

# Contractor Constructability Review

Project: ODOT | K21178 US26 (Powell Blvd): SE 99<sup>th</sup> Ave – East City Limits

Subject: Assumed Production Rates

The following are assumed production rates used by the Design Team to estimate the K21178 US26 (Powell Blvd): SE 99<sup>th</sup> Ave – East City Limits construction schedule:

Activity	Unit	ODOT value (unit/Day)	Alternative value used (unit/Day)
A.C. Paving (Max.)	TONS	1,980	
A.C. Paving (Min.)	TONS	1,320	
Aggregate Base	CY	2,778	
Aggregate Shoulder	CY	2,778	
Barrier, Permanent	Lin. Ft.	1,000	
Barrier, Temporary	Lin. Ft.	3,001	
Bituminous Base (Max)	TONS	1,980	
Bituminous Base (Min)	TONS	792	
Bituminous Concrete Base Course Widening 9"	SF	1,098	
Bituminous Concrete Binder & Surface Course	TONS	524	
Bituminous Materials Pumped	GAL	500	
Cement Treated Base (Max)	CY	2,777	
Cement Treated Base (Min)	CY	1,667	
Chip Seal (Add 1 Day to Broom)	TONS	1,485	
Class 1 Deck Preparation	SF	4,304	

Activity	Unit	ODOT value (unit/Day)	Alternative value used (unit/Day)
Cleaning and Painting	Lbs	22,680	
Cold Plane Pavement Removal (Max)	SF	126,538	
Cold Plane Pavement Removal (Min)	SF	72,307	
Concrete Pavement, Continuously Reinforced	SF	2,195	
Curb & Gutter, Concrete	Lin. Ft.	298	
Curb, Concrete	Lin. Ft.	1,000	
Delineators	Each	500	
drywells, New	Each	2	½ (2 days per UIC incl testing)
Electric Cable	Lin. Ft.	2,499	
Embankment	CY	2,198	
Excavation (Highway Trucks)	CY	2,353	2 day minimum assumed per task line (phase)
Excavation (Scrapers)	CY	3,600	
Excavation, Channel	CY	650	
Excavation, Cofferdams	CY	74	
Excavation, Rock	CY	99	
Fence, Chain Link	Lin. Ft	200	
Fence, Woven Wire	Lin. Ft	492	
Foundation Excavation	CY	1,144	
Grading (Broken)	CY	601	
Grading (Max)	CY	1,961	
Grading (Small)	CY	784	

<b>Activity</b>	<b>Unit</b>	<b>ODOT value (unit/Day)</b>	<b>Alternative value used (unit/Day)</b>
Granular Backfill	CY	299	
Granular Embankment, Special	CY	1,120	
Gravel or Crushed Stone Base Course	CY	1,120	
Gravel or Crushed Stone Shoulders	CY	1,120	
Gravel or Crushed Stone Surface Course	CY	1,120	
Guard Rail	Lin. Ft.	1,000	
Gutter, Concrete	Lin. Ft.	499	
Handrail, Aluminum	Lin. Ft.	79	
Handrail, Erecting	Lin. Ft.	79	
Handrail, Metal	Lin. Ft.	79	
Holes Drilled, Concrete 4" dia	Each	150	
Illuminaire Poles (Manufacture & Test)	Days	120	
Inlets, Adjust	Each	5	
Inlets, New	Each	2	2 for CG type inlets and 4 for G (no curb inlet) type
Mail Boxes	Each	10	
Manholes, New	Each	2	
Median Surface	SF	3,002	
Membrane Waterproofing	SF	495	
Microsilica Overlay( 3" Deep)	SF	6,994	
Mix Design (AC)	Days	28	
Mix Design (CTB)	Days	21	

Activity	Unit	ODOT value (unit/Day)	Alternative value used (unit/Day)
Mix Design (PCC)	Days	35	
Patching, Cold 2"	SF	3,002	
Paved Ditch	Lin. Ft.	298	
Pavement Cutting (AC)	Lin. Ft.	2,001	
Pavement Cutting (PCC)	Lin. Ft.	754	
Pavement Marking Symbol, Thermoplastic	SF	43	
Pavement Marking, DuraStripe Non-Profile Inlaid	Lin. Ft.	2,640	
Pavement Marking, DuraStripe Non-Profile Overlay	Lin. Ft.	10,562	
Pavement Marking, Permanent Painted	Lin. Ft.	20,008	
Pavement Marking, Thermoplastic	Lin. Ft.	14,996	
Pavement Removal	SF	6,209	
Pavement Removal and Replacement	SF	75	
Pavers, Unit (Max.) See Means Data	SF	247	
PCC Base Course	SF	2,195	
PCC Base course Widening	SF	1,194	
PCC Driveway	SF	97	ODOT rate seems unrealistically low for a large urban project such as this. Include quantity in sidewalk duration calc.
PCC Pavement, Unreinf. 6" (Max)	SF	56,490	
PCC Pavement, Unreinf. 6" MM (Min)	SF	32,280	
PCC Reinf.	Lin. Ft.	1,476	

<b>Activity</b>	<b>Unit</b>	<b>ODOT value (unit/Day)</b>	<b>Alternative value used (unit/Day)</b>
PCC Stringline	Lin. Ft.	8,178	
Piles, Driving Concrete	Lin. Ft.	249	
Piles, Driving Steel	Lin. Ft.	351	
Piles, Driving Timber	Lin. Ft.	298	
Pipe Removal	Lin. Ft.	121	
Pipe under pavement	Lin. Ft.	148	
Pipe Underdrains	Lin. Ft.	499	
Qualify Pit	Days	25	
Rail Demolition (Std. Dwg. BR280)	Lin. Ft.	33	
Rail Retrofit - Drill holes & place steel	Lin. Ft.	16	
Rail, Type F - Pour Concrete	Lin. Ft.	295	
Rail, Type F, Tie Steel Cages	Lin. Ft.	98	
Recycling, Cold In Place	SF	317,420	
Recycling, Hot In Place	SF	166,780	
Reinforcement (Substructure)	Lbs	2,500	
Reinforcement (Superstructure)	Lbs	5,001	
Removal, Concrete	CY	20	
Removal, Concrete Curb & Gutter	Lin. Ft.	8	
Right of Way Markers, Erecting	Each	30	
Riprap	CY	63	
Riprap, Concrete	SF	172	

Activity	Unit	ODOT value (unit/Day)	Alternative value used (unit/Day)
Rock Production (1/2"-3/8")	CY	399	
Rock Production (3/4"-0)	CY	481	
Rock Production (3/8"-#10)	CY	399	
Rock Production (Max)	CY	3,472	
Rock Production (Min)	CY	2,083	
Shrubs	Each	300	
Sidewalks, Concrete	SF	1,076	Used 1500 based upon size of project and production rates for other agencies
Signal Conduit, Laying	Lin. Ft.	374	
Signal Construction (1 Signal)	Days	45	
Signal Construction (2 Signals)	Days	70	
Signal Construction (3 Signals)	Days	90	
Signal Construction (4 Signals)	Days	110	
Signal Construction (5 Signals)	Days	130	
Signal Poles (Manufacture & Testing)	Days	120	
Signs	SF	355	
Sodding	SF	904	
Stone Embankment	CY	1,503	
-Storm Sewer (1' - 2' dia)	Lin. Ft.	148	400 (Used very low end of WSDOT west side rate)
-Storm Sewer (2' + dia)	Lin. Ft.	98	

<b>Activity</b>	<b>Unit</b>	<b>ODOT value (unit/Day)</b>	<b>Alternative value used (unit/Day)</b>
-Storm Sewer in Rock (Max)	<b>Lin. Ft.</b>	<b>69</b>	<b>400 (Used very low end of WSDOT west side rate)</b>
-Storm Sewer in Rock (Min)	<b>Lin. Ft.</b>	<b>49</b>	
-Storm Sewers	<b>Lin. Ft.</b>	<b>200</b>	
Structural Concrete, Lightweight	<b>CY</b>	<b>10</b>	
Structure Steel, Erecting	<b>Lbs</b>	<b>25,005</b>	
Subgrade Stabilization (1'-8" Average Depth)	<b>SF</b>	<b>8,070</b>	
Top Soil	<b>CY</b>	<b>350</b>	
Traffic Signal Head Alterations	<b>Each</b>	<b>4</b>	
Traffic Signal Posts	<b>Each</b>	<b>4</b>	
Traffic Signal Posts, Relocate Existing	<b>Each</b>	<b>4</b>	
Trees, Evergreens	<b>Each</b>	<b>22</b>	
Trees, Seedling	<b>Each</b>	<b>2,000</b>	
Trees, Shade	<b>Each</b>	<b>17</b>	
-Trench and Backfill	<b>CY</b>	<b>157</b>	
-Trench and Backfill - low production	<b>CY</b>	<b>21</b>	
Wall, MSE (Max)	<b>SF</b>	<b>1,076</b>	
Wall, MSE (Min)	<b>SF</b>	<b>215</b>	
Walls, Bin (Add 1/2 Day for Backfill)	<b>Lin. Ft.</b>	<b>26</b>	
Walls, Sound - Block Masonry	<b>SF</b>	<b>1,614</b>	
Walls, Sound - Block Masonry Footing(Exc.,Form, Pour)	<b>Lin. Ft.</b>	<b>492</b>	

<b>Activity</b>	<b>Unit</b>	<b>ODOT value (unit/Day)</b>	<b>Alternative value used (unit/Day)</b>
Walls, Sound - Post & Panel (8' x 8' Max)	<b>Lin. Ft.</b>	<b>800</b>	
Walls, Sound - Post & Panel(8' x 8' Min)	<b>Lin. Ft.</b>	<b>492</b>	
Fire Hydrant	<b>Each</b>		<b>1</b>
Water Service line	<b>Each</b>		<b>3</b>
Relocate Water Meters & Connections (PWB)	<b>Each</b>		<b>2</b>
Water Main	<b>Lin. Ft.</b>		<b>175</b>
Water Line Testing, Disinfection, & Flushing (per 1000')	<b>Days</b>		<b>4</b>
Survey and Acceptance	<b>Days</b>		<b>3</b>