widely used in locally managed projects that were used to develop the cost data, **green pavement markings** have been used on several VTrans projects. Based on an analysis of bid amounts on those projects, **an average bid price of \$75 per square yard for durable markings should be used. Therefore, a typical right turn only lane marked with green would cost \$6000.**



*Green Pavement Markings in bike lanes on US302 in Berlin, VT*

## 5. Rectangular Rapid Flashing Beacons

A relatively new traffic control device used to enhance the visibility of uncontrolled (mostly mid-block) marked crosswalks is known as a Rectangular Rapid Flashing Beacon (RRFB). RRFBs consist of a pair of pushbutton activated beacons that supplement the normal signs at a marked crosswalk. The standards for RRFB installation also call for the normal pedestrian crossing sign to be placed back to back on both sides of the crossing. RRFBs require power either through a hard-wired connection or a solar assembly. In most cases, RRFBs are purchased and installed as a full system. The cost per crosswalk (inclusive of materials, equipment, and labor) is \$10,000.



*RRFB installation*

## 6. Structure Costs

The cost of pedestrian or shared-use path bridges can vary widely depending on which design choices are made. A common material for pedestrian or path bridges has been weathering steel and treated wood decking. There have been some performance issues with weathering steel and its use has fallen somewhat out of favor. The most common alternative to weathering steel is galvanized steel, which is more expensive but is more resistant to corrosion and has a longer service life. Alternatives to treated wood decking include wood-plastic composite (WPC) decking. WPC is generally more expensive, longer lasting, and stronger than treated wood, but its specific design parameters vary greatly, depending on its manufacturer.

**Table 4 – Bid Costs of Path Bridges**

<b>Town</b>	<b>Length</b>	<b>Width</b>	<b>Cost per square foot</b>
Williston	150	10	\$123.33
Hinesburg	35	8	\$145.49
LVRT Bridge #5	147	12	\$150.63

For planning purposes, it is recommended to use \$150/Square Foot for prefabricated pedestrian or shared-use path bridges. Increasing the width or length of a pre-fabricated bridge can cause the price to increase dramatically: for example, a 14-foot wide bridge would need to be split into two pieces for shipping, which could add up to 30% to the cost due to increased transportation costs.

Other structures that could significantly increase the cost of a project are retaining walls or underpasses. The variability of costs given different site conditions makes it impossible to provide estimates for the costs of such structures.

# **Appendix A**

**Average Pay Item Cost for**

**Locally Managed Sidewalk and Shared-use Path Projects**

**Constructed Between January 2014 and February 2019**

Pay Item Number	Unit	Pay Item Description	AVERAGE UNIT COST By Pay Item - All Projects (when used)	frequency of use in 51 projects
201.10	LS	Clearing & Grubbing, Including Individual Trees and Stumps	\$7,713.61	42
201.15	EA	Removing Medium Trees	\$1,383.33	6
201.31	EA	Thinning and Trimming for Signs	\$586.25	2
203.15	CY	Common Excavation	\$21.78	47
203.16	CY	Solid Rock Excavation	\$114.24	26
203.20	CY	Muck Excavation	\$50.00	1
203.25	CY	Channel Excavation of Earth	\$16.33	3
203.28	CY	Excavation of surfaces and pavements	\$48.82	25
203.30	CY	Earth Borrow	\$27.63	28
203.31	CY	Sand Borrow	\$23.83	3
203.32	CY	Granular Borrow	\$33.62	5
204.20	CY	Trench Excavation of Earth	\$23.99	26
204.21	CY	Trench Excavation of Rock	\$228.36	11
204.22	CY	Trench Excavation of Earth, Exploratory	\$75.74	23
204.25	CY	Structure Excavation	\$22.77	9
204.30	CY	Granular Backfill for Structures	\$36.66	17
205.20	SY	Drilling and Blasting of Solid Rock Subgrade	\$35.50	2
210.10	SY	Cold-Planing, Bituminous Pavement	\$18.04	17
301.15	CY	Subbase of Gravel	\$37.22	6
301.25	CY	Subbase of crushed gravel (coarse graded)	\$63.07	7
301.26	CY	Subbase of crushed gravel (Fine Graded)	\$42.30	28
301.35	CY	Subbase of Dense Graded Crushed Stone	\$37.17	16
310.20	SY	Reclaimed Stabilized Base	\$6.61	3
401.10	CY	Aggregate Surface Course	\$46.50	7
402.03	TON	Aggregate Shoulders, RAP	\$192.28	2
404.65	CWT	Emulsified Asphalt	\$107.18	18
406.25	TON	Bituminous concrete pavement	\$151.65	24
406.50	LU	Price Adjustment, Asphalt Cement (N.A.B.I)	\$1.38	8
490.30	Ton	Superpave Bituminous Concrete Pavement	\$107.50	2
501.34	CY	Concrete, High Performance Class B	\$751.00	1
505.36	SF	Temporary Steel Sheet Piling	\$17.00	1
507.11	LB	Reinforcing Steel, Level I	\$3.48	6
507.16	LF	Drilling and Grouting Dowels	\$68.25	1
514.10	GAL	Water Repellent, Silane	\$46.22	9
529.20	EA	Partial Removal of Structure	\$133,500.00	1
541.25	CY	Concrete, Class B	\$632.17	6
541.45	CY	Controlled Density Flowable Fill	\$500.00	1
545.20	LS	Prefabricated Multi Modal Bridge	\$185,000.00	1

Pay Item Number	Unit	Pay Item Description	AVERAGE UNIT COST By Pay Item - All Projects (when used)	frequency of use in 51 projects
601.09	LF	12" SDR 35	\$47.33	5
601.0910	LF	15" CPEP	\$42.46	10
601.0915	LF	18" CPEP	\$47.98	8
601.0920	LF	24" CPEP	\$41.40	3
601.2605	LF	12" CPEP(SL)	\$75.00	2
601.2610	LF	15" CPEPISL	\$45.17	6
601.2615	LF	18" CPEP(SL)	\$59.14	7
601.7000	EA	18" CPEPES	\$397.00	7
601.7010	EA	15" CPEPES	\$401.43	7
601.7020	EA	24" CPEPES	\$546.25	4
602.30	CY	Repointing Masonry	\$76.50	1
604.18	EA	Precast Reinforced Concrete Drop Inlet with Cast Iron Cover	\$2,680.56	8
604.20	EA	Precast Concrete Reinforced Catch Basin with Cast Iron Grate	\$3,339.52	20
604.21	EA	Precast Reinforced Concrete Manhole with Cast Iron Cover	\$3,321.13	8
604.40	EA	Changing Elevations of Drop Inlets, Catch Basins, Manholes	\$815.77	13
604.41	EA	Rehab. Drop Inlets, Catch Basins, or Manholes, Class 1	\$1,227.07	14
604.42	EA	Changing Elevations of Sewer Manholes	\$937.50	8
604.48	EA	Cast Iron Grate with Frame, Type E	\$818.33	3
604.55	EA	Cast Iron Cover with Frame	\$585.10	5
605.10	LF	6 Inch Underdrain Pipe	\$21.08	6
605.11	LF	8" Underdrain Pipe	\$20.25	2
605.21	LF	6" Underdrain Carrier Pipe	\$83.33	3
605.21	LF	8" Underdrain Carrier Pipe	\$21.00	2
605.95	EA	Underdrain Flushing Basins	\$475.83	6
608.10	HR	Bulldozer Rental, Type I	\$45.50	2
608.15	HR	Power Grader Rental	\$110.00	4
608.26	HR	All Purpose Excavator Rental, Type II	\$71.40	5
608.30	HR	Power Broom Rental, Type I	\$56.67	12
608.31	HR	Power Broom Rental, Type II	\$82.25	4
608.37	HR	Truck Rental	\$50.60	5
608.40	HR	Loader Rental, Type I	\$100.00	1
609.10	MGAL	Dust Control with Water	\$245.82	22
609.15	TON	Dust Control with Calcium Chloride	\$1,296.25	4
613.10	CY	Stone Fill, Type I	\$62.22	10
613.11	CY	Stone Fill, Type II	\$51.34	8
613.12	CY	Stone Fill, Type III	\$75.45	1
613.16	CY	Riprap, Light Type	\$135.00	1
616.20	LF	Granite Slope Edging	\$52.50	2
616.21	LF	Vertical Granite Curb	\$45.36	19

<b>Pay Item Number</b>	<b>Unit</b>	<b>Pay Item Description</b>	<b>AVERAGE UNIT COST By Pay Item - All Projects (when used)</b>	<b>frequency of use in 51 projects</b>
616.27	LF	Cast In Place Concrete Curb, Type A	\$50.00	1
616.28	LF	Cast In Place Concrete Curb, Type B	\$31.85	18
616.40	LF	Removing and Resetting Curb	\$19.72	4
616.41	LF	Removal of Existing Curb	\$7.75	16
616.47	TON	Bituminous Concrete Gutters and Traffic Islands	\$264.50	2
617.10	EA	Relocate Mailbox, Single Support	\$124.64	18
617.12	EA	Relocate Mailbox, Multiple Support	\$168.75	2
618.10	SY	Portland Cement Concrete sidewalk, 5"	\$67.25	38
618.11	SY	Portland Cement Concrete sidewalk, 8"	\$81.96	24
618.15	TON	Bituminous Concrete Sidewalk	\$114.57	7
618.30	SF	Detectable Warning Surface	\$41.58	44
619.14	EA	Bollards	\$250.00	2
619.17	EA	Yielding Marker Posts	\$77.50	2
619.20	EA	Removing and Resetting Property Markers	\$546.43	7
620.11	LF	Chain-Link Fence, 4 Feet	\$33.00	3
620.12	LF	Chain-Link Fence, 6 Feet	\$169.00	2
620.50	LF	Removing and Resetting Existing Fence	\$15.94	7
620.55	LF	Removal of Existing Fence	\$12.60	9
621.20	LF	Steel Beam Guardrail, Galvanized	\$33.79	4
621.51	EA	Manufactured Terminal Section, Tangent	\$2,585.00	1
621.60	EA	Anchor for Steel Beam Rail	\$1,034.13	2
621.70	EA	Guardrail Approach Section, Galvanized Type I	\$3,350.00	1
621.75	LF	Remove and Reset Guardrail	\$20.00	2
621.80	LF	Removal and Disposal of Guardrail	\$6.91	4
621.90	LF	Temporary Traffic Barrier	\$50.00	1
621.95	LF	Remove and Reset Temporary Traffic Barrier	\$18.00	1
622.10	MFBM	Insulation Board	\$1,012.75	4
625.10	LF	Sleeves for Utilities	\$20.00	1
628.35	LF	PVC Sewer Pipe	\$53.13	3
629.20	EA	Adjust Elevation of Valve Box	\$190.61	23
629.28	EA	Hydrant	\$4,130.00	1
629.29	EA	Relocate Hydrant	\$1,670.75	8
629.54	TON	Crushed Stone Bedding	\$43.38	4
630.10	HR	Uniformed Traffic Officers	\$60.04	26
630.15	HR	Flaggers	\$32.56	50
635.11	LS	Mobilization/Demobilization	\$37,020.68	51
641.10	LS	Traffic Control	\$12,146.91	49
641.15	EA	Portable Changeable Message Sign	\$2,069.75	4
641.16	EA	Portable Arrow Board	\$2,000.00	1

Pay Item Number	Unit	Pay Item Description	AVERAGE UNIT COST By Pay Item - All Projects (when used)	frequency of use in 51 projects
646.201	LF	4" White Line, Waterborne Paint	\$1.02	12
646.211	LF	4" Yellow Line, Waterborne Paint	\$0.65	10
646.214	LF	6" White Line, LOW VOC Chlorinated Rubber Paint	\$3.75	4
646.261	LF	24-Inch Stop Bar - Waterborne Paint	\$7.45	14
646.301	EA	Letter or Symbol, Waterborne Paint	\$59.31	8
646.232	EA	8" Yellow Line, Low VOC Chlorinated Rubber Paint	\$0.60	1
646.31	LF	Crosswalk Marking	\$10.58	12
646.40	LF	Durable 4" White Line	\$2.37	14
646.41	LF	Durable 4" Yellow Line	\$3.75	10
646.42	LF	Durable 6" White Line	\$3.25	2
646.45	LF	Durable 8" Yellow Line	\$5.33	3
646.48	LF	Durable 24" Stop Bar	\$14.35	13
646.49	EA	Durable Letter or Symbol	\$274.44	9
646.50	LF	Durable Crosswalk, Polyurea	\$25.88	27
646.602	LF	TEMPORARY 4" White Line, Paint	\$0.31	4
646.612	LF	TEMPORARY 4" Yellow Line, Paint	\$0.55	5
646.692	EA	TEMPORARY Letter or Symbol, Paint	\$70.00	3
646.702	LF	TEMPORARY Crosswalk Marking, Paint	\$5.13	4
646.760	EA	Line Striping Targets	\$2.00	2
646.81	LF	Painted Curb	\$4.00	1
646.85	SF	Removal of Pavement Markings	\$161.18	13
649.11	SY	Geotextile for Road-Bed Separator	\$1.68	9
649.31	SY	Geotextile under Stone Fill	\$4.07	14
649.41	SY	Geotextile for Underdrain Trench Lining	\$7.50	5
649.51	SY	Geotextile for Silt Fence	\$6.05	21
649.515	SY	Geotextile for Silt Fence, Woven Wire Reinforced	\$9.07	9
649.610	SY	Geotextile for Filter Curtain	\$37.65	1
651.15	LB	Seed	\$14.07	42
651.18	LB	Fertilizer	\$8.49	32
651.20	TON	Agricultural Limestone	\$705.81	29
651.25	TON	Hay Mulch	\$918.96	40
651.28	GAL	Hydraulic Mulch	\$4.00	1
651.35	CY	Topsoil	\$50.47	41
651.40	SY	Grubbing Material	\$35.25	2
652.10	LS	EPSC Plan	\$2,750.00	4
652.20	HR	Monitoring of EPSC Plan	\$67.70	5
652.30	LU	Maintenance of EPSC Plan	\$7,710.00	5
653.20	SY	Temporary Erosion Matting	\$3.49	20
653.35	CY	Stabilized Construction Entrance	\$37.47	13

Pay Item Number	Unit	Pay Item Description	AVERAGE UNIT COST By Pay Item - All Projects (when used)	frequency of use in 51 projects
653.40	EA	Inlet Protection Device, Type I	\$163.71	17
653.41	EA	Inlet Protection Device, Type II	\$135.87	18
653.50	LF	Barrier Fence	\$1.48	3
653.55	LF	Project Demarcation Fence	\$1.52	35
653.60	LF	Erosion Log	\$16.50	2
656.15	EA	Evergreen Seedlings	\$75.00	2
656.20	EA	Evergreen Trees	\$221.25	5
656.30	EA	Deciduous Trees	\$971.50	12
656.35	EA	Deciduous Shrubs	\$243.67	3
656.50	EA	Transporting Shrubs	\$437.31	6
656.65	MGAL	Landscape Watering	\$240.33	6
656.80	CY	Landscape Backfill, Truck Measurement	\$60.00	5
656.85	LS	Tree Protection	\$751.51	26
675.20	SF	Traffic Signs Type A	\$23.61	38
675.30	LF	Flanged Channel Sign Post	\$9.83	3
675.341	LF	Square Tube Sign Post and Anchor	\$13.61	37
675.50	EA	Removing Signs	\$32.65	43
675.60	EA	Erecting Salvaged Signs	\$69.66	33
675.61	EA	Setting Salvaged Posts	\$81.51	10
678.15	EA	Traffic Control Signal System, Intersection (Supplemental St. Name)	\$149,000.00	1
678.21	LF	Electrical Conduit (Supplemental Size)	\$8.00	2
678.23	LF	Wired Conduit (1.5")	\$13.15	4
678.23	LF	Wired Conduit (2")	\$55.42	10
678.23	LF	Wired Conduit (2.5")	\$13.00	2
678.24	LF	Electrical Wiring	\$9.35	2
678.25	EA	Pull Box, Standard	\$401.08	3
678.26	EA	Junction Box	\$598.33	6
678.30	LF	Electrical Conduit Sleeve	\$47.67	3
678.40	EA	TEMPORARY Traffic Signal System (Supplemental St. Name)	\$22,250.00	2
678.45	EA	Removal of Existing Traffic Control Signal System (Supplemental St. Name)	\$13,500.00	1
679.25	EA	Remove and Reset Light Pole	\$1,014.00	5
900.62	LF	Special Provision (Concrete Trench Drain)	\$300.00	1
900.62	EA	Special Provision (Valve Box at Curb Stop) or (adjust elevation of water shut off)	\$553.33	3
900.62	EA	Special Provision (Electrical Meter and Power Panel)	\$3,950.00	2
900.62	EA	Special Provision (Street Lighting Control Device)	\$4,000.00	1
900.62	EA	Special Provision (Type S1 Luminaire and Pole Assembly, Base Bid)	\$5,500.00	2

Pay Item Number	Unit	Pay Item Description	AVERAGE UNIT COST By Pay Item - All Projects (when used)	frequency of use in 51 projects
900.62	LF	SPECIAL PROVISION (WHITE VINYL PICKET FENCE) or (Screening Fence)	\$82.50	2
900.62	LS	SPECIAL PROVISION (ALTERNATE CONCRETE CURING COMPOUND, Add. \$)	\$850.00	1
900.62	LS	SPECIAL PROVISION (RELOCATE ROCK GARDEN)	\$3,000.00	1
900.62	LS	SPECIAL PROVISION (STONE MASONRY WALL REPAIR)	\$26,000.00	1
900.62	SY	SPECIAL PROVISION (PORTLAND CEMENT CONCRETE SIDEWALK, 12 INCH)	\$140.00	1
900.62	EA	Special Provision (Ditch Inlet)	\$1,750.00	1
900.62	EA	SPECIAL PROVISION (TYPE S2 LUMINAIRE)	\$2,500.00	1
900.62	EA	SPECIAL PROVISION (MODIFIED LIGHT POLE FOUNDATION, TYPE A)	\$1,100.00	1
900.62	EA	SPECIAL PROVISION (MODIFIED LIGHT POLE FOUNDATION, TYPE B)	\$1,400.00	1
900.62	EA	Special Provision (Light Pole Base)	\$950.00	2
900.640	LF	Special Provision Metal Hand Railing	\$113.50	2
900.675	LS	Special Provision: Stone Retaining Wall	\$26,500.00	1
900.608	CY	Special Provision (CU STRUCTURAL SOIL)	\$61.67	3
900.608	CY	Special Provision (VACUUM EXCAVATION)	\$50.00	1
900.620	EA	Special Provision (RADAR SPEED FEEDBACK SIGN, SOLAR POWERED)	\$8,700.00	2
900.620	EA	Special Provision (RECTANGULAR RAPID FLASHING BEACON, SOLAR POWERED)	\$7,767.70	10
900.620	EA	Special Provision (TEMPORARY CURB)	\$200.00	1
900.620	EA	Special Provision (Inlet Protection Device, Filter Fiber)	\$24,744.83	3
900.645	LS	Special Provision (Precast Concrete Gravity Retaining Wall)	\$72,081.15	6
900.645	LS	Special Provision (Traffic Control, All-Inclusive) or (maintenance of ped traffic)	\$15,980.00	2
900.680	TON	Special Provision (Hand Placed Bituminous Concrete Material, Drives)	\$248.18	11
900.675	SY	Special Provision (Hand Placed Bituminous Concrete Material, Drives)	\$34.84	9
900.620	EA	Special Provision (Granite Bullnose Edging)	\$1,000.00	1
900.645	LS	Special Provision (Remove Existing Steps) or slope paving or walkway reconstruction	\$299.00	3
900.675	SY	Special Provision (Colored Stamped Concrete)	\$187.50	4
900.640	LF	Special Provision (Remove and Reset Existing Granite Curb)	\$37.67	3
900.640	LF	Special Provision (Granite Curb)	\$46.37	10
900.645	LS	Special Provision (Class A Restoration of Growth)	\$5,230.55	8
900.675	SY	Special Provision (Portland Cement Concrete Sidewalk, 5 inch)	\$71.96	9
900.675	SY	Special Provision (Portland Cement Concrete Sidewalk, 8 inch)	\$95.31	7
900.680	LF	Special Provision (24" Culvert All-Inclusive) or (18" CPEP SL) or (15" PE Pipe)	\$369.60	5

<b>Pay Item Number</b>	<b>Unit</b>	<b>Pay Item Description</b>	<b>AVERAGE UNIT COST By Pay Item - All Projects (when used)</b>	<b>frequency of use in 51 projects</b>
900.685	LS	Special Provision (Tree Protection)	\$4,550.00	2
900.685	HR	Special Provision (certified Arborist)	\$90.00	2
900.670	SF	Special Provision (Brick Pavers)	\$31.20	5
900.645	CY	Special Provision (1/8" minus filler stone)	\$64.00	1
900.655	EA	Special Provision (Remove Existing Contractor Plaque) or remove property marker	\$102.00	2
900.645	EA	Special Provision (Remove and reset ornamental sign)	\$250.00	1
900.620	EA	Special Provision (ornamental Street light)	\$6,735.00	2
900.620	EA	Special Provision (Stormwater Treatment System)	\$20,000.00	1
900.999	LS	Sum of all other project special provisions	\$141,176.07	20
900.674	EA	Special Provision (prefabricated truss bridge)	\$153,221.58	2
900.675	CY	Special Provision (Aggregate Surface Course - Trail)	\$31.87	5
900.640	LF	Special Provision (Choking Ballast)	\$2.87	3
900.680	TON	Special Provision (Bituminous Concrete Pavement, Small Quantity)	\$208.24	18